GEORGIA DEPARTMENT OF AGRICULTURE
2012 Specialty Crop Block Grant Program
FINAL Performance Report
12-25-B-1455
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Project Coordinator:
Jeanne Maxwell, Director of Grants Development & Compliance
Georgia Department of Agriculture
Jeanne.Maxwell@agr.georgia.gov
404-586-1113

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1. Georgia Christmas Tree Association – *Georgia Marketing Campaign* - Final Performance Report

Project Summary

With numerous potential customers in Georgia who are still unaware of the opportunity to cut their own Christmas tree, the GCTA created an intensive television marketing campaign to possibly reach two million plus viewers across the state.

It was important that this campaign reach as many viewers as possible between Thanksgiving and Christmas while the holiday season is at the forefront of everyone's mind.

This grant made possible a state-wide marketing campaign to boost the sales of Georgia-grown Christmas trees. The campaign involved the airing of a 30-second commercial, created by the GCTA, on state-wide television.

The entire project was completed in 2012 with the commercial being aired on Comcast (north Georgia - $26,000), Cox Media (middle Georgia - $6,000), and GPB TV (state-wide - $18,000).

Project Approach

The biggest challenge that Georgia Christmas tree farmers have faced over the last ten years is marketing and attracting new customers to their farms. GCTA wanted to familiarize as many Georgians as possible with choose-and-cut Christmas tree farms in their area. With so many new Georgia residents, we needed a uniform marketing tool to promote the trees. The television campaign allowed the GCTA to actually put a visual marketing tool directly into the homes of over 2.6 million Georgians at a given time. The commercial was viewed on CNN, Food Network, Fox News, HGTV, TLC, The Weather Channel, and USA in middle and north Georgia; and during the 2012 high school football playoffs and championship game state-wide.

Although the original plan was for a three-year program, it was later determined that the funds could be better spent by consolidating the run times into one year. Marketing research shows that repetitive advertising is a more effective tool. With the expense of attempting to reach the two million plus viewers, the GCTA chose to concentrate on a more limited time frame, which meant the total grant funding of $50,000 was used during year 1 of the grant.

The commercials were 30 seconds each in length.

Goals and Outcomes Achieved

The overall goal of the project was to increase the number of Christmas trees sold at choose-and-cut farms in Georgia. Our target was to increase tree sales by at least 10 percent over the 2011 season; the 2011 benchmark was 50,000 trees sold. Unfortunately, the increase from 2011 to 2012 was 8 percent, which equates to 54,000 trees sold. We were not able to reach

the 10 percent average statewide. We're not sure why we could not reach our target; it may have been because of the effects of the recession.

However, the number of phone calls to the GCTA has doubled over the past three years, to a total of approximately 750 during the 2012 season. Hits to the GCTA website have also increased three-fold to a total of 37,800 during the 2012 season. The average increase in sales over the last three years is approximately 12 percent, based upon the information reported on the GCTA website by its members. This 12 percent increase equates to approximately 6,000 additional trees sold across the state.

Beneficiaries and How They Benefited

Because of the increase in sales of Georgia grown Christmas trees, the 100 plus growers benefited from the increased awareness as a result of the project. It was important that we market our product on a large scale in order to inform the numerous new citizens to our state. Educating the public in Georgia about local grown Christmas trees was very important in order to provide the information necessary to attract additional business to the choose-and-cut Christmas tree farms. The increase in the sales of Christmas trees also helped the families in Georgia establish a Christmas tradition that will create memories for many years to come.

Lessons Learned

This was a simple approach to marketing Georgia-grown Christmas trees to a large audience across the state. The campaign made use of a television commercial created through the 2010 SCBG project and the campaign was completed within a short period of time.

Contact

Chuck Berry, Past-President
Georgia Christmas Tree Association
770-602-6003
berrystreefarm@gmail.com

2. Georgia Fruit & Vegetable Growers Association – *Increasing the Wholesale Market Share of Fresh Fruits and Vegetables for Georgia Growers* – Final Performance Report

1. Project Summary

The fruit and vegetable industry in Georgia is valued at more than $1 billion at the farm gate. This project was designed to increase the awareness of Georgia produce by direct communication with the retail chain buyers to get more produce on the grocery shelves, and with foodservice distribution companies to broaden purchases by institutional establishments and restaurants.

2. Project Approach

The Produce Marketing Association's 2012 FRESH SUMMIT was held in Anaheim, California on October 26-28, 2012. This is the world's largest and most valuable fresh fruit and vegetable event. FRESH SUMMIT has an attendance of over 18,000 from 50 countries annually. The 2012 Georgia pavilion had 2,800 sq. ft. of floor space and 11 exhibiting farms and organizations *(see below for diagram and photos)*.

The three-day show brought together produce industry leaders to see new products, strengthen relationships with current suppliers, and gather information for future purchasing decisions. It was coordinated by the Georgia Department of Agriculture (GDA) and the Georgia Fruit and Vegetable Growers Association of Georgia (GFVGA).

3. Goals and Outcomes Achieved

The 2012 event offered Georgia producers a tremendous opportunity to market products and identify new outlets for their produce, not only on the west coast but also with buyers from national retail grocery and food service organizations.

Companies exhibiting in Georgia's pavilion were asked to report new customer leads and increased sales. Based on the information reported, the companies that exhibited in the pavilion at PMA averaged 3.2 new leads/contacts per company. The estimated increase in sales generated from these new leads and increased current customer orders was $2.12 million. Since PMA was in a west coast location in 2012, the customer orders were less than 2011 when the show was in Atlanta ($4.4 million in 2011 in new sales vs. $2.12 million in 2012). However, the 2012 numbers well exceeded the performance measurement goal of three new leads per company and over $2 million in new sales.

4. Beneficiaries and How They Benefitted

The beneficiaries of this project were not only the Georgia specialty crop producers who exhibited at the 2012 PMA in California (who on average secured 3.2 new leads during the three-day show), but also those growers who did not display received marketing benefits as the GEORGIA GROWN logo was broadly promoted to the 18,000 attendees.

5. Lessons Learned

There were several lessons learned and positive outcomes achieved:

1. The marketing potential for east coast producers at a west coast show is still very strong as evidenced by the number of new leads and increased sales noted above.

2. GFVGA and GDA need to make a stronger push to encourage growers and other organizations to attend and exhibit in future PMA shows.

3. PMA Fresh Summit is an excellent marketing venue due to the number of attendees participating in the three-day event.

6. Contact Person

Charles Hall, Executive Director
Georgia Fruit and Vegetable Growers Association
P.O. Box 2945
LaGrange, GA 30241
chall@asginfo.net
706-845-8200

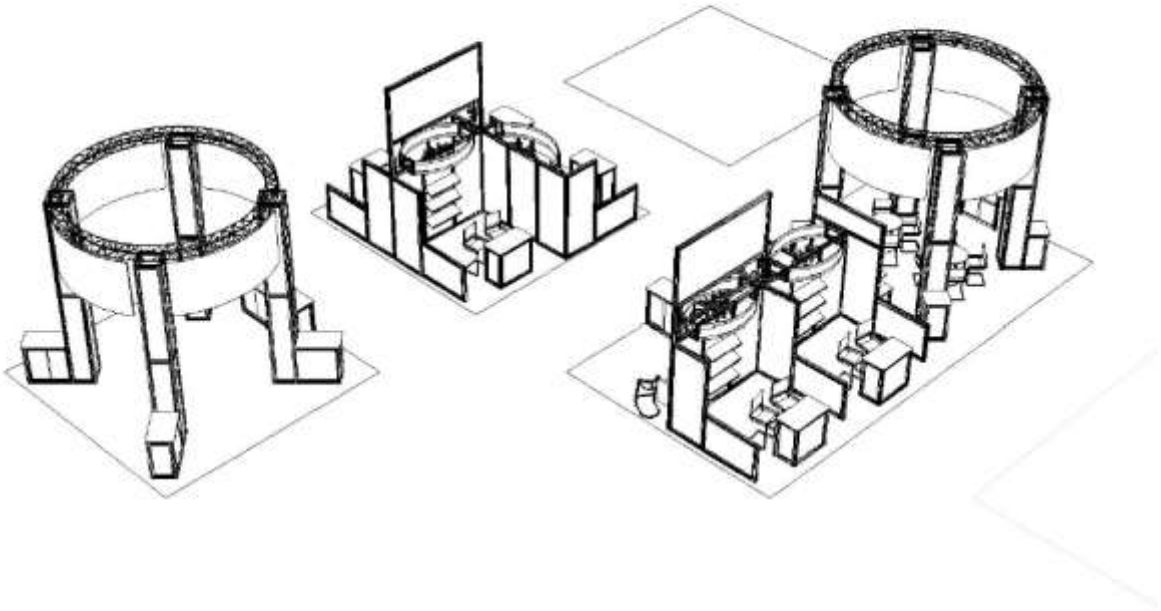
7. Additional Information

Please see the attachments below showing a diagram of Georgia's pavilion and photographs from the 2012 FRESH SUMMIT event.

NOTE: This grant project was completed and expended $60,500 of the $93,980 awarded to promote the Georgia fruit and vegetable industry. In May 2014, we requested a budget modification and scope change for the remaining $33,476.40, and were approved for a new project, ***Increasing Fruit and Vegetable Market Share for Georgia Growers through the Development of Marketing Materials***. This new project involves creating vignettes and photos detailing all aspects of Georgia's specialty crop industry. These photos and videos

will cover planting, harvesting and packing, and will be used by agriculture instructors in schools, produce exhibitors in trade shows, and as an educational resource for consumers, all to increase awareness and market share for Georgia grown fruits and vegetables.

Attachment A



GEORGIA DEPARTMENT OF AGRICULTURE
PMA FRESH SUMMIT 2012
SEPTEMBER 26, 2012

GA GROWN PAVILION – Anaheim, CA – 2012

GA GROWN PAVILION – Anaheim, CA – 2012

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GA GROWN PAVILION – Hendrix Produce – Metter, GA – PMA 2012

GA GROWN PAVILION – GA Pecan Growers Assoc. – PMA 2012

GA GROWN PAVILION – Networking with Buyers - PMA 2012

GA GROWN PAVILION – Anaheim, CA – 2012

3. Georgia Fruit & Vegetable Growers Association – Increasing Fruit and Vegetable Market Share for Georgia Growers through the Development of Marketing Materials – Final Performance Report

1. PROJECT SUMMARY

The Georgia Fruit and Vegetable Growers Association (GFVGA) exists to serve the produce industry. As a part of the mission statement, the GFVGA pledges to "develop marketing and promotional programs that increase public awareness of the health benefits of eating fruits and vegetables and to encourage consumption of more Georgia products."

The purpose of this project was to develop and produce short educational vignettes featuring specific specialty crops to help consumers and students understand the full growth and harvest process. It has been reported that posts on social media which include a photo or video receive nearly 65% more "likes or "hits." This is clear evidence that today's consumer is visual, and also that our culture's method of learning is largely centered on imagery and videos.

Research performed by the U.S. Farmers & Ranchers Alliance also shows that 60 percent of Americans would like to know more about how food is grown, harvested and brought to market. These videos and photo resources can help meet that need, as well as educate future consumers and students on the state's specialty crop produce market.

With the completion of this project, these videos have become invaluable educational tools allowing the GFVGA partner in Farm to School efforts and draw attention through visual appeal to Georgia's produce industry.

2. PROJECT APPROACH

The purpose of this project was to develop and produce short educational vignettes featuring specific specialty crops to help consumers and students understand the full growth and harvest process. The approach for this project involved several steps.

A. Collaborate with a video production company to film and publish content.
B. Travel to farms to film planting and harvest.
C. Research and work with industry experts to form narrative educational scripts for each commodity.
D. Publish and publicize the videos through different media avenues.
E. Administer and gather surveys where videos are shown in order to show impact on consumer knowledge.

3. GOALS AND OUTCOME ACHIEVED

The primary goal for this grant was *to increase consumers and students' knowledge of the specialty crop industry from planting to harvest.*

One of our specific targets for this project was to increase students' knowledge of the specialty crop industry, from planting to harvesting to shipping, by 10 percent. By viewing vignettes and photos and with the use of pre- and post-testing via online or paper survey, we determined that 32.6% of the students increased their knowledge.

There were several ways in which we intended to achieve these goals and reach our anticipated targets, listed below.

Goal	Performance Measure	Benchmark	Target	Work Accomplished	+-Targeted Goal
Offer educational tools to schools by providing specialty crop specific videos as lesson supplements	The number of schools that request these videos to show during their agriculture education lessons	N/A	15	4 schools requested: 1. Marion Co. Middle School 2. Jones-Wheat Elementary 3. Shuman Elementary School 4. McDuffie Middle School In addition, established Farm to School and Feed my School for a Week Program Contacts	**4 confirmed** Estimated 15 more contacts through Farm to School program established in Spring 2016
Educate consumers by promoting videos online via Vimeo,** facebook and the website.	The number of 'views' in a 12 month period per video produced and made available online.	N/A	50 per video	<u>After posting in late September through Oct. 31, 2015</u> • General Vegetables – 19 • Blueberries – 133 • Sweet Corn – 9 • Watermelons – 62	Exceeded goal after only 30 days in 2 of 8 videos; anticipated to reach goal for all 8 within 12 month time frame

				• Vidalia Onions – 8 • Peaches – 6 • Strawberries – 30 • Cantaloupe - 5	
Use photos and videos for marketing and visual appeal representing Georgia agriculture at various produce events throughout the year.	Release videos and use some of the photos developed at the 2014 (Anaheim, CA) and 2015 (Atlanta, GA) Produce Marketing Association Fresh Summit.	N/A	The launch and total air time of 2 videos at PMA during tradeshow and generated audience exposure.	**Completed** – showed a 2014 and 2015 version of Georgia general fruit/vegetable commodity facts 7 hours/day for 2 days on the show floor.	**Goal Achieved!**
Videos shown at the 2015 Georgia National Fair as Part of Georgia Grown Pavilion	Percentage increase in viewer knowledge of fruit and vegetable production after watching the videos	N/A	10% increase	Videos increased viewer knowledge of how fruits and vegetables are grown by 17% (approximated 400 fair attendees participated in pre- and post-surveys)	Exceeded goal by 7%

*The GFVGA through Georgia Department of Agriculture Farm to School Program contacts has been able to provide these videos as school supplement resources for the 2016 Feed My School for a week program. Historically, this program has been implemented in at least 5 schools a year. Through a partnership with this program and other Farm to School (approx. 10 more school contacts) efforts across the state, numerous students will be exposed to these commodity production videos.

**The GFVGA originally intended to use YouTube as the avenue for hosting videos online. After further research, we found that Vimeo was a better host to use, as this program allows educators to download their own copy of the video if needed, as well as to view it online.

4. BENEFICIARIES AND HOW THEY BENEFITTED

The beneficiaries of this project are twofold. The first group are the educators and students who now have more resources to learn from regarding the fruit and vegetable industry. These videos will remain relevant for the next 5-10 years as they contain production and crop information that will not undergo

any major changes in the future. Secondly, the Georgia and southeastern specialty crop producers and consumers benefit from this project because the more people know and appreciate about their food, the more likely they are to purchase locally.

5. LESSONS LEARNED

There were a number of lessons learned through the development of this project. In particular, the GFVGA underestimated the time and resources it would take to film both planting and harvest processes for multiple commodities, making the overall timeline for the project somewhat delayed. The final eight videos were originally anticipated to be released in the spring of 2015. The peach production video was released in April of 2015, and the others were not completed and released until September. Despite this delay, the videos have been extremely popular and well received, indicating that the completion of the overall project has given educators and industry representatives alike an invaluable resource for educating the public.

6. CONTACT PERSON

Charles T. Hall
Executive Director
Georgia Fruit & Vegetable Growers Association
PO Box 2945, LaGrange GA 30241
chall@asginfo.net
Samantha T. Kilgore
Director of Communications
Georgia Fruit & Vegetable Growers Association
PO Box 2945, LaGrange GA 30241
skilgore@asginfo.net

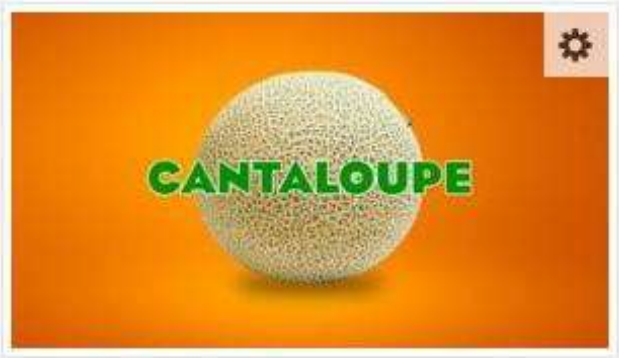
7. ADDITIONAL INFORMATION

See *Attachment A* for additional information including links to the video and sample surveys given to teachers who request the video.

ATTACHMENT A

GFVGA Commodity Videos

Georgia Blueberries



Georgia Cantaloupe

Georgia Peaches

Georgia Sweet Corn

Georgia Strawberries

Vidalia Onions

Georgia Watermelons

Georgia Vegetables

Please list which commodity video you watched below:

_____

georgia fruit & vegetable

Commodity Video Impression Survey

Pre Survey

Teachers - this survey can be copied and handed out to kids, or you can take it verbally and record responses.

What do you (or does your class) know about this fruit or vegetable and how they are grown?
Please jot down responses.

If possible, rate your (or the classrooms) overall knowledge about how this fruit/vegetable is grown from 1-5. 1 being no knowledge at all, and 5 being you totally understand how peaches are produced.

1	2	3	4	5
No knowledge	Very little knowledge	Some Knowledge	Pretty Well Understood	Totally Understand Production

WATCH THE VIDEO!

Post Survey

What did you (or your class) learn about this fruit/vegetable and how they are grown?
Please jot down responses.

Think again about your (or the classrooms) overall knowledge about how this fruit/vegetable is grown and rate it from 1-5-- 1 being no knowledge at all, and 5 being you totally understand how peaches are produced.

1	2	3	4	5
No knowledge	Very little knowledge	Some Knowledge	Pretty Well Understood	Totally Understand Production

Think again about your (or the classrooms) overall knowledge about how this fruit/vegetable is grown and rate it from 1-5-- 1 being no knowledge at all, and 5 being you totally understand how peaches are produced.

1	2	3	4	5
No knowledge	Very little knowledge	Some Knowledge	Pretty Well Understood	Totally Understand Production

Other information

- School Name _____
- Teacher Name _____
- Grade Level _____ Class Size _____
- Email information (in case of follow up information)_____
- Would you be interested in more commodity videos? (blueberry, watermelon, cantaloupe, strawberry, vegetable etc.) _____

4. Georgia Fruit & Vegetable Growers Association – *Educational and Risk Management Informational Programs to Help Increase Productivity for Southeastern Specialty Crop Producers* - Final Performance Report

1. PROJECT SUMMARY

Every day, specialty crop growers are faced with making decisions which could seriously affect the economic viability of their farm and farming operations. When compared to other farmers, a typical specialty crop producer will have invested over $5,000 per acre before harvest even begins, as compared to less than $1,000 for most agronomic crop farmers. The produce farmer must have a better understanding of new production practices, pest management systems, labor costs and marketing opportunities than their row crop neighbor.

This project provided the educational and informational programs that will assist Georgia and southeastern farmers to better operate their farming operations and compete in the marketplace. A number of educational venues in this project provided the structure for growers to receive this information. Programming included a three-day trade show and educational conference, DVD-ROM recordings of the educational sessions, one-on-one of farm food safety consulting and numerous communication opportunities such as e-news, website, Facebook and other electronic media.

The ultimate goal of this project was to enhance the competitiveness of specialty crop growers by improving efficiency and reducing costs.

2. PROJECT APPROACH

The approach of the project was to implement delivery venues that would ensure the goals of the project were accomplished. These included:

- Three-day educational conference
- Availability of the educational sessions via DVD to growers not attending
- On-the-farm consultation to ensure food safety compliance
- Continued communication with growers and efforts to expand into other social media venues

Each of the following activities and tasks were accomplished according to the timeline outlined in the Work Plan of the approved project proposal,

Summer/Fall 2012

(1) SE Regional Conference Program planning.

- The Trade Show Committee held a meeting in early summer of 2012 to discuss show activities, open hours, attendee participant and promotional activities.

- The Education Committee initiated work in the Summer of 2012 with each of the 12 Program Coordinators reviewing previous evaluations and beginning their program planning. Current topics were identified, speakers selected and content focus finalized. Each of the conference programs were submitted to the Director of Education on or about September 1, 2012.

Fall 2012

(1) Promotion and marketing of the SE Regional Conference.
- E-blasts were distributed to over 3,500 individuals (for each blast) throughout the Fall (monthly in August and September, every two weeks in October and weekly in November and December).
- A promotional brochure was mailed to over 3,000 individuals in early October.
- Press releases were sent out each month beginning in August 2012, sometimes twice a month.

(2) Determine company to record education sessions at SE Regional.
- Bids were requested from three companies – based on the value of the proposal, Blue Sky was selected as the company to record the educational sessions.

(3) Initiate work to write generic S.O.P.'s for new FDA regulations.
- FDA had not released the new regulations as of the Fall of 2012 so no SOP's were written in the Fall of 2012.

(4) Initiate weekly 'news and issues' posts and web communications – continues throughout the year.
- As noted in #3 below, this work was initiated in the Fall of 2012 and continued during 2013.

Winter 2013

(1) SE Regional Fruit and Vegetable Conf. (first week in January).
- This conference was held in Savannah, GA on January 10-13, 2013 with more than 2,900 people in attendance. See the performance measures achieved below in #3.

(2) Record the educational sessions at the SE Regional Conference.
- The sessions were recorded during the SE Regional Conference. Outcome and goals achieved are noted below in #3.

(3) Continue to promote SE Regional DVD recordings in winter.
- The DVD recordings were promoted via e-blasts and announcements prior to, throughout and following the conference.

Spring 2013

(1) Continue to promote SE Regional DVD recordings in spring.
- Emails were distributed in the Spring to notify growers of DVD availability.

(2) Evaluate and measure e-news/communications effectiveness; make adjustments as needed.

- Evaluations were conducted by staff and the 'effectiveness' survey noted below was developed and conducted. Minor adjustments were made to increase Facebook posts.

Summer 2013

(1) Continue to promote SE Regional DVD recordings in summer.

- Emails were distributed again in the summer to notify growers of DVD availability and the 'download' capability.

Fall 2012 thru 2013

(1) On-the-farm consultation for food safety, farm to school and other production training needs.
- As noted below in #3 – Goals and Outcomes, many, many food safety consultations were conducted from October 2012 to September 2013.

(2) Evaluations will be conducted to measure effectiveness upon completion of each of the five components.

- Various measurements were used throughout the year for each of these components to measure the effectiveness of the project and the participation levels. In #3 Goals and Outcome Achieved below, each of the measurements are detailed.

3. GOALS and OUTCOMES ACHIEVED

The primary goal of this grant was to help producers increase their knowledge and risk management skills through educational programs, workshops, training, consultation and access to current information. The following five focus components were utilized to accomplish the goals and outcomes for the project.

1. Educational Programs:

The SE Regional Fruit and Vegetable Conference was held on January 10 -13, 2013 in Savannah, GA with more than 2,912 people in attendance. This was an 8.3% increase in attendance over the 2012 conference. The conference had over 83 hours of educational sessions available to the attendees (see ATTACHMENT, pages 01-20), and 94.8% of the attendees rated the cost of the conference to the value they received as good or excellent. In addition, 94.8% of the attendees said the time they spent at the conference was good or excellent when compared to the value of the education they received.

The measurable outcome for this conference was to exceed by .5 percent the positive rating of the 2012 attendees for the educational value and usefulness of classes attended (93.3% and 89.5%). The surveys conducted after the conference showed 91.1% of the attendees rated the

usefulness of information from the educational sessions as good or excellent. In addition, 89.2% of the attendees said their knowledge of specialty crop production practices and/or management techniques increased. The 2013 results showed more than 91% of the attendees felt the education was useful this number is 3.3% under the goal.

Performance Measurement: Conference

	2012	2013	+ - REACHED TARGET/GOAL
Attendance	2,670	2,912	+ -exceeded goal – 8.3 % inc.
Cost to Value rating	93.9%	94.8%	+ -exceeded goal – 0.9% inc.
Value to Time	94.4%	94.8%	+ -exceeded goal – 0.4% inc.

	2012	TARGET	2013	+ -REACHED TARGET/GOAL
Usefulness of classes	93.9%	94.4%	91.1%	- under goal by 3.3%
Gained knowledge	89.5%	90.0%	89.2%	- under goal by 0.8%

2. SE Regional Conference DVD-ROM Recordings:
The educational sessions at the SE Regional Fruit and Vegetable Conference were recorded and a DVD of all the sessions was made available for both those attending and those not attending. There were 62 farms/companies that took advantage of the full conference recording offering. This was a decrease of 23 over the 85 farms/ companies that took advantage of this educational opportunity in 2012.

Growers were surveyed to determine how they used the DVDs, which they received with conference information:

- 85.7% of the individuals responding to the survey who received a DVD personally watched portions of the conference proceedings.

- 92% of the growers responding who received the DVD showed parts of the DVD to others at their farm or operation. On average 4.7 additional workers viewed parts of the DVD.

- 100% of the growers responding, who received a DVD said it was helpful.

Performance Measurement: BLOCK GRANT YEAR

	2011	2012	+ - REACHED TARGET/GOAL

Growers requesting DVD	85	62	-under the goal 23
Avg # watching DVD/farm	4	4.7	+ - exceeded goal!
% of growers saying helpful	86%	100%	+ - exceeded goal!

3. On-Farm Consultation for Food Safety and Market Development Purposes:
With today's specialty crop grower, food safety practice is a major part of the farm operation. Food safety education and consultation is critical to be sure the grower maintains the latest testing and operating procedures.

Through this program, the Georgia Fruit and Vegetable Growers Association (GFVGA) provided several types of consultation – GFSI, Georgia GAP, Farm to School guidelines and basic consulting for growers just starting a food safety plan. With the implementation of FSMA, estimated for 2015, food safety operations are going to become even more critical.

As of 9/30/2013 the GFVGA Food Safety program provided consultation to 58 farms certified by the Georgia GAP program or GFSI. In addition, the program was working with 28 farms that had no food safety plan.

Performance Measurement: BLOCK GRANT YEAR

	2011	Benchmark	2012	+ -REACHED TARGET
Certified Operations	55*	58	58	+ - Exceeded goal!
Consult with farms with no food safety plan	n/a	10	28	+ - Exceeded goal!
Working with school sys.	n/a	n/a	1	

*The Benchmark noted in the Approved Work Plan was 56; however, before the end of the 2011 year, one grower did not continue their certification. So as of 9-30-2012, the number of growers were 55 not 56.

In addition, GFVGA consultants were contracted to provide 161 mock audits of blueberry farm operations during the spring and summer of 2013.

4. Industry and Grower Communications:
The three most important needs of a specialty crop grower is – Timely Information – Timely Information – and Timely Information. This component of the project was designed to begin to identify and measure the various communication venues that are the most likely to be utilized by Georgia and southeastern growers.

The 2010 SCBG funded the development of a regular e-communication called the UPDATE. Early during the 2011 SCBG the UPDATE was launched and later during the grant period the effectiveness was measured. The publication has an average open rate of 25.5%, well above industry standards. In addition, when compared against other industry publications, 81.6 percent of survey participants ranked the GFVGA Update *(see ATTACHMENT, page 21)* **more important** than other sources *(The Packer, Produce News, Growing Georgia)* to receiving the latest industry information.

The primary goal of this project was to create patterns in which we can measure the traffic going to the GFVGA website and determine if Linked In, Facebook or other social media is a viable medium for specialty crop growers in Georgia.

The performance measure for driving individuals to www.gfvga.org was to increase NEWS AND ISSUES 'views' by 50% *(see ATTACHMENT page 22).* In our initial proposal's work plan, the 'views' were estimated to be 250/week. After several google analytic measurements we could validate 209 views per week as a benchmark for NEWS AND ISSUES. For the period 10/1/2012 to 9/30/2013 the NEWS AND ISSUES page on the GFVGA web site had average 'views' of 186. This is 11% decrease rather than a 50% increase.

We believe the reason for this decrease is due to the success of the other social media components. As noted earlier, the UPDATE has been very successful with the growers. Many of the famers are getting a large amount of the timely information via the UPDATE.

The other factor that, we believe, is affecting the GFVGA website is the FACEBOOK page *(see ATTACHMENT page 23).* Currently the GFVGA Director of Communications is averaging 1.4 posts to Facebook per week. In addition, over the past twelve months the number of 'likes' for the GFVGA Facebook has increased almost 70% (from 129 to 219).

Performance Measurement: BLOCK GRANT YEAR

	2011	Benchmark	2012	+ - REACHED TARGET
Web site views	209	50% increase	186	+ - Did not reach goal! due to other media traffic (face book)
UPDATE open rate		n/a	25.5%	
UPDATE satisfaction rate		n/a	81.6%	
Facebook posts	n/a	1/wk	1.4/wk	

Facebook 'likes'	129	n/a	219	+ - 70% increase

4. BENEFICIARIES and HOW THEY BENEFITED

The beneficiaries of this project are the Georgia and southeastern fruit and vegetable crop producers who have more education, training, communication and management tools developed from this grant. These tools will help improve their competiveness and increase their market share.

There is no way to definitely state the number of beneficiaries affected by the project's accomplishments or the economic impact of the project. However, the notations below may give some insight as to the massive numbers of people impacted by this project.

SE REGIONAL FRUIT AND VEGETABLE CONFERENCE attendance - 2,912

Multiplier effect of information returned to farms and businesses (2.35) 6,756

DVD Recordings – number of workers watching information 291

On the Farm consultation - 248 farms touched – 56 average number of workers per farm that were trained due to food safety requirements 13,888

Estimated 12 UPDATES and 10 other e-blasts sent to 3500 growers/businessmen

Per issue with up to the date information. 3,500

Estimated beneficiaries 24,435

The 2011 Farm Gate value for all fruits and vegetables in Georgia was $1,116,987,187. If the SE Regional educational materials, food safety consultation, news and issues updates, and additional communications helped specialty crop producers increase their profitability by just 0.1% (one tenth of one percent) this program would show an economic impact of over $1.12 million dollars. The project's accomplishments potentially have a significant economic impact.

5. LESSONS LEARNED

There were a number of educational materials provided, lessons learned and training provided as noted in #3 above that will be of great benefit and value to Georgia producers.

While the project had tremendous educational benefits to the growers to which it was targeted, the project staff also greatly benefited from the project. A number of lessons learned by the staff included:

- Identifying and actively engaging in project coordination communications to insure the project was successful in reaching the goals. For various components of this project the staff maintained a regular staff meeting schedule with written management checklists.
- An internal consultation assignment system was implemented for both managing the number of food safety consultations but also the reporting of certification and audits.
- Staff established a goal to continue an annual 'effectiveness' survey of all communication venues for the Georgia Fruit and Vegetable Growers Association. This will be a very effective tool to review non-project communication venues to insure their usefulness and effectiveness for the membership.
- Finally, staff has learned how satisfying it can be to successfully complete a very complex and multi-focused project like this one.

6. CONTACT PERSON

Charles T. Hall, Jr.
Executive Director
Georgia Fruit and Vegetable Growers Association
P.O. Box 2945
LaGrange, GA 30241
chall@asginfo.net
706-845-8200

7. ADDITIONAL INFORMATION

Please see the ATTACHMENT that provides materials that were produced as a part of this grant.

ATTACHMENT A:

SE REGIONAL

Fruit & Vegetable Conference

January 10 - 13, 2013 **Savannah, GA**

Schedule of Events

At-A-Glance

Thursday, January 10, 2013

7:30 a.m.	**Registration Open** Convention Center Concourse
12:00 p.m.	**GFVGA Board of Director's Meeting** Westin Hotel - Riverscape Room
1:00 p.m. - 4:00 p.m.	**SE Regional Educational Session** Business Operations Track I - Rooms 103/104 Business Operations Track II - Rooms 105/106
1:00 p.m. - 5:00 p.m.	**SE Regional Educational Session** Blackberry & Raspberry - Room 202 Food Safety - Rooms 204/205

Friday, January 11, 2013

7:00 a.m.	**Registration Open**
8:00 a.m - 11:00 a.m.	**SE Regional Educational Sessions** Peach - Rooms 105/106 Vegetable - Rooms 102/103/104 Organic Production - Rooms 100/101 Pecan - Rooms 102/103/104 Blueberry - Auditorium Food Safety - Rooms 204/205 Blackberry & Raspberry - Room 202
9:00 a.m.	**Trade Show Opens**
12:00 p.m.	**Lunch with Exhibitors in the Trade Show** Lunch provided for pre-registered four day and Friday only attendees. You should receive a lunch ticket when you register.
1:30 p.m. - 4:30 p.m.	**SE Regional Educational Sessions** Peach - Rooms 105/106 Vegetable - Rooms 103/104 Organic Production - Rooms 100/101 Blackberry and Raspberry - Room 202 Pecan - Room 203 Blueberry - Auditorium Food Safety - Rooms 204/205 Roadside Markets - Rooms 200/201
4:45 p.m.	**Welcome Reception** Trade Show Floor

Schedule of Events

At-A-Glance

Saturday, January 12, 2013

8:00 a.m.	**Awards Breakfast - Ticketed Event** Westin Hotel
8:00 a.m.	**Registration Open** Convention Center Concourse
9:00 a.m.	**Trade Show Open**
12:00 p.m.	**Lunch with Exhibitors in the Trade Show** Lunch provided for pre-registered four day and Saturday only attendees. You should receive a lunch ticket when you register.
2:00 p.m.	**Silent Auction Closes**
2:00 p.m. - 5:00 p.m.	**SE Regional Educational Sessions** Peach - Rooms 105/106 Vegetable - Room 102 Muscadine - Room 203 Vidalia Onion - Room 103 Blueberry - Auditorium Food Safety - Rooms 204/205 Strawberry - Room 202 Watermelon - Room 104 Sweet Corn - Room 104
2:30 p.m.	**Trade Show Closes**
5:30 p.m.	**Reception** at Westin sponsored by syngenta

Sunday, January 13, 2013

8:00 a.m.	**Worship Service** Westin Savannah Harbor
8:30 a.m.	**Industry Roundtable Discussion** Westin Savannah Harbor
10:30 a.m.	**Convention Adjourns**

SE REGIONAL
Fruit & Vegetable Conference

Peach Conference

Pesticide information on pages 36-38.

All activities at the Savannah International Trade & Convention Center (SITCC) unless otherwise noted.

THURSDAY, JANUARY 10 , 2013

7:30 - 5:00 p.m. **REGISTRATION OPEN**
Riverview Concourse
Exhibitor and Poster Set-Up

12:00 p.m. **GFVGA BOARD OF DIRECTORS MEETING**
Westin Hotel - Riverscape Room

1:00 - 4:00 p.m. **SE REGIONAL EDUCATIONAL SESSION**
BUSINESS OPERATIONS

5:00 p.m. **GFVGA ANNUAL MEETING**
SITCC

FRIDAY, JANUARY 11, 2013

7:00-5:00 p.m. **REGISTRATION OPEN**
Riverview Concourse

9:00-11:15 a.m. **PEACH EDUCATIONAL SESSION I**
Rooms 105/106
Moderator: Mr. Andy Rollins, Clemson Extension Service, Spartanburg, SC

9:00 a.m **Effective Strategies to Combat Scab**
Dr. Phil Brannen, University of Georgia, Athens, GA

9:25 a.m. **Effective Strategies to Combat Brown Rot**
Dr. Phil Brannen, University of Georgia, Athens, GA and Dr. Guido Schnabel, Clemson University, Clemson, SC

10:00 a.m. **BREAK**

10:15 a.m. **Update on Efforts to Develop an Oak Root Rot Management Program**
Dr. Guido Schnabel, Clemson University, Clemson, SC and Dr. Tom Beckman, USDA-ARS, Byron, GA

9:00-6:15 p.m. **TRADE SHOW OPEN**

12:00-1:30 p.m. **LUNCH** in the Trade Show
(Lunch provided for pre-registered four day and Friday only attendees)

2:00 - 4:30 p.m. **PEACH EDUCATIONAL SESSION II**
Rooms 105/106
Moderator: Mr. Johnny Whiddon, Georgia Cooperative Extension, Quitman, GA

2:00 p.m. **Stink Bugs and Other Emerging Insect Pests**
Dr. Dan Horton, University of Georgia, Athens, GA and Dr. Ted Cottrell, USDA-ARS, Byron, GA

2:30 p.m. **Integrated Pest Management and Chemical Rotation for Peach**
Dr. Dan Horton, University of Georgia, Athens, GA and Dr. Ted Cottrell, USDA-ARS, Byron, GA

3:00 p.m. **Market Trends Impacting the Peach Market**
Steve Lutz, Neilson Perishables Group, West Dundee, IL

4:00 p.m. **Retail Strategies to Broaden Your Sales Base**
Dr. Jeffrey Campbell, University of South Carolina, Department of Retailing, Columbia, SC

4:30 p.m. **National Peach Council**
Activities Update and Annual Meeting

4:45 - 6:15 p.m. **WELCOME RECEPTION** in Trade Show Area
(Open to all registered attendees)

5:45 p.m. **LIVE AUCTION** in Exhibit Hall

Evening **DINNER ON YOUR OWN**

Pesticide information on pages 36-38.

Peach Conference

All activities at the Savannah International Trade & Convention Center (SITCC) unless otherwise noted.

SATURDAY, JANUARY 12, 2013

8:00 a.m. **AWARDS BREAKFAST** - Ticketed Event

8:00-2:30 p.m. **REGISTRATION OPEN**
Riverview Concourse

9:00-2:30 p.m. **TRADE SHOW OPEN**

12:00-1:30 p.m. **LUNCH** in the Trade Show
(Lunch provided for pre-registered four day and Saturday only attendees)

2:00 p.m. **SILENT AUCTION CLOSES**

2:00-5:00 p.m. **PEACH EDUCATIONAL SESSION III**
Rooms 105/106
Moderators: Mr. Greg Henderson, Clemson University, Edgefield, SC and Ms. Amy London, SC Peach Council, Columbia, SC

2:00 p.m. **New Peach Cultivars and Website Update**
Dr. Desmond Layne, Clemson University, Clemson, SC

2:30 p.m. **Evaluation of Fruit Quality and Phytochemical Composition of South Carolina Peaches**
Dr. Ksenija Gasic and Dr. Greg Reighard, Clemson University, Clemson, SC

3:00 p.m. **Developing a Cost Effective Weed Management Strategy**
Mr. Wayne Mitchem, North Carolina State University, Vale NC and
Mr. Greg Henderson,
Clemson University, Clemson, SC

3:30 p.m. **Viruses, Southeastern U.S. Testing Program and the National Clean Plant Network**
Dr. Simon Scott, Clemson University, Clemson, SC

4:00 p.m. **Early Detection of Peach Tree Root Rot**
Mr. Gary McMurray, Georgia Tech Research Institute, Smyrna, GA

4:30 p.m. **Sensor Based Irrigation Modeling for Southeastern Peach Production**
Mr. David Lankford, Earthtec Solutions, LLC, Vineland, NJ and Mr. Greg Henderson, Clemson University, Clemson, SC

2:30 p.m. **TRADE SHOW CLOSES**

5:30-6:45 p.m. **RECEPTION** at the Westin Savannah Harbor
(Open to All Attendees)
Reception sponsored by syngenta®

Evening **DINNER ON YOUR OWN**

SUNDAY, JANUARY 13, 2013

8:00-8:30 a.m. **WORSHIP SERVICE**
Westin Savannah Harbor

8:30 a.m. **INDUSTRY ROUNDTABLE** (all associations)
Westin Savannah Harbor
Continental breakfast with fellow growers to discuss industry issues.

10:30 a.m **CONVENTION ADJOURNS**

HAVE A SAFE TRIP HOME!

Vegetable Conference

Sponsored by Seminis

Pesticide information on pages 36-38.

All activities at the Savannah International Trade & Convention Center (SITCC) unless otherwise noted.

THURSDAY, JANUARY 10 , 2013

7:30 - 5:00 p.m. **REGISTRATION OPEN**
Riverview Concourse
Exhibitor and Poster Set-Up

12:00 p.m. **GFVGA BOARD OF DIRECTORS MEETING**
Westin Hotel - Riverscape Room

1:00 - 4:00 p.m. **SE REGIONAL EDUCATIONAL SESSION**
BUSINESS OPERATIONS

5:00 p.m. **GFVGA ANNUAL MEETING**
SITCC

FRIDAY, JANUARY 11, 2013

7:00-5:00 p.m. **REGISTRATION OPEN**
Riverview Concourse

8:00-9:15 a.m. **VEGETABLE EDUCATIONAL SESSION I**
PESTICIDES AND PEST MANAGEMENT UPDATE
Rooms 102/103/104
Moderator: Jennifer Miller, Montgomery and Treutlen County Extension

8:00 a.m. **Insect Management**
Stormy Sparks, The University of Georgia, Tifton, GA

8:25 a.m. **Plant Disease Management**
David Langston, The University of Georgia, Tifton, GA

8:50 a.m. **Weed Management**
Stanley Culpepper, The University of Georgia, Tifton, GA

9:00-6:15 p.m. **TRADE SHOW OPEN**

9:15 p.m. **BREAK**

9:30-11:00 a.m. **VEGETABLE EDUCATIONAL SESSION II**
2,4-D OR DICAMBA-RESISTANT CROP TECHNOLOGIES AND PROTECTION OF SENSITIVE CROPS
Rooms 102/103/104
Moderator: Bill Starr, Sumter County Extension

9:30 a.m. **Understanding Why Our Agronomic Neighbors Will Benefit From 2,4-D- or Dicamba-Resistant Technologies**
Stanley Culpepper, The University of Georgia, Tifton, GA

9:50 a.m. **The Enlist™ Weed Control System – Technologies and Stewardship to Meet Diverse Agricultural Needs**
Mark Peterson, Dow AgroSciences, Indianapolis, IN

10:25 a.m. **Roundup Ready® Xtend Crop System Launch and Stewardship Plans**
Shannon Hauf, Monsanto, St. Louis, MO

12:00-1:30 p.m. **LUNCH** in the Trade Show
(Lunch provided for pre-registered four day and Friday only attendees)

1:30 - 2:45 p.m. **VEGETABLE EDUCATIONAL SESSION III**
METHYL BROMIDE ALTERNATIVES – MOVING FORWARD
Rooms 103/104
Moderator: Jason Edenfield, Toombs County Extension

1:30 p.m. **Fumigant Alternatives Getting Better Slowly**
Stanley Culpepper, The University of Georgia, Tifton, GA

1:55 p.m. **Fumigants: What to expect in 2013**
Richard Keigwin, Environmental Protection Agency, Washington, DC

2:45 p.m. **BREAK**

3:00 - 4:30 p.m. **VEGETABLE EDUCATIONAL SESSION IV**
EMERGING ISSUES AND CROPPING SYSTEMS
Rooms 103/104
Moderator: Tucker Price, Cook County Extension

3:00 p.m. **Update of Intercropping Cotton and Melons**
Brian Tankersley, Tift County Extension, Tifton, GA

3:30 p.m. **Are you ready for FSMA (Food Safety Modernization Law)**
Bill Hurst, The University of Georgia, Athens, GA

4:00 p.m. **Nematode Control in Vegetables**
Don W. Dickson, University of Florida, Gainesville, FL

4:45 - 6:15 p.m. **WELCOME RECEPTION** in Trade Show Area
(Open to all registered attendees)

5:45 p.m. **LIVE AUCTION** in Exhibit Hall

Evening **DINNER ON YOUR OWN**

Sponsored by Seminis

Pesticide information on pages 36-38.

Vegetable Conference

All activities at the Savannah International Trade & Convention Center (SITCC) unless otherwise noted.

SATURDAY, JANUARY 12, 2013

8:00 a.m. **AWARDS BREAKFAST** - Ticketed Event

8:00-2:30 p.m. **REGISTRATION OPEN**

9:00-2:30 p.m. **TRADE SHOW OPEN**

12:00-1:30 p.m. **LUNCH** in the Trade Show
(Lunch provided for pre-registered four day and Saturday only attendees)

1:30 -2:30 p.m. **CONCURRENT SESSIONS**

1:30-2:30 p.m. **VEGETABLE EDUCATIONAL SESSION V**
PRODUCTION OF SWEET POTATOES
Room 102
Moderator: Phillip Edwards, Irwin County Extension

1:30 p.m. **Weed Management in Sweet Potatoes**
Katie Jennings, North Carolina State University, Raleigh, NC

1:50 p.m. **Insect Management in Sweet Potatoes**
Mark Abney, North Carolina State University, Raleigh, NC

2:10 p.m. **Disease Management in Sweet Potatoes**
Donald Ferrin, LSU AgCenter, Baton Rouge, LA

1:30-2:30 p.m. **VEGETABLE EDUCATIONAL SESSION VI**
ONION POSTHARVEST HANDLING, DISEASE AND WASTE MANAGEMENT I
Room 103
Moderator: Chris Tyson, Tattnall County Extension

1:30 p.m. **Developing Sensing Technologies for Onion Quality Inspection in Packing House and Storage**
Changying Li, The University of Georgia, Tifton, GA

1:50 p.m. **Developing Microwave Technology to Measure Onion Moisture**
Bill Tollner and Sean McKeown, The University of Georgia, Athens, GA

2:10 p.m. **Onion Pungency and Sweetness as Determined by Spectral-Chemical Sensory Analysis and Modeling**
Chi Thai, Rob Shewfelt and Maureen McFerson, The University of Georgia, Athens, GA; Norman Schmidt, Tabor College, Hillsboro, KS

1:30-2:30 p.m. **VEGETABLE EDUCATIONAL SESSION VII**
SWEET CORN
Room 104
Moderator: Justin Shealey, Echols County Extension

1:30 p.m. **Weed Management in Round-up Ready and Conventional Sweet Corn**
Stanley Culpepper, The University of Georgia, Tifton, GA

1:50 p.m. **Insect Management in BT and Conventional Sweet Corn**
Stormy Sparks, The University of Georgia, Tifton, GA

2:10 p.m. **Marketplace Acceptance of Biotech Sweet Corn**
Paulette Pierson, Monsanto, St. Louis, MO

2:00 p.m. **SILENT AUCTION CLOSES**

2:30 p.m. **TRADE SHOW CLOSES**

2:30 p.m. **BREAK**

2:45 -3:45 p.m. **CONCURRENT SESSIONS**

2:45-3:45 p.m. **VEGETABLE EDUCATIONAL SESSION VIII**
WATERMELON DISEASE MANAGEMENT
Room 104
Moderator: Jason Brock, The University of Georgia, Tifton, GA

2:45 p.m. **Managing Foliar Diseases of Watermelon**
David Langston, The University of Georgia, Tifton, GA

3:05 p.m. **Rind Necrosis in Watermelons**
Mathew Paret, University of Florida, Quincy, FL

3:25 p.m. **Phytophthora Fruit Rot of Watermelons**
C.S. Kouisk, USDA, ARS, Charleston, SC

2:45-3:45 p.m. **VEGETABLE EDUCATIONAL SESSION IX**
ONION POSTHARVEST HANDLING, DISEASE AND WASTE MANAGEMENT II
Room 103
Moderator: Cliff Riner, Tattnall County Extension

2:45 p.m. **Postharvest Disease Management**
Ron Gitatis, The University of Georgia, Tifton, GA

3:05 p.m. **Post-harvest Treatment and Managing Culled Onions**
Gary L. Hawkins, The University of Georgia, Tifton, GA and George Boyhan, The University of Georgia, Athens, GA

3:25 p.m. **Economics of Post-Harvest Onion Management**
Joe Molnar, Auburn University, Auburn, AL and Kim Morgan, Mississippi State University, Starkville, MS

5:30-6:45 p.m. **RECEPTION**
at the Westin Savannah Harbor
(Open to All Attendees)
Reception sponsored by syngenta

Vidalia Onion Conference

Pesticide information on pages 36-38.

All activities at the Savannah International Trade & Convention Center (SITCC) unless otherwise noted.

THURSDAY, JANUARY 10, 2013

7:30 - 5:00 p.m.	**REGISTRATION OPEN** Riverview Concourse Exhibitor and Poster Set-Up
12:00 p.m.	**GFVGA BOARD OF DIRECTORS MEETING** Westin Hotel - Riverscape Room
1:00 - 4:00 p.m.	**SE REGIONAL EDUCATIONAL SESSION** **BUSINESS OPERATIONS**
5:00 p.m.	**GFVGA ANNUAL MEETING** SITCC

FRIDAY, JANUARY 11, 2013

7:00-5:00 p.m.	**REGISTRATION OPEN** Riverview Concourse
8:00-9:15 a.m.	**VEGETABLE EDUCATIONAL SESSION I** **PESTICIDES AND PEST MANAGEMENT UPDATE** **ROOMS 102/103/104; Please see page 20**
9:00-6:15 p.m.	**TRADE SHOW OPEN**
9:30-11:00 a.m.	**VEGETABLE EDUCATIONAL SESSION II** **2,4-D OR DICAMBA-RESISTANT CROP TECHNOLOGIES AND PROTECTION OF SENSITIVE CROPS** **ROOMS 102/103/104; Please see page 20**
12:00-1:30 p.m.	**LUNCH** in the Trade Show (Lunch provided for pre-registered four day and Friday only attendees)
1:30 - 2:45 p.m.	**VEGETABLE EDUCATIONAL SESSION III** **METHYL BROMIDE ALTERNATIVES – MOVING FORWARD** **Rooms 103/104; Please see page 20**
3:00 - 4:30 p.m.	**VEGETABLE EDUCATIONAL SESSION IV** **EMERGING ISSUES AND CROPPING SYSTEMS** **Rooms 103/104; Please see page 20**
4:45 - 6:15 p.m.	**WELCOME RECEPTION** in Trade Show Area (Open to all registered attendees)
5:45 p.m.	**LIVE AUCTION** in Exhibit Hall

SATURDAY, JANUARY 12, 2013

8:00 a.m.	**AWARDS BREAKFAST** - Ticketed Event
8:00-2:30 p.m.	**REGISTRATION OPEN** Riverview Concourse
9:00-2:30 p.m.	**TRADE SHOW OPEN**
12:00-1:30 p.m.	**LUNCH** in the Trade Show (Lunch provided for pre-registered four day and Saturday only attendees)
1:30 -2:30 p.m.	**CONCURRENT SESSIONS** Please see page 21
1:30-2:30 p.m.	**VEGETABLE EDUCATIONAL SESSION VI** **ONION POSTHARVEST HANDLING, DISEASE AND WASTE MANAGEMENT I** **Room 103** Moderator: Chris Tyson, Tattnall County Extension
1:30 p.m.	**Developing Sensing Technologies for Onion Quality Inspection in Packing House and Storage** Changying Li, The University of Georgia, Tifton, GA
1:50 p.m.	**Developing Microwave Technology to Measure Onion Moisture** Bill Tollner and Sean McKeown, The University of Georgia, Athens, GA
2:10 p.m.	**Onion Pungency and Sweetness as Determined by Spectral-Chemical Sensory Analysis and Modeling** Chi Thai, Rob Shewfelt, and Maureen McFerson, The University of Georgia, Athens, GA; Norman Schmidt, Tabor College, Hillsboro, KS
2:00 p.m.	**SILENT AUCTION CLOSES**
2:30 p.m.	**TRADE SHOW CLOSES**
2:45 -3:45 p.m.	**CONCURRENT SESSIONS** Please see page 21
2:45-3:45 p.m.	**VEGETABLE EDUCATIONAL SESSION IX** **ONION POSTHARVEST HANDLING, DISEASE AND WASTE MANAGEMENT II** **Room 103** **Moderator: Cliff Riner, Tattnall County Extension**
2:45 p.m.	**Postharvest Disease Management** Ron Gitatis, The University of Georgia, Tifton, GA
3:05 p.m.	**Post-harvest Treatment and Managing Culled Onions** Gary L. Hawkins, University of Georgia, Tifton, GA and George Boyhan, The University of Georgia, Athens, GA
3:25 p.m.	**Economics of Post-Harvest Onion Management** Joe Molnar, Auburn University, Auburn, AL and Kim Morgan, Mississippi State University, Starkville, MS
5:30-6:45 p.m.	**RECEPTION** at the Westin Savannah Harbor (Open to All Attendees) Reception sponsored by syngenta®

Pesticide information on pages 36-38.

Organic Conference

All activities at the Savannah International Trade & Convention Center (SITCC) unless otherwise noted.

THURSDAY, JANUARY 10, 2013

7:30 - 5:00 p.m. **REGISTRATION OPEN**
Riverview Concourse
Exhibitor and Poster Set-Up

12:00 p.m. **GFVGA BOARD OF DIRECTORS MEETING**
Westin Hotel - Riverscape Room

1:00 - 4:00 p.m. **SE REGIONAL EDUCATIONAL SESSION**
BUSINESS OPERATIONS

5:00 p.m. **GFVGA ANNUAL MEETING**
SITCC

FRIDAY, JANUARY 11, 2013

7:00-5:00 p.m. **REGISTRATION OPEN**
Riverview Concourse

8:00 - 10:00 a.m. **ORGANIC EDUCATIONAL SESSION I**
Rooms 100/101
LETTUCE PRODUCTION
Moderator: Mr. Steve Morgan, Harris County Extension, Hamilton, GA

8:00 a.m. **In Field Lettuce Production and Economics**
Dr. George Boyhan, University of Georgia, Athens, GA

8:40 a.m. **High Tunnels and Open Shade Structures for Season Extension**
Mr. Bob Hochmuth, University of Florida, Live Oak, FL

9:20 a.m. **Hydroponic Lettuce Production**
Mr. Joe Lambrecht, Oakview Farms, Wetumpka, AL

9:00-6:15 p.m. **TRADE SHOW OPEN**

10:15-11:00 a.m. **ORGANIC EDUCATIONAL SESSION II**
Rooms 100/101
ORGANIC INSECT CONTROL
Moderator: Dr. Kris Braman, University of Georgia, Griffin, GA

10:15 a.m. **Organic IPM Recommendations for Leaffooted Bugs and Other Major Vegetable Pests**
Dr. Ayanava Majumdar, Auburn University, Auburn, AL

12:00-1:30 p.m. **LUNCH** in the Trade Show
(Lunch provided for pre-registered four day and Friday only attendees)

1:30 - 2:45 p.m. **ORGANIC EDUCATIONAL SESSION III**
Rooms 100/101
ORGANIC INSECT CONTROL: STINKBUGS AND BIOCONTROLS
Moderator: Mr. Titus Andrews, Laurens Co FVSU Extension

1:30 p.m. **Methods for Managing Stinkbugs**
Dr. Glynn Tillman, USDA ARS, Tifton, GA

2:10 p.m. **Using Biocontrols in High Tunnels and Greenhouse Production**
Dr. Lance Osborne, University of Florida, Apoka, FL

3:00-4:30 p.m. **ORGANIC EDUCATIONAL SESSION IV**
Auditorium
SPOTTED WING DROSOPHILA AND SMALL FRUIT CROPS

3:00 p.m. **Controlling Spotted Wing Drosophila**
Dr. Hannah Burrack, North Carolina State University, Raleigh NC

4:45 - 6:15 p.m. **WELCOME RECEPTION**
in Trade Show Area
(Open to all registered attendees)

5:45 p.m. **LIVE AUCTION** in Exhibit Hall

SATURDAY, JANUARY 12, 2013

8:00 a.m. **AWARDS BREAKFAST** - Ticketed Event

8:00-2:30 p.m. **REGISTRATION OPEN**
Riverview Concourse

9:00-2:30 p.m. **TRADE SHOW OPEN**

12:00-1:30 p.m. **LUNCH** in the Trade Show
(Lunch provided for pre-registered four day and Saturday only attendees)

2:00 -5:00 p.m. **EDUCATIONAL SESSIONS**
Review other Conference Agendas for additional education sessions

2:00 p.m. **SILENT AUCTION CLOSES**

2:30 p.m. **TRADE SHOW CLOSES**

5:30-6:45 p.m. **RECEPTION**
at the Westin Savannah Harbor
(Open to All Attendees)
Reception sponsored by syngenta

Blackberry & Raspberry Conference

Pesticide information on pages 36 - 38.

All activities at the Savannah International Trade & Convention Center (SITCC) unless otherwise noted.

Program coordinated by the North American Raspberry & Blackberry Association - www.raspberryblackberry.com

THURSDAY, JANUARY 10, 2013

7:30 - 5:00 p.m. **REGISTRATION OPEN**
Riverview Concourse
Exhibitor and Poster Set-Up

12:00 p.m. **GFVGA BOARD OF DIRECTORS MEETING**
Westin Hotel - Riverscape Room

1:00 - 4:00 p.m. **SE REGIONAL EDUCATIONAL SESSION**
BUSINESS OPERATIONS

1:00 - 5:00 p.m. **BLACKBERRY & RASPBERRY EDUCATIONAL SESSION I**
Room 202
Moderator: Dave Linvill, UGA Cooperative Extension, Chatham County, Savannah, GA

1:00 p.m. **Small Grower Forum: Economics, Harvesting, and More for Smaller and Direct Market Growers**

2:00 p.m. **Building Consumer Demand and the Market for Local Blackberry Sales**
Grower Panel and Discussion

3:00 p.m. **BREAK**

3:15 p.m. **Basic Pruning Strategies ... and the Special Case of Primocane-Fruiting Types**
David Lockwood, University of Tennessee, Knoxville, TN

4:00 p.m. **Blackberry Field Decline: Replant, Rotate, Revitalize?**
Panel Discussion; Ervin Lineberger, Kildeer Farm, Kings Mountain, NC; Walker Miller, The Happy Berry Bunch, Six Mile, SC; Marvin Williams, Williams Farm, Enigma, GA

5:00 p.m. **GFVGA ANNUAL MEETING**
SITCC

FRIDAY, JANUARY 11, 2013

7:00-5:00 p.m. **REGISTRATION OPEN**
Riverview Concourse

8:00 - 11:00 a.m **BLACKBERRY & RASPBERRY EDUCATIONAL SESSION II**
Room 202
Moderator: John Duval, NARBA Executive Council member, SE Region; and Sunnyridge/Dole, Winter Haven, FL

8:00 a.m. **Grower Spotlight**
James Cooley, Strawberry Hill, U.S.A., Chesnee, SC

8:45 a.m. **New Varieties, New Research and an Update on the Blackberry R&P Proposal**
Gina Fernandez, North Carolina State University, Raleigh, NC; Ervin Lineberger, Kildeer Farm, Kings Mountain, NC

9:20 a.m. **BREAK**

9:30 a.m. **Update on Blackberries in Mexico**
Mario Steta and Jose' Valadez, Aneberries, the national association of Mexican berry exporters and producers

10:15 a.m. **Choosing Your Marketer: What to Ask, What to Compare**
Jonathan Baros, North Carolina State University Plants for Human Health Institute, Kannapolis, NC

9:00-6:15 p.m. **TRADE SHOW OPEN**

12:00-1:30 p.m. **LUNCH** in the Trade Show
(Lunch provided for pre-registered four day and Friday only attendees)

1:30 - 4:30 p.m. **BLACKBERRY & RASPBERRY EDUCATIONAL SESSION III**
Room 202
Moderator: Elvin Andrew UGA Cooperative Extension, Lanier County, Lakeland, GA

1:30 p.m. **Orange Rust in Caneberries**
and
Disease "CSI": The Process of Turning Mysterious Symptoms into Positive Identification
Phil Brannen, University of Georgia, Athens, GA

2:15 p.m. **Where are those X@$#! Viruses Coming from and What is Anyone Doing About Them?**
Katie Jennings, NCSU, Raleigh, NC; Mark Czarnota, University of Georgia, Griffin, GA

3:00-4:30 p.m. **BLACKBERRY & RASPBERRY EDUCATIONAL SESSION IV**
Auditorium
SPOTTED WING DROSOPHILA AND SMALL FRUIT CROPS

3:00 p.m. **Controlling Spotted Wing Drosophila**
Dr. Hannah Burrack, North Carolina State University, Raleigh NC

Pesticide information on pages 36-38.

4:45 - 6:15 p.m.	**WELCOME RECEPTION** in Trade Show Area (Open to all registered attendees)
5:45 p.m.	**LIVE AUCTION** in Exhibit Hall
Evening	**DINNER ON YOUR OWN**

SATURDAY, JANUARY 12, 2013

8:00 a.m.	**AWARDS BREAKFAST** - Ticketed Event
8:00-2:30 p.m.	**REGISTRATION OPEN** Riverview Concourse
9:00-2:30 p.m.	**TRADE SHOW OPEN**
12:00-1:30 p.m.	**LUNCH** in the Trade Show (Lunch provided for pre-registered four day and Saturday only attendees)
2:00 p.m.	**SILENT AUCTION CLOSES**
2:00-5:00 p.m.	**EDUCATIONAL SESSIONS** Review other Conference Agendas for additional education sessions you don't want to miss.
2:30 p.m.	**TRADE SHOW CLOSES**
5:30-6:45 p.m.	**RECEPTION** at the Westin Savannah Harbor (Open to All Attendees) Reception sponsored by syngenta
Evening	**DINNER ON YOUR OWN**

SUNDAY, JANUARY 13, 2013

8:00-8:30 a.m.	**WORSHIP SERVICE** Westin Savannah Harbor
8:30 a.m.	**INDUSTRY ROUNDTABLE** (all associations) Westin Savannah Harbor Continental breakfast with fellow growers to discuss industry issues.
10:30 a.m	**CONVENTION ADJOURNS**

Roadside Markets

All Activities at the Savannah International Trade & Convention Center (SITCC) unless otherwise noted.

Sponsored by the GA and SC Farm Bureaus

FRIDAY, JANUARY 11, 2013

7:00-5:00 p.m.	**REGISTRATION OPEN** Riverview Concourse
9:00-6:15 p.m.	**TRADE SHOW OPEN**
12:00-1:30 p.m.	**LUNCH** in the Trade Show (Lunch provided for pre-registered four day and Friday only attendees)
1:30 - 4:30 p.m.	**ROADSIDE MARKETS EDUCATIONAL SESSION** **Rooms 200/201** Moderators: Chalmers Mikell, South Carolina Farm Bureau, Columbia, SC; Brandon Ashley, Georgia Farm Bureau, Macon, GA
1:30 p.m.	**Welcome** Chalmers Mikell, South Carolina Farm Bureau and Brandon Ashley, Georgia Farm Bureau
1:45 p.m.	**Diversification at Hillcrest Orchards** Janice Smith Hale, Hillcrest Orchards, Ellijay, GA
2:15 p.m.	**Having a Cooking Contest at Your Farm** Sue Mastrario, Ashburn, GA
3:15 p.m.	**BREAK**
3:30 p.m.	**The 'Five Rivers Market' Business Prototype** Bert Shuler, Five Rivers Market, Orangeburg SC
4:00 p.m.	**Being A Successful Farm Market Survivor** David Richburg, Richburg Farms, Manning, SC
4:45 - 6:15 p.m.	**WELCOME RECEPTION** in Trade Show Area (Open to all registered attendees)
5:45 p.m.	**LIVE AUCTION** in Exhibit Hall
Evening	**DINNER ON YOUR OWN**

Please review other Conference Agenda for additional educational sessions, trade show events, and entertainment opportunities during the Saturday and Sunday Program that you don't want to miss.

Muscadine Conference

Pesticide information on pages 36-38.

All activities at the Savannah International Trade & Convention Center (SITCC) unless otherwise noted.

THURSDAY, JANUARY 10, 2013

7:30 - 5:00 p.m. **REGISTRATION OPEN**
Riverview Concourse
Exhibitor and Poster Set-Up

12:00 p.m. **GFVGA BOARD OF DIRECTORS MEETING**
Westin Hotel - Riverscape Room

1:00 - 4:00 p.m. **SE REGIONAL EDUCATIONAL SESSION**
BUSINESS OPERATIONS

5:00 p.m. **GFVGA ANNUAL MEETING**
SITCC

FRIDAY, JANUARY 11, 2013

7:00-5:00 p.m. **REGISTRATION OPEN**
Riverview Concourse

9:00-6:15 p.m. **TRADE SHOW OPEN**

12:00-1:30 p.m. **LUNCH** in the Trade Show
(Lunch provided for pre-registered four Day and Friday only attendees)

1:30 - 4:30 p.m. **ROADSIDE MARKET EDUCATIONAL SESSION**
See page 25

3:00-4:30 p.m. **MUSCADINE EDUCATIONAL SESSION I**
Auditorium
SPOTTED WING DROSOPHILIA AND SMALL FRUIT CROPS

3:00 p.m. **Controlling Spotted Wing Drosophilia**
Dr. Hannah Burrack, North Carolina State University, Raleigh NC

4:45 - 6:15 p.m. **WELCOME RECEPTION** in Trade Show Area
(Open to all registered attendees)

5:45 p.m. **LIVE AUCTION** in Exhibit Hall

Evening **DINNER ON YOUR OWN**

SATURDAY, JANUARY 12, 2013

8:00 a.m. **AWARDS BREAKFAST** - Ticketed Event

8:00-2:30 p.m. **REGISTRATION OPEN**
Riverview Concourse

9:00-2:30 p.m. **TRADE SHOW OPEN**

12:00-1:30 p.m. **LUNCH** in the Trade Show
(Lunch provided for pre-registered four day and Saturday only attendees)

1:30 p.m. **Business Meeting of the Georgia Muscadine Association**

2:00-4:30 p.m. **MUSCADINE EDUCATIONAL SESSION II**
Room 203

2:00 p.m. **Weed Control in Muscadines**
Mark Czarnota, University of Georgia, Griffin, GA

2:30 p.m. **Postharvest Evaluation of Fresh Market Muscadine Cultivars: What's New?**
Penelope Perkins-Veazie, North Carolina State University, Kannapolis, NC

3:00 p.m. **To Treat or Not to Treat? Insect Management in Southeastern Muscadines**
Dr. Hannah Burrack, North Carolina State University, Raleigh, NC

3:30 p.m. **Progress in Muscadine Genetic Engineering**
Dennis Gray, University of Florida, Apopka, FL

4:00 p.m. **Muscadines - Good to Eat, and Good for You!**
Christine Murphy, Clemson University, Clemson, SC

4:30 p.m. **A Research Update on Balanced Pruning of 'Supreme' Muscadine Grape in North Carolina**
Barclay Poling, North Carolina State University, Raleigh, NC

2:00 p.m. **SILENT AUCTION CLOSES**

2:30 p.m. **TRADE SHOW CLOSES**

5:30-6:45 p.m. **RECEPTION** at the Westin Savannah Harbor
(Open to All Attendees)
Reception sponsored by syngenta

Evening **DINNER ON YOUR OWN**

SUNDAY, JANUARY 13, 2013

8:00-8:30 a.m. **WORSHIP SERVICE**
Westin Savannah Harbor

8:30 a.m. **INDUSTRY ROUNDTABLE** (all associations)
Westin Savannah Harbor
Continental breakfast with fellow growers to discuss industry issues.

10:30 a.m **CONVENTION ADJOURNS**

Pesticide information on pages 36-38.

Pecan Conference

All activities at the Savannah International Trade & Convention Center (SITCC) unless otherwise noted.

THURSDAY, JANUARY 10, 2013

7:30 - 5:00 p.m. **REGISTRATION OPEN**
Riverview Concourse
Exhibitor and Poster Set-Up

12:00 p.m. **GFVGA BOARD OF DIRECTORS MEETING**
Westin Hotel - Riverscape Room

1:00 - 4:00 p.m. **SE REGIONAL EDUCATIONAL SESSION**
BUSINESS OPERATIONS

5:00 p.m. **GFVGA ANNUAL MEETING**
SITCC

FRIDAY, JANUARY 11, 2013

7:00-5:00 p.m. **REGISTRATION OPEN**
Riverview Concourse

9:00-6:15 p.m. **TRADE SHOW OPEN**

9:30-11:00 a.m. **PECAN EDUCATIONAL SESSION I**
Rooms 102/103/104
2,4-D / DICAMBA RESISTANT CROP TECHNOLOGY AND PROTECTION OF SENSITIVE CROPS

9:30 a.m. **Understanding Why Our Agronomic Neighbors Will Benefit From 2,4-D- or Dicamba-Resistant Technologies**
Stanley Culpepper, The University of Georgia, Tifton, GA

9:50 a.m. **The Enlist™ Weed Control System – Technologies and Stewardship to Meet Diverse Agricultural Needs**
Mark Peterson, Dow AgroSciences, Indianapolis, IN

10:25 p.m. **Roundup Ready® Xtend Crop System Launch and Stewardship Plans**
Shannon Hauf, Monsanto, St. Louis, MO

12:00-1:30 p.m. **LUNCH** in the Trade Show
(Lunch provided for pre-registered four day and Friday only attendees)

2:00 - 4:00 p.m. **PECAN EDUCATIONAL SESSION II**
Room 203

2:00 p.m. **U.S. Pecan Council Update**
Marty Harrell, Camilla Pecan Company, Camilla, GA

2:30 p.m. **Pecan Insurance Update**
Dr. Jeanne Lindsey, USDA-RMA, Valdosta, GA

2:50 p.m. **Legislative Update**
Bob Redding, The Redding Firm, Albany, GA

4:45 - 6:15 p.m. **WELCOME RECEPTION**
in Trade Show Area
(Open to all registered attendees)

5:45 p.m. **LIVE AUCTION** in Exhibit Hall

Evening **DINNER ON YOUR OWN**

SATURDAY, JANUARY 12, 2013

8:00 a.m. **AWARDS BREAKFAST** - Ticketed Event

8:00-2:30 p.m. **REGISTRATION OPEN**
Riverview Concourse

9:00-2:30 p.m. **TRADE SHOW OPEN**

12:00-1:30 p.m. **LUNCH** in the Trade Show
(Lunch provided for pre-registered four day and Saturday only attendees)

2:00 - 5:00 p.m. **EDUCATIONAL SESSIONS**
Review other Conference Agendas for additional education sessions you don't want to miss.

2:00 p.m. **SILENT AUCTION CLOSES**

2:30 p.m. **TRADE SHOW CLOSES**

5:30-6:45 p.m. **RECEPTION**
at the Westin Savannah Harbor
(Open to All Attendees)
Reception sponsored by syngenta®

Evening **DINNER ON YOUR OWN**

SUNDAY, JANUARY 13, 2013

8:00-8:30 a.m. **WORSHIP SERVICE**
Westin Savannah Harbor

8:30 a.m. **INDUSTRY ROUNDTABLE** (all associations)
Westin Savannah Harbor
Continental breakfast with fellow growers to discuss industry issues.

10:30 a.m. **CONVENTION ADJOURNS**

HAVE A SAFE TRIP HOME!

Blueberry Conference

Pesticide information on pages 36-38.

All activities at the Savannah International Trade & Convention Center (SITCC) unless otherwise noted.

THURSDAY, JANUARY 10, 2013

7:30 - 5:00 p.m. **REGISTRATION OPEN**
Riverview Concourse
Exhibitor and Poster Set-Up

12:00 p.m. **GFVGA BOARD OF DIRECTORS MEETING**
Westin Hotel - Riverscape Room

1:00 - 4:00 p.m. **SE REGIONAL EDUCATIONAL SESSION**
BUSINESS OPERATIONS

5:00 p.m. **GFVGA ANNUAL MEETING**
SITCC

FRIDAY, JANUARY 11, 2013

7:00-5:00 p.m. **REGISTRATION OPEN**
Riverview Concourse

8:00 - 11:00 a.m. **BLUEBERRY EDUCATIONAL SESSION I**
Auditorium
Moderator: Elvin Andrews, County Extension Agent, Lanier County, University of Georgia

8:00 a.m. **Exobasidium Update**
Dr. Harald Scherm, Dr. Phil Brannen and Dr. Marin Brewer
University of Georgia, Athens, GA

8:35 a.m. **Field ID of Diseases**
Dr. Phil Brannen, University of Georgia, Athens, GA

9:20 a.m. **Pesticide Safety/Handling/Records/Audits**
Dr. Dan Horton, University of Georgia, Athens, GA

9:50 a.m. **Gall Midge/Thrips/Bud Mites**
Dr. Dan Horton, University of Georgia, Athens, GA

10:30 a.m. **Precision Machine Design**
Dave Birch, Precision Machine Design (owner), Hammonton, NJ

9:00-6:15 p.m. **TRADE SHOW OPEN**

12:00-1:30 p.m. **LUNCH** in the Trade Show
(Lunch provided for pre-registered four day and Friday only attendees)

1:30 - 4:00 p.m. **BLUEBERRY EDUCATIONAL SESSION II**
Auditorium
Moderator: James Jacobs, Pierce County Extension Agent, University of Georgia

1:30 p.m. **USDA Fruit/Vegetable Marketing News**
Alesia Swan, Chief of Field Operations, USDA, Atlanta, GA

2:00 p.m. **Immigration Law/E-Verify/New Tax Leg**
Jon Huffmaster, Legislative Director, Georgia Farm Bureau, Macon, GA

3:00-4:30 p.m. **BLUEBERRY EDUCATIONAL SESSION III**
SPOTTED WING DROSOPHILIA AND SMALL FRUIT CROPS
Auditorium

3:00 p.m. **Controlling Spotted Wing Drosophilia**
Dr. Hannah Burrack, North Carolina State University, Raleigh NC

4:45 - 6:15 p.m. **WELCOME RECEPTION** in Trade Show Area
(Open to all registered attendees)

5:45 p.m. **LIVE AUCTION** in Exhibit Hall

Evening **DINNER ON YOUR OWN**

Pesticide information on pages 36-38.

Blueberry Conference

All activities at the Savannah International Trade & Convention Center (SITCC) unless otherwise noted.

SATURDAY, JANUARY 12, 2013

8:00 a.m.	**AWARDS BREAKFAST** - Ticketed Event
8:00-2:30 p.m.	**REGISTRATION OPEN** Riverview Concourse
9:00-2:30 p.m.	**TRADE SHOW OPEN**
12:00-1:30 p.m.	**LUNCH** in the Trade Show (Lunch provided for pre-registered four day and Saturday only attendees)
1:00 p.m.	**Georgia Blueberry Growers Association Business Meeting** Albert Wildes, President, Alma, GA
1:30-5:00 p.m.	**BLUEBERRY EDUCATIONAL SESSION IV** **Auditorium** Moderator: Shane Curry, County Extension Agent, Appling County, University of Georgia
1:30 p.m.	**Micronutrient Disorders** Dr. Eric Stafne, Mississippi State University, Poplarville, MS
2:00 p.m.	**Pruning for Machine Harvest** Dr. Bill Cline, North Carolina State University, Castle Hayne, NC
2:30 p.m.	**New Varieties from USDA** Dr. Steve Stringer, ARS, USDA, Poplarville, MS
3:00 p.m.	**Agricultural Recruitment System** Jorge Gomez, Georgia Department of Agriculture, Atlanta, GA
3:30 p.m.	**Grading Line Equipment** Nick Hall, BBC Technologies, City, ST
4:00 p.m.	**New Side Mount-Midsize Harvesters** **Jeff McKibben, McKibben Manufacturing** Grand Junction, MI
4:30 p.m.	**New Harvest Technology** BEI, Korvan, Littau
2:00 p.m.	**SILENT AUCTION CLOSES**
2:30 p.m.	**TRADE SHOW CLOSES**
5:30-6:45 p.m.	**RECEPTION** at the Westin Savannah Harbor (Open to All Attendees) Reception sponsored by syngenta®
Evening	**DINNER ON YOUR OWN**

SUNDAY, JANUARY 13, 2013

8:00-8:30 a.m.	**WORSHIP SERVICE** Westin Savannah Harbor
8:30 a.m.	**INDUSTRY ROUNDTABLE** (all associations) Westin Savannah Harbor Continental breakfast with fellow growers to discuss industry issues.
10:30 a.m	**CONVENTION ADJOURNS**
	HAVE A SAFE TRIP HOME!

Food Safety Conference

Pesticide information on pages 36-38.

All activities at the Savannah International Trade & Convention Center (SITCC) unless otherwise noted.

THURSDAY, JANUARY 10, 2013

7:30 - 5:00 p.m. **REGISTRATION OPEN**
Riverview Concourse
Exhibitor and Poster Set-Up

12:00 p.m. **GFVGA BOARD OF DIRECTORS MEETING**
Westin Hotel - Riverscape Room

1:00 - 4:00 p.m. **SE REGIONAL EDUCATIONAL SESSION**
BUSINESS OPERATIONS

2:00-5:00 p.m. **FOOD SAFETY EDUCATIONAL SESSION I**
Rooms 204/205
Moderator: Diane Ducharme, North Carolina State University, Kannapolis, NC

2:00 p.m. **Interactive Recall Simulation and Workshop**
(limited to 45)
Collaborative workshop between North Carolina State University and University of Florida

5:00 p.m. **GFVGA ANNUAL MEETING** -SITCC

FRIDAY, JANUARY 11, 2013

7:00-5:00 p.m. **REGISTRATION OPEN** -Riverview Concourse

8:00-11:00 a.m. **FOOD SAFETY EDUCATIONAL SESSION II**
Rooms 204/205
Moderator: Diane Ducharme, North Carolina State University, Kannapolis, NC

8:00 a.m **Food Safety Legislative and Regulatory Update**
Dr. David Gombas, Sr. VP Food Safety and Technology, United Fresh Produce Association, Washington, DC

8:30 a.m. **What Does "Sanitation" Really Mean for a Produce Operation?**
Dr. Keith Schneider, University of Florida, Gainesville, FL

9:00 a.m. **Sanitary Design and Flow of a Packing Facility**
Drew McDonald, Danaco Solutions, LLC, Salinas, CA

9:45 a.m. **Sanitation Tools and Verification Steps**
Drew McDonald, Danaco Solutions, LLC, Salinas, CA

10:15 a.m. **BREAK**

10:25 a.m. **Produce Wash Water Management for Small-Scale & Direct Market Farms**
Dr. Trevor Suslow, University of California-Davis, Davis, CA

11:10 a.m. **Viruses and Fresh Produce: What Every Producer Should Know!**
Chip Simmons, North Carolina State University, Raleigh, NC

9:00-6:15 p.m. **TRADE SHOW OPEN**

12:00-1:30 p.m. **LUNCH** in the Trade Show
(Lunch provided for Four Day and Friday Only Registrants)

1:30 - 4:30 p.m. **FOOD SAFETY EDUCATIONAL SESSION III**
Rooms 204/205
Moderator: Dr. Keith Schneider, University of Florida, Gainesville, FL

1:30 p.m. **Applicable Microbial Sampling for the Farm and Facility**
Dr. Trevor Suslow, University of California Davis, Davis, CA

2:15 p.m. **Regulatory Perspective of What Happens at a Produce Operation During a Recall**
Oscar Garrison, Dir. of Consumer Protection Div., Georgia Dept. of Agriculture

3:00 p.m. **Case Study of an Outbreak: Lessons Learned**
Dr. Michelle Danyluk, University of Florida, Lake Alfred, FL

4:45 - 6:15 p.m. **WELCOME RECEPTION** in Trade Show Area
(Open to all registered attendees)

5:45 p.m. **LIVE AUCTION** in Exhibit Hall

SATURDAY, JANUARY 12, 2013

8:00 a.m. **AWARDS BREAKFAST** - Ticketed Event

8:00-2:30 p.m. **REGISTRATION OPEN**

9:00-2:30 p.m. **TRADE SHOW OPEN**

12:00-1:30 p.m. **LUNCH** in the Trade Show
(Lunch provided for Four Day and Saturday Only Registrants)

2:00-5:00 p.m. **FOOD SAFETY EDUCATIONAL SESSION IV**
Rooms 204/205
Moderator: Katie Odrobina, Georgia GAP Food Safety Program, Belle Glade, FL

2:00 p.m. **Introduction to Food Safety**
Diane Ducharme, North Carolina State University, Kannapolis, NC

2:15 p.m. **Overview of a GAP Program**
Diane Ducharme, North Carolina State University, Kannapolis, NC

3:00 p.m. **Overview of a GMP Program**
Dr. Keith Schneider, University of Florida, Gainesville, FL

Pesticide information on pages 36-38.

Business Operations

All activities at the Savannah International Trade & Convention Center (SITCC) unless otherwise noted.

THURSDAY, JANUARY 10, 2013

7:30 - 5:00 p.m. **REGISTRATION OPEN**
Riverview Concourse
Exhibitor and Poster Set-Up

12:00 p.m. **GFVGA BOARD OF DIRECTORS MEETING**
Westin Hotel - Riverscape Room

1:00 - 4:00 p.m. **SE REGIONAL EDUCATIONAL SESSION**
CONCURRENT SESSIONS

1:00 - 4:00 p.m. **BUSINESS OPERATIONS I**

Following the 2012 November elections there will be a number of **'hot issues' fruit and vegetable growers will be fa ing in 2013 such as IMMIGRATION, FOOD SAFETY CONCERNS, FARM BILL REGULATIONS**, and more. Make plans to attend this Thursday afternoon session for all the **issues that could affect your operation.** Check the SE Regional Conference we site, www.seregionalconference.com after November elections.

1:00 - 4:00 p.m. **BUSINESS OPERATIONS II**

1:00 - 1:30 p.m. **Financing Options for Value Added Operations**
Speaker to be announced

1:30 - 2:00 p.m. **USDA Guaranteed Loans**
Speaker to be announced

2:00 - 2:30 p.m. **USDA Rural Development Business and Cooperative Programs**
Speaker to be announced

2:30 - 2:40 p.m. **BREAK**

2:40 - 3:00 p.m. **C.H. Robinson Transportation Program**
Shannon Leigh, C.H. Robinson Worldwide, Carmel, CA

3:00 - 3:30 p.m. **Marketing Your Business**
Speaker to be announced

3:30 - 4:00 p.m. **What's new with Social Media**
Speaker to be announced

5:00 p.m. **GFVGA ANNUAL MEETING**
SITCC

FRIDAY, JANUARY 11, 2013

7:00-5:00 p.m. **REGISTRATION OPEN**
Riverview Concourse

9:00-6:15 p.m. **TRADE SHOW OPEN**

12:00-1:30 p.m. **LUNCH** in the Trade Show
(Lunch provided for Four Day and Friday Only Registrants)

1:00 - 4:45 p.m. **EDUCATIONAL SESSIONS**
Review other Conference Agendas for additional education sessions you don't want to miss,

4:45 - 6:15 p.m. **WELCOME RECEPTION** in Trade Show Area
(Open to all registered attendees)

5:45 p.m. **LIVE AUCTION** in Exhibit Hall

Evening **DINNER ON YOUR OWN**

SATURDAY, JANUARY 12, 2013

8:00 a.m. **AWARDS BREAKFAST** - Ticketed Event

8:00-2:30 p.m. **REGISTRATION OPEN**
Riverview Concourse

9:00-2:30 p.m. **TRADE SHOW OPEN**

12:00-1:30 p.m. **LUNCH** in the Trade Show
(Lunch provided for Four Day and Saturday Only Registrants)

1:00-5:00 p.m. **EDUCATIONAL SESSIONS**
Review other Conference Agendas for additional education sessions you don't want to miss,

2:00 p.m. **SILENT AUCTION CLOSES**

2:30 p.m. **TRADE SHOW CLOSES**

5:30-6:45 p.m. **RECEPTION** at the Westin Savannah Harbor
(Open to All Attendees)
Reception sponsored by syngenta®

SUNDAY, JANUARY 13, 2013

8:00-8:30 a.m. **WORSHIP SERVICE**
Westin Savannah Harbor

8:30 a.m. **INDUSTRY ROUNDTABLE** (all associations)
Westin Savannah Harbor
Continental breakfast with fellow growers to discuss industry issues.

10:30 a.m **CONVENTION ADJOURNS**

Strawberry Conference

Pesticide information on pages 36-38.

All activities at the Savannah International Trade & Convention Center (SITCC) unless otherwise noted.

THURSDAY, JANUARY 10, 2013

7:30 - 5:00 p.m. **REGISTRATION OPEN**
Riverview Concourse
Exhibitor and Poster Set-Up

12:00 p.m. **GFVGA BOARD OF DIRECTORS MEETING**
Westin Hotel - Riverscape Room

1:00 - 4:00 p.m. **SE REGIONAL EDUCATIONAL SESSION**
BUSINESS OPERATIONS

5:00 p.m. **GFVGA ANNUAL MEETING** - SITCC

FRIDAY, JANUARY 11, 2013

7:00-5:00 p.m. **REGISTRATION OPEN**
Riverview Concourse

9:00-6:15 p.m. **TRADE SHOW OPEN**

9:30-11:00 a.m. **VEGETABLE EDUCATIONAL SESSION II**
2,4-D / DICAMBA RESISTANT CROP TECHNOLOGY AND PROTECTION OF SENSITIVE CROPS
Rooms 102/103/104; Please see page 20

12:00-1:30 p.m. **LUNCH** in the Trade Show
(Lunch provided for pre-registered four day and Friday only attendees)

3:00-4:30 p.m. **STRAWBERRY EDUCATIONAL SESSION I**
SPOTTED WING DROSOPHILIA AND SMALL FRUIT CROPS
Auditorium

3:00 p.m. **Controlling Spotted Wing Drosophilia**
Dr. Hannah Burrack, North Carolina State University, Raleigh NC

4:45 - 6:15 p.m. **WELCOME RECEPTION** in Trade Show Area
(Open to all registered attendees)

5:45 p.m. **LIVE AUCTION** in Exhibit Hall

SATURDAY, JANUARY 12, 2013

8:00 a.m. **AWARDS BREAKFAST** - Ticketed Event

8:00-2:30 p.m. **REGISTRATION OPEN**
Riverview Concourse

9:00-2:30 p.m. **TRADE SHOW OPEN**

12:00-1:30 p.m. **LUNCH** in the Trade Show
(Lunch provided for pre-registered four day and Saturday only attendees)

2:00-5:00 p.m. **STRAWBERRY EDUCATIONAL SESSION II**
Room 202
Moderator: Bill Tyson, Effingham County Extension Agent, Springfield, GA

2:00 p.m. **A Free Fungicide Resistance Monitoring Service that Helps You Design the Best Spray Program for Gray Mold Control**
Dr. Guido Schnabel, Professor Plant Pathology, Clemson University, Clemson, SC

2:45 p.m. **The Chemicals That We Use – A Pest Management Timeline**
Dr. J. Powell Smith, Clemson University Cooperative Extension Associate, Small Fruits and Vegetables Regional lead Agent

3:45 p.m. **Deciding on the Best Strawberry Plant Type Strategy for your Operation - Plugs, Fresh Dugs or Cut-offs?**
Dr. Barclay Poling, North Carolina State University, Professor Emeritus/Extension Strawberry Specialist, Department of Horticultural Science, Raleigh, NC

4:15 p.m. **Plasticulture Strawberry Production in Georgia: Best Management Practices**
Dr. Barclay Poling, North Carolina State University, Professor Emeritus/Extension Strawberry Specialist, Department of Horticultural Science, Raleigh, NC

*To obtain a copy of the workbook prior to Strawberry Session please contact Jeff Cook at mackiv@uga.edu.

2:00 p.m. **SILENT AUCTION CLOSES**

2:30 p.m. **TRADE SHOW CLOSES**

5:30-6:45 p.m. **RECEPTION**
at the Westin Savannah Harbor
(Open to All Attendees)
Reception sponsored by syngenta

Evening **DINNER ON YOUR OWN**

SUNDAY, JANUARY 13, 2013

8:00-8:30 a.m. **WORSHIP SERVICE**
Westin Savannah Harbor

8:30 a.m. **INDUSTRY ROUNDTABLE** (all associations)
Westin Savannah Harbor
Continental breakfast with fellow growers to discuss industry issues.

10:30 a.m **CONVENTION ADJOURNS**

HAVE A SAFE TRIP HOME!

Pesticide information on pages 36-38.

Watermelon Conference

All activities at the Savannah International Trade & Convention Center (SITCC) unless otherwise noted.

THURSDAY, JANUARY 10, 2013

7:30 - 5:00 p.m.	**REGISTRATION OPEN** Riverview Concourse Exhibitor and Poster Set-Up
12:00 p.m.	**GFVGA BOARD OF DIRECTORS MEETING** Westin Hotel - Riverscape Room
1:00 - 4:00 p.m.	**SE REGIONAL EDUCATIONAL SESSION** **BUSINESS OPERATIONS**
5:00 p.m.	**GFVGA ANNUAL MEETING** - SITCC

FRIDAY, JANUARY 11, 2013

7:00-5:00 p.m.	**REGISTRATION OPEN** Riverview Concourse
8:00-9:15 a.m.	**VEGETABLE EDUCATIONAL SESSION I** **PESTICIDES AND PEST MANAGEMENT UPDATE** **ROOMS 102/103/104; Please see page 20**
9:00-6:15 p.m.	**TRADE SHOW OPEN**
9:30-11:00 a.m.	**VEGETABLE EDUCATIONAL SESSION II** **2,4-D OR DICAMBA-RESISTANT CROP TECHNOLOGIES AND PROTECTION OF SENSITIVE CROPS** **Rooms 102/103/104; Please see page 20**
12:00-1:30 p.m.	**LUNCH** in the Trade Show (Lunch provided for pre-registered four day and Friday only attendees)
1:30 - 2:45 p.m.	**VEGETABLE EDUCATIONAL SESSION III** **METHYL BROMIDE ALTERNATIVES – MOVING FORWARD** **Rooms 103/104; Please see page 20**
3:00 - 4:30 p.m.	**VEGETABLE EDUCATIONAL SESSION IV** **EMERGING ISSUES AND CROPPING SYSTEMS** **Rooms 103/104; Please see page 20**
4:45 - 6:15 p.m.	**WELCOME RECEPTION** in Trade Show Area (Open to all registered attendees)
5:45 p.m.	**LIVE AUCTION** in Exhibit Hall
Evening	**DINNER ON YOUR OWN**

SATURDAY, JANUARY 12, 2013

8:00 a.m.	**AWARDS BREAKFAST** - Ticketed Event
8:00-2:30 p.m.	**REGISTRATION OPEN** Riverview Concourse
9:00-2:30 p.m.	**TRADE SHOW OPEN**
12:00-1:30 p.m.	**LUNCH** in the Trade Show (Lunch provided for pre-registered four day and Saturday only attendees)
1:30-2:30 p.m.	**CONCURRENT SESSIONS**
1:30-2:30 p.m.	**VEGETABLE EDUCATIONAL SESSION V** **PRODUCTION OF SWEET POTATOES** **ROOM 102;** Please see page 21
1:30-2:30 p.m.	**VEGETABLE EDUCATIONAL SESSION VI** **ONION POSTHARVEST HANDLING, DISEASE AND WASTE MANAGEMENT I** **Room 103; Please see page 21**
1:30-2:30 p.m.	**VEGETABLE EDUCATIONAL SESSION VII** **SWEET CORN** **Room 104; Please see page 21**
2:00 p.m.	**SILENT AUCTION CLOSES**
2:30 p.m.	**TRADE SHOW CLOSES**
2:45 -3:45 p.m.	**CONCURRENT SESSIONS** **Please see page 13**
2:45-3:45p.m.	**VEGETABLE EDUCATIONAL SESSION VIII** **WATERMELON DISEASE MANAGEMENT** **Room 104** Moderator: Jason Brock, The University of Georgia, Tifton, GA
2:45 p.m.	**Managing Foliar Diseases of Watermelon** David Langston, The University of Georgia, Tifton, GA
3:05 p.m.	**Rind Necrosis in Watermelons** Mathew Paret, University of Florida, Quincy, FL
3:25 p.m.	**Phytophthora Fruit Rot of Watermelons** C.S. Kouisk, USDA, ARS, Charleston, SC
5:30-6:45 p.m.	**RECEPTION** at the Westin Savannah Harbor (Open to All Attendees) Reception sponsored by syngenta®
Evening	**DINNER ON YOU OWN**

Sweet Corn Conference

Pesticide information on pages 36-38.

All activities at the Savannah International Trade & Convention Center (SITCC) unless otherwise noted.

THURSDAY, JANUARY 10, 2013

7:30 - 5:00 p.m. **REGISTRATION OPEN**
Riverview Concourse
Exhibitor and Poster Set-Up

12:00 p.m. **GFVGA BOARD OF DIRECTORS MEETING**
Westin Hotel - Riverscape Room

1:00 - 4:00 p.m. **SE REGIONAL EDUCATIONAL SESSION**
BUSINESS OPERATIONS

5:00 p.m. **GFVGA ANNUAL MEETING**
SITCC

FRIDAY, JANUARY 11, 2013

7:00-5:00 p.m. **REGISTRATION OPEN**
Riverview Concourse

8:00-9:15 a.m. **VEGETABLE EDUCATIONAL SESSION I**
PESTICIDES AND PEST MANAGEMENT UPDATE
ROOMS 102/103/104; Please see page 20

9:00-6:15 p.m. **TRADE SHOW OPEN**

9:30-11:00 a.m. **VEGETABLE EDUCATIONAL SESSION II**
2,4-D OR DICAMBA-RESISTANT CROP TECHNOLOGIES AND PROTECTION OF SENSITIVE CROPS
ROOMS 102/103/104; Please see page 20

12:00-1:30 p.m. **LUNCH** in the Trade Show
(Lunch provided for pre-registered four day and Friday only attendees)

1:30 - 2:45 p.m. **VEGETABLE EDUCATIONAL SESSION III**
METHYL BROMIDE ALTERNATIVES – MOVING FORWARD
Rooms 103/104; Please see page 20

3:00 - 4:30 p.m. **VEGETABLE EDUCATIONAL SESSION IV**
EMERGING ISSUES AND CROPPING SYSTEMS
Rooms 103/104; Please see page 20

4:45 - 6:15 p.m. **WELCOME RECEPTION** in Trade Show Area
(Open to all registered attendees)

5:45 p.m. **LIVE AUCTION** in Exhibit Hall

Evening **DINNER ON YOUR OWN**

SATURDAY, JANUARY 12, 2013

8:00 a.m. **AWARDS BREAKFAST** - Ticketed Event

8:00-2:30 p.m. **REGISTRATION OPEN**
Riverview Concourse

9:00-2:30 p.m. **TRADE SHOW OPEN**

12:00-1:30 p.m. **LUNCH** in the Trade Show
(Lunch provided for pre-registered four day and Saturday only attendees)

1:30-2:30 p.m. **CONCURRENT SESSIONS**
Please see page 21

1:30-2:30 p.m. **VEGETABLE EDUCATIONAL SESSION VII**
SWEET CORN
Room 104
Moderator: Justin Shealey, Echols County Extension

1:30 p.m. **Weed Management in Round-up Ready and Conventional Sweet Corn**
Stanley Culpepper, The University of Georgia, Tifton, GA

1:50 p.m. **Insect Management in BT and Conventional Sweet Corn**
Stormy Sparks, The University of Georgia, Tifton, GA

2:10 p.m. **Marketplace Acceptance of Biotech Sweet Corn**
Paulette Pierson, Monsanto, St. Louis, MO

2:00 p.m. **SILENT AUCTION CLOSES**

2:30 p.m. **TRADE SHOW CLOSES**

2:45 -3:45 p.m. **CONCURRENT SESSIONS**

2:45-3:45p.m. **VEGETABLE EDUCATIONAL SESSION VIII**
WATERMELON DISEASE MANAGEMENT
Room 104; Please see page 21

2:45-3:45p.m. **VEGETABLE EDUCATIONAL SESSION IX**
ONION POSTHARVEST HANDLING, DISEASE AND WASTE MANAGEMENT II
Room 103; Please see page 21

5:30-6:45 p.m. **RECEPTION** at the Westin Savannah Harbor
(Open to All Attendees)
Reception sponsored by syngenta®

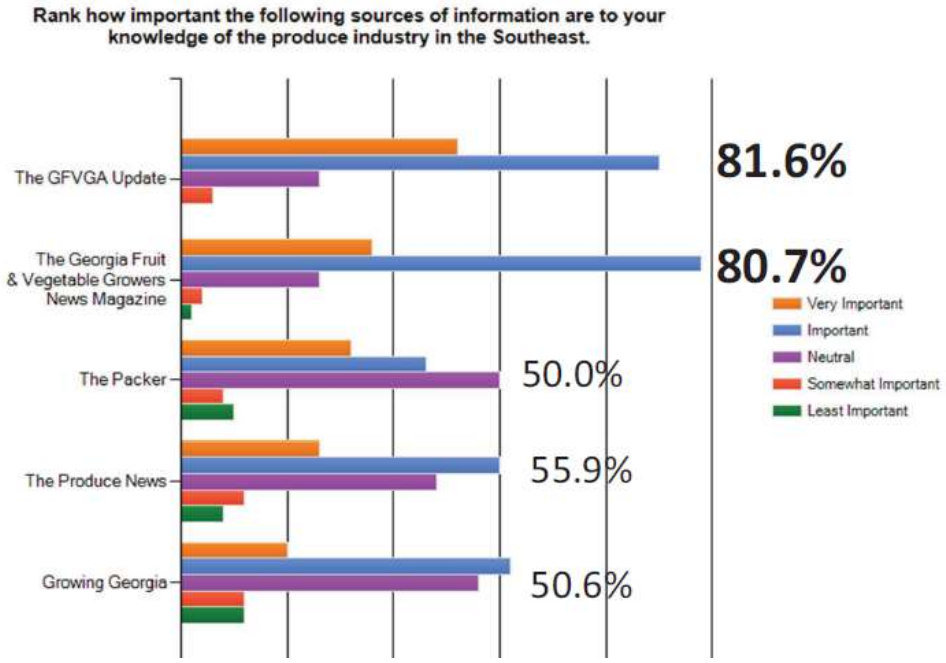
Evening **DINNER ON YOUR OWN**

SUNDAY, JANUARY 13, 2013

8:00-8:30 a.m. **WORSHIP SERVICE**
Westin Savannah Harbor

8:30 a.m. **INDUSTRY ROUNDTABLE** (all associations)
Westin Savannah Harbor
Continental breakfast with fellow growers to discuss industry issues.

Where does their produce info come from?



5. Georgia Fruit & Vegetable Growers Association – Distribution of Spotted Wing Drosophila, an Invasive Insect Pest of Small and Stone Fruit, in the State of Georgia – Final Performance Report

Project Summary:

Blueberries are the biggest fruit crop in Georgia with an annual farm gate value of $255 million and economic impact of $1 billion on the State economy. Spotted wing drosophila (SWD), an invasive pest, has recently emerged as a major threat to blueberry production in Georgia. Since its first detection in Georgia in 2010, SWD infestations have led to 15-20% loss of blueberry crop annually. Lack of grower awareness of SWD distribution was one of the major factors contributing to the high crop losses observed in Georgia. The goal of this project was to develop an interactive map of SWD distribution in Georgia to help growers increase blueberry/farm fruit crop income by minimizing crop losses due to SWD. A statewide survey was conducted using yeast-sugar-water baited traps. By the end of the 2015 field season, SWD had been confirmed in 32 counties located in different parts of the state, which include most of the major blueberry producing counties. Based on the results, we developed an interactive map of statewide distribution of SWD in Georgia and posted it on the UGA Blueberry Blog (http://blog.caes.uga.edu/blueberry/swd/). To educate growers about SWD distribution and associated risks, findings were shared with growers and other stakeholders through presentations at grower meetings and conferences at the state and regional level. Grower responses to survey questionnaires clearly indicate that awareness of SWD distribution enabled them to implement proactive management strategies, which helped them increase their production of healthy fruit by saving crop losses to SWD.

Project Approach: A statewide survey was conducted throughout the state of Georgia to determine distribution of spotted wing drosophila (SWD), an invasive pest of small and stone fruit. A 32 oz. plastic cup trap (Fig. 1) and yeast:sugar:water solution based bait was used to monitor SWD populations. We developed YouTube videos (https://www.youtube.com/watch?v=hVOn5SHqKgI) to educate county agents, growers, and other stakeholders on how to use traps to monitor for SWD. We also organized "Spotted Wing Drosophila Identification, Monitoring and Management Workshops" in each of the four UGA Cooperative Extension Districts in conjunction with their Quarterly Updates (Spring 2014) where pictures, live and preserved specimens, videos, and PowerPoint slides were used to provide

Fig. 1: SWD Monitoring Trap

hands-on training to all county agents on how to identify, monitor, and manage SWD. The traps were distributed throughout the state in collaboration with county agents, fruit growers, pest management consultants, and other stakeholders. The traps were primarily placed in and around potential host crops such as blueberries, blackberries, raspberries, strawberries, grapes, and peaches to ensure detection of SWD if present. The traps were checked and the bait was changed weekly. The insects collected in the traps were brought back to the laboratory or county extension office and observed under microscope to determine whether or not SWD was present. If SWD were identified in a county, the identifier would send a specimen to a research associate in the Sial lab for proper identification.

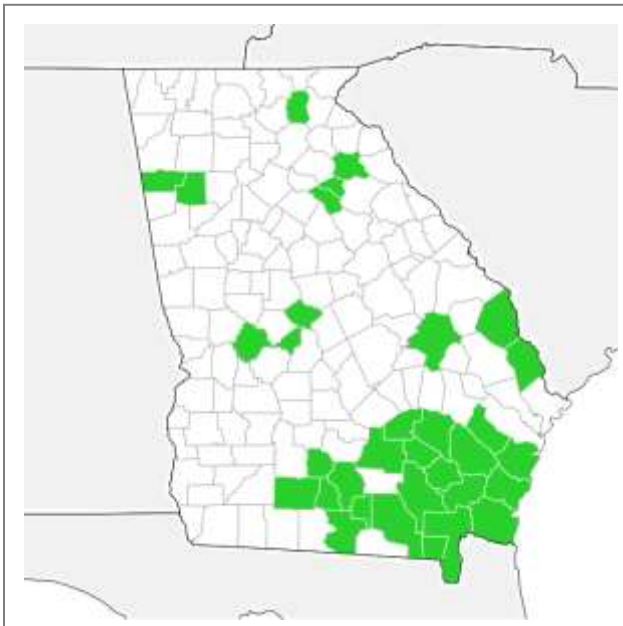
Goal and Outcome Achieved:

The goal of this project was to increase blueberry/farm fruit crop income by minimizing crop losses due to SWD, using Georgia's interactive map of SWD distribution. Grower surveys were used to determine changes in grower practices (please see the *Beneficiaries* section below). Our target was to have a five percent increase in blueberry/fruit crop income. From the results of the surveys, it is evident that this project has helped them increase their production of healthy fruit by much more than 5% annually by saving crop losses as a result of SWD infestations and will continue to do so in the future.

This goal was achieved by accomplishing the major objectives of this project which were to: i) conduct statewide monitoring to determine distribution of SWD throughout the state of Georgia; ii) develop an interactive digital map of SWD distribution; and iii) educate growers about potential risk and implementation of proactive strategies to prevent their fruit crops from SWD damage through extension publications, presentations, and web-based resources. All these objectives have been achieved as described below.

i) Conduct statewide monitoring to determine distribution of SWD throughout the State of Georgia: By the end of the 2014 field season, SWD had been reported in 29 counties located in different parts of the state which include most of the major blueberry producing counties in the southeastern part of the state. In 2015, three more counties were added to bring the total to 32 counties where SWD has been detected.

ii) Develop an interactive digital map of SWD distribution: Based on the results, we developed an interactive map (Fig. 2) showing SWD distribution in the state, which is available at our UGA Blueberry Blog



(http://blog.caes.uga.edu/blueberry/swd/). In order to facilitate reporting of SWD at new locations in the state, we developed software in collaboration with The University of Georgia Center for Invasive Species and Ecosystem Health, Early Detection & Distribution Mapping System (EDDMapS) (https://www.eddmaps.org/swd/). This will enable all participating county agents, growers, and other stakeholders to report new detections of SWD (date, time, location, and crop) online using their computers or smartphones which instantly updates the SWD Distribution Map on our UGA Blueberry Blog and sends an update to all subscribers (growers and other stakeholders) via email.

iii) Educate growers about potential risk and implementation of proactive strategies to prevent their fruit crops from SWD damage through extension publications, presentations, and web-based resources: In order to educate growers about potential risks of this invasive pest, the preliminary findings of this project were shared with growers and other stakeholders through presentations at grower meetings in the state and at regional and national conferences including Southeastern Regional Fruit and Vegetable Conference, Southeastern Professional Fruit Workers Conference, Georgia Entomological Society, and Entomological Society of America. The final results will also be presented at the upcoming Annual Blueberry Update which is attended by blueberry growers from across the state, the 2016 Southeastern Regional Fruit and Vegetable Conference (January 7-10 in Savannah GA), the largest fruit and vegetable grower meeting in the region, and at other grower meetings during this winter and spring. The updated SWD distribution map has been posted at the UGA Blueberry Blog http://blog.caes.uga.edu/blueberry/swd/ and will be published in Georgia Blueberry Growers Association Newsletter – Dixie News and UGA IPM Newsletter.

Beneficiaries and how they benefited:

Blueberry and other fruit growers in the state of Georgia are the primary beneficiaries of this project. The findings have already helped (based on 2014 data) and will help them implement proactive measures to protect their fruit from SWD infestations. This proactive implementation of control strategies for SWD as a result of educational programs extended through this project has led to significant reduction in crop losses due to SWD infestations.

In order to determine the need and benefits of this project, we conducted a growers survey at the 2015 Annual Blueberry Update (January 7, 2015 – attended by approximately 250 blueberry growers from across the state of Georgia) in Alma, GA. The survey included the following five questions:

A. Are you aware of the number of counties in Georgia that SWD has been reported in?
B. How likely would it be for you to invest in SWD control programs if SWD has not been reported in your county?
C. How likely would it be for you to invest in SWD control programs if SWD has been reported in your county?
D. What percentage of blueberry crop loss can a grower experience as a result of SWD infestation in a county where SWD has not been previously reported, and a grower has not implemented SWD management programs preventatively?

E. In your opinion, how useful would it be for blueberry growers to know SWD distribution at the county level, which would allow them to proactively implement SWD management strategies to protect their fruits from infestation?

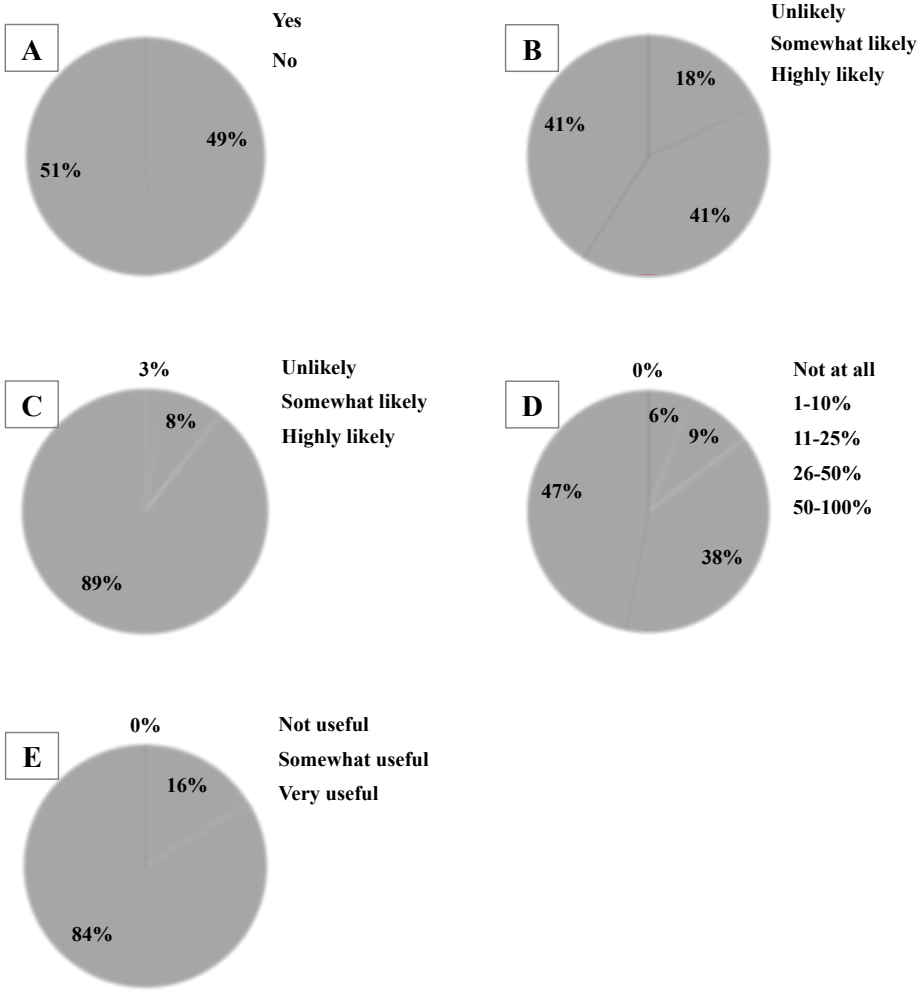


Fig. 3: Grower responses to the survey conducted at the 2015 Annual Blueberry Update

The results (Figures 3A-E) show that more than half of the growers were unaware of the distribution of the SWD in Georgia at the county level and a majority of the growers were not certain whether or not they would implement SWD control strategies if SWD has not yet been reported in their county. However, 89% of the growers reported that they would definitely apply proactive SWD control programs if SWD has been reported in their county. If SWD has not been reported in a county and SWD control programs are not implemented, 85% of the growers reported that they will experience more than 25% crop loss, of which 47% reported that loss to range from 51-100%. Finally, a huge majority of growers (84%) reported that it will

be very useful to know the distribution of SWD at the county level because it will allow them to proactively implement SWD control strategies to significantly reduce crop losses due to SWD infestations. These grower responses clearly indicate that this project has helped them increase their production of healthy fruit by much more than 5% annually by saving crop losses as a result of SWD infestations and will continue to do so in the future.

Lessons Learned:

The major lesson we learned from this project is that SWD is widely distributed in the state of Georgia and currently present in almost all major fruit producing counties. The development of a SWD distribution map and increased grower awareness as a result of this project will enable fruit growers to implement control programs in a timely manner to protect significant crop losses due to this pest. Although this project has finished, we will continue to monitor and document SWD distribution in Georgia via EDDMapS and disseminate that information to small and stone fruit growers throughout the state to ensure that they are aware of SWD distribution and prepared to manage this pest effectively.

Contact Person Information:

Dr. Ashfaq Sial Ahmad

Assistant Professor Department of Entomology, University of Georgia, Athens, GA 30602. 706-542-1320 (Phone), 706-542-2279 (Fax), ashsial@uga.edu (email)

6. Georgia Peach Council – *Sweet Georgia Peaches—Up in Lights* - Final Performance Report

PROJECT SUMMARY

With labor costs at record highs and fuel and fertilizer prices near records, it is imperative peach growers in Georgia get more money for their crop. Research has shown consumers recognize value in Georgia Peaches. While flavor tops the list, other industry experts suggest significant value is placed in the brand itself...Georgia Peaches. Whatever the reason, many shoppers prefer Georgia peaches over peaches grown in other regions. Many grocery retailers lump peaches into broad, safe categories during the summer season, such as southern peaches, eastern peaches or just peaches. The Georgia Peach Council set out on a more aggressive campaign than ever to put *Sweet Georgia Peaches...Up in Lights* and take advantage of the brand value our forefathers established years ago.

PROJECT APPROACH

After discussing research results with a few retailers, it was quickly realized a sales pitch alone was not quite enough to get a meaningful amount of retailers on board supporting Georgia as the peach state. Using money from the 2012 SCBG as well as funds directly from growers, the Georgia Peach Council marketing team developed a marketing plan to make identifying Georgia peaches not only easy, but impactful as well. The marketing plan centered around two concepts.

The first concept was based on consumer education. The council tapped the recognized PR firm, **At The Table**, as well as the global marketing firm, **IRIS**, to help make shoppers aware of when Georgia peaches were in season. The two firms used social media as well as traditional media to let the peach eaters know when and where. The second concept involved providing tangible tools to retailers to deliver the Georgia peach message to peach eaters at the store level.

With At The Table PR's strategic public and media relations plan for targeted retail markets in Georgia (Atlanta, Savannah and Macon), Florida (Orlando, Tampa, Jacksonville, Miami and Ft. Myers/Naples), Nashville, Louisville, and Cincinnati, they made a successful effort to increase awareness of Georgia Peaches at the consumer level.

First, to capitalize on the First Day of Summer (June 21), approximately 50 boxes of fresh Georgia Peaches were sent to television meteorologists and newspaper food editors in each target market. These boxes were not paid with specialty crop block grant funds; they were funded by grower-

contributed dollars. In addition, each recipient received fun facts about Georgia Peaches along with a social media hashtag. Many of the recipients posted photos of their gift on Facebook pages and Twitter accounts which assisted in increasing reach and engagement.

Secondly, At The Table PR was successful in placing more than a dozen earned media stories (TV & print) in five of the eleven target markets and additional trade publications. All totaled, media coverage reached 1.5 million unique monthly visitors and 454,800 viewers/consumers.

Thirdly, At The Table PR stepped up our social media presence with a regular schedule of Facebook and Twitter posts throughout the heart of the season which were seen, shared and liked by more than 46,000 people/consumers.

GOALS AND OUTCOMES ACHIEVED

With the largest crop the industry has seen in recent memory, the results were overwhelming. The list below represents only a portion of the retailers that saddled up with *Sweet Georgia Peaches...Up in Lights* this summer. The list represents not only retailers who supported the program but tools provided by the Georgia Peach Council and used at the store level.

<u>MEASURABLE OUTCOME #1</u>

Our Target was to have an additional five more retailers participate during the 2013 peach season, than our benchmark of two. We reached that, plus more.

TOPS Friendly Markets

Georgia peach highlighted in circular

Georgia peach emphasized at store level through signage

In-store radio suggesting Georgia Peaches

Winn Dixie

Georgia peach indicated in ad

In-store radio promoting Georgia peaches

Georgia peach highlighted in ad

Hannaford Brothers

Georgia peach highlighted in ad

Georgia peach bin merchandiser at store level

Georgia peach market bags available to shoppers at store level

Whole Foods

Georgia peach highlighted in ad

Georgia peaches emphasized at store level through signage and demos

Kroger

Georgia peach highlighted in ad

Georgia peaches emphasized during store demos and store signage

Other retailers that included specific Georgia peach promotional programs in their summer season produce plans include Roundys, Hy Vee, Sweet Bay, J H Harvey and a few others.

MEASURABLE OUTCOME # 2

Our target was to have a $1-$2 per box price advantage on correlating pack sizes.

In the document entitled, "Average State Shipping Point Selling Price . . . 2011-2013," it was noted that Georgia peaches returned their growers the highest FOBs in all of the industry, including California. To our knowledge, this is the first time that statement can be made.

Also visible in the "USDA Terminal Market Averages" report is a price disparity of $1.64 between Georgia peaches and South Carolina peaches sold at terminal markets across the country. This indicates a premium placed on Georgia Peaches versus South Carolina peaches at terminals throughout the US.

BENEFICIARIES

There are approximately 18 peach growers/producers in Georgia. “The proof is in the peaches... Georgia Peaches” one grower was quoted as saying. Our Georgia in July program proved to be the Georgia Peach Council’s most successful marketing campaign to date. Plans are already in the works for next summer. With over 90% of the acreage represented, growers revealed FOBs that were not only profitable but much higher than the rest of the industry. Benefits are far reaching when considering this is the biggest crop the industry has seen in many years and Georgia Peaches topped the list in pricing back to growers for the first time in recent history. That said, however, if only measuring tangible dollars, Georgia peach growers recognized a $4,100,000 economic impact by using the price disparity between Georgia and South Carolina in the USDA Terminal Market Average Report.

LESSONS LEARNED

Growers learned the value of working together to drive sales of Georgia peaches. Frequently throughout the summer Georgia peach growers not only swapped peaches to fill orders but swapped orders as well to ensure orders of Georgia peaches did not go unfilled. Outside of a profitable season, growers and the Georgia Peach Council learned how important and successful cohesive efforts could be.

CONTACT PERSON

Duke Lane III

Georgia Peach Council

50 Lane Rd

Fort Valley, Georgia 31030

478-825-4224

Duke3@lanepacking.com

ADDITIONAL INFORMATION

Peach Council-radio spot.mp3

7. Georgia Pecan Growers Association – *Increasing the Promotion of Georgia Grown Pecans-Phase 3* - Final Performance Report

Project Summary

The overall goal of this grant was to use promotion to increase sales of Georgia pecans domestically and internationally. Activities originally designated in the 2012 grant award included the following three:

1) Maintain and update the GPGA website

2) Conduct more inbound trade missions

3) Develop a greater public awareness campaign

The Georgia Pecan Growers Association (GPGA) completed all three of the grant activities within this grant project during the three-year time period in order to increase promotion of Georgia Pecans. The 2012 grant specifically was considered 'phase 3' by GPGA, as it expanded upon and continued specialty crop block grant projects that launched in 2010 and in 2011.

Project Approach

1) Activity 1

When the project began, GPGA hosted a website (www.georgiapecan.org) that had been running for about 3 years at that time. However, the website needed additional product and research information added, as well as significant updates and enhancements in order to be useful and relevant to consumers and to be competitive with other nut association websites.

During the course of this grant cycle, GPGA has been able to use grant funds to continually provide new information and resources for consumers and growers on the website. GPGA added pictures and recipes to the site that we had not been able to provide previously. The recipes were also printed and are used at domestic events such as the annual Fresh Summit trade event held by the Produce Marketing Association. GPGA linked our website with our other social media outlets on Facebook and Pinterest to better reach and serve the 18-39 consumer demographic age group.

Perhaps most importantly, we were able to add a product piece to the website that has been translated into the Mandarin language to reach the Chinese market. This addition allows us to better reach China, which is one of the world's largest economies.

2) Activity 2

GPGA hosted two inbound trade missions with a total of 12 Chinese nut processors in 2013 and 2014 over four-day periods that included farm tours and meetings with Georgia pecan growers and suppliers. The nut processors were introduced to the Georgia pecan processing and harvesting techniques during farm tours at multiple locations, as well as introduced to the cold storage facilities and managements necessary to store and transport pecan products to China. Individual meetings between the Chinese processors and Georgia growers and suppliers provided a trade link between the groups so that Georgia growers could get their pecans and products to the Chinese market. Grant funds supporting these missions also allowed GPGA to provide the nut processors with a DVD of Georgia pecan information that had been translated to Mandarin as a take-away from the trip and to reach additional Chinese processors involved in trade activities back in China.

3) Activity 3

During 2013, GPGA launched an ad campaign through *Healthy Living* magazine, with an informational piece that printed in three editions that year. An additional two-page spread in the November 2013 edition also featured Georgia pecans in order to coincide with holiday baking.

The magazine has an audience reach of 572,000 viewers. *Healthy Living* is on newsstands, in doctors' offices, dental offices, health clubs and many other outlets.

The ad stated to the consumer, "Georgia is the nation's leading pecan-producing state." With our newly-added certification from the American Heart Association, the *heart healthy check* was also included in the material. Domestic consumption of pecans has not grown at the pace of other nuts such as walnuts, almonds and pistachios. GPGA wanted to influence consumers to choose pecans because of their positive effects on health.

The link to the article and advertisement was active on the GPGA website during 2013 and 2014.

Goals and Outcomes Achieved

Activity 1 – Maintain and Update the GPGA Website

TARGET

The grant specified a 5% increase each year in the number of website visits as a target to indicate interested consumers. Working with our website host, Thirdwave Digital, we report the following visits to our site:

Timeframe	# of Visits/Website Sessions Logged	Yearly % Change From Pre-Grant Base
(Pre-Grant) Oct. 1, 2011 – Sept. 30, 2012	12,965	n/a
(Year 1) Oct. 1, 2012 – Sept. 30, 2013	15,909	23% increase
(Year 2) Oct. 1, 2013 – Sept. 30, 2014	13,247	2% increase
(Year 3) Oct. 1, 2014 – Sept. 30, 2015	56,260	77% increase

Source: Google Analytics

As the above table indicates, GPGA significantly surpassed the 5% goal during the first year of the grant, which coincided with the launch of a new web design and enhanced information. However, GPGA failed to meet the target during the second year. This lapse was not anticipated, but grant-funded activities during year 2, as reported, focused solely on the inbound trade missions with China. In contrast, during Year 1 of the grant, significant activity was undertaken towards website updates and maintenance.

We are excited to report that in Year 3 of the grant, website traffic increased by 77% over base year 2011 activity and significantly surpassed our target.

Activity 2 – Conduct More Inbound Trade Missions

TARGET

The grant used a 2011 Farm Gate Value for Pecans in Georgia of $233,941,290 as a benchmark for pecan sales. The 2012 sales showed a 6% increase in this value, which surpassed expectations of a 2-5% increase. Subsequent increases in farm gate value were significant for Georgia pecans. In 2013 and 2014, the percentage increases from base year 2011 sales were 21% and 25% respectively.

Farm Gate Value (FGV) for Pecans:

Year	Farm Gate Value	% Change From Benchmark
2011 Actual (Benchmark)	$233,941,290	
2012 Actual	$249,248,409	6%
2013 Actual	$315,570,610	21%
2014 Actual	$313,313,250	25%

Source: UGA College of Agriculture and Environmental Sciences' Annual Farm Gate Value Report compiled by the Center for Agribusiness and Economic Development

Activity 3 – Develop a Greater Public Awareness Campaign

TARGET

A survey linked to the ***Healthy Living*** materials was originally planned, but was not executed. GPGA contacted several professionals to develop an appropriate survey tool to link to the materials for measurement, but determined that the charges for such a service were cost-prohibitive at that time.

In order to address the target of 2% increase in consumer knowledge that was outlined in the grant application, GPGA used website analytics during the time that the ads were active. However, this measure did not prove to be effective in measuring consumer knowledge.

Timeframe	# of Visits/Website Sessions Logged
(Pre-Run Comparison Year) Oct. 1, 2012 – Dec. 31, 2012	5,549
AD RUN TIME PERIOD Oct. 1, 2013 – Dec. 31, 2013	4,445
(Post-Run Comparison Year) Oct. 1, 2014 – Dec. 31, 2014	3,907

Source: Google Analytics; Provided by ThirdWave Digital (website host)

Beneficiaries and how they benefited

The primary beneficiaries of these activities are our Georgia pecan growers, with at least two of our largest farms anecdotally reporting that they have experienced significant product demand over the last three years. The cumulative effect of these three specific grant activities has proven to be new and enhanced relationships between Georgia growers and major Chinese nut buyers and a noted uptick in consumer interest in Georgia pecans. GPGA bases these results on the aforementioned data that demonstrated increased pecan sales in the state and increased product interest through our website.

Lessons Learned

GPGA had anticipated completing a total of more than 2 inbound trade missions with this grant (5 missions were originally projected over the 3-year grant period). However, due to budgetary limits, GPGA did not host an inbound trade mission in grant year 3. Based on the experiences from the first two grant years, GPGA concluded that hosting one inbound mission a year with Chinese nut processors, due to total travel costs and time constraints, was a more reasonable target than 5 missions over a 3-year period. Nevertheless, by hosting a total of 12 Chinese nut processors over two years, by facilitating trade meetings between them and Georgia pecan suppliers, by providing a DVD of pecan information to them in Mandarin, and by adding a Mandarin-translation of pecan information to our website, GPGA concluded that grant activity 2 was successful in pursuing an international market for Georgia pecans.

Additionally, GPGA had originally anticipated converting our entire website into one or more foreign languages over the course of the three-year period, but this undertaking would prove to be more cost-prohibitive than anticipated. Therefore, GPGA has begun by adding a Mandarin product piece to the English website with these grant funds.

Contact Person Information

Janice Dees

Executive Director, Georgia Pecan Growers Association

Phone: 229-392-8997 (Cell) 229-382-2187 (Office)

P.O. Box 1367

220 E. Second Street, Suite A

Tifton, Georgia 31793

Janice@georgiapecans.org

8. Hospitality Education Foundation of Georgia – *Top Chefs Top Crops II: Georgia's Current and Future Chefs Become Living Advocates for Specialty Crops* – Final Performance Report

1. Project Summary

This project focused on Georgia's high school culinary students learning how to properly prepare and appreciate the use of specialty crops in their menu choices and their cooking. This was accomplished by teaching cooking techniques using methods the culinary students and their teachers preferred. (While working on the 2011 specialty crop project, we found that awareness of how to properly prepare specialty crops was lower than anticipated.) Therefore, with this project, we created an engaging educational video. Teachers used the video to train students, who in turn performed demonstrations, reinforcing their skills, and bringing awareness to their local community. Studies show that familiarity increases purchase decisions.

These students are on a track to become chefs. Without the knowledge imparted by our program, their product choices will be driven by other media influences, which have proven to have a negative impact on food choices.

Therefore, creating an engaging instructional video designed for high school culinary students would increase their understanding of specialty crops and inspire this next generation. There is a strong culinary education program in Georgia and this project supported the teachers, mentors, and students by providing educational resources that were otherwise unobtainable.

2. Project Approach

2.1. Part one of this project was a seventy-one minute instructional video designed to teach high school students to use specialty crops correctly.

The focus of the video series was "proper cooking of specialty crops." The video reviewed preparation, cooking methods, and proper sanitation. The video included how a different cooking method changed flavors, how to improve through choosing the right cooking method, and how properly adding specialty crops can enhance flavor.

- Chapter one. This chapter provided an in-depth review of three cooking techniques for brussel sprouts and shallots.
- Chapter two. This chapter provided an in-depth review of caramelization. using several specialty crops: Vidalia onions, peaches, and carrots.
- Chapter three. This chapter provided an in-depth review of use, care, and treatment of: mint, cilantro, garlic, ginger, and a review of how similar herbs, like basil, tarragon, and thyme can be used.
- Chapter four. This chapter provides an in-depth review of three cooking techniques and preparation for spinach and shallots.

- Chapter five. This chapter demonstrated an in-depth review of creating sweet and savory coulis (a sauce made with fruits or vegetables) using the following specialty crops: peaches, carrots, garlic, and Vidalia onions.
- Chapter six. This chapter demonstrated in-depth review of three cooking methods for each of three different squash: spaghetti, acorn, butternut with onion, basil, parsley.

In January, teachers and students were notified that a new educational video was available as a resource but were not told the video was part of a larger project.

The six-part series was available without cost on the Internet as a classroom resource for high school cooking programs. DVDs were delivered to high schools to ensure Internet connections were not a limitation to school access.

The 2012 specialty crop videos, as well as the 2011 specialty crop videos, were also distributed to all West Virginia culinary arts teachers, without charge, as part of an 8-hour teacher training session. HEFG led the training and reviewed proper procedures.

2.2. Every March, student teams participate in a statewide culinary competition, where they create three-course meals of their own choosing.

Picture 1

Students at 2014 Georgia Culinary Arts Championships

Maxwell High School 2nd place (left), South Forsyth High School 1st place (middle, right)

Industry judges rated different aspects of the students' work, including a paragraph on how they were inspired when creating the menu. The scores were tabulated before and after viewing the video to determine: 1) how it impacted the students' menu decisions; and 2) if students' overall skills changed, with regard to the 17 specialty crops filmed in the 2012 Specialty Crop video.

2.3. Comparison of the 2012 and 2011 SCBGs.

In addition, analysis continued on the progress of the 2011 Specialty Crop Block Grant project, "*Top Chefs Top Crops: Georgia's Top Chefs Teach Students How to Use Specialty Crops."* This project created an engaging instructional video on "the use of specialty crops in a three-course healthy meal." There were several distinct differences between the projects. While both projects demonstrated cooking, the 2011 SCGP project focused on healthy meals, menu production, plating, washing and product purchasing. The 2012 SCGP project focused entirely on cooking methods and improving taste using specialty crops. In addition, the 2012 SCGP project focused on expanding the use of specialty crops. The 2011 SCGP measured the use of 19 specialty crops, 11 specialty crops were not repeated in the 17 crops in the SCGP 2012 study. This totaled 28 unique crops in the final analysis.

Table 1

The Specialty Crops Analyzed in the 2012 Specialty Crops Grant

17 Specialty Crops Were Highlighted in 2012 Specialty Crops Video

Basil	Mint	Squash, Acorn
Brussel Spouts	Onions, Vidalia	Squash, Butternut
Carrots	Parsley	Squash, Spaghetti
Cilantro	Peaches	Tarragon
Garlic	Shallots	Thyme
Ginger	Spinach	

Table 2

19 Specialty Crops Analyzed in the 2011 Specialty Crops Video

11 Specialty Crops Analyzed were not repeated in the 2012 Specialty Crops Video

Artichoke	Bell pepper	Nutmeg	Vanilla
Asparagus	Blueberries	Onions, red	Zucchini
Bay Leaf	Cinnamon	Onions, green	

8 Specialty Crops were repeated in 2012 Specialty Crops Video

Basil	Ginger	Parsley	Spinach
Garlic	Mint	Peaches	Thyme

Table 3

The Specialty Crops Analyzed 2011 – 2013 for the 2012 Specialty Crop Grant Study

This table lists the 28 unique specialty crops throughout the both studies

Overall 28 Total Specialty Crops Were Analyzed

Artichoke	Squash, Butternut
Asparagus	Squash, Spaghetti
Basil	Tarragon
Bay Leaf	Thyme
Bell pepper	Vanilla
Blueberries	Zucchini
Brussel Spouts	
Carrots	
Cinnamon	
Cilantro	
Garlic	
Ginger	
Mint	
Nutmeg	
Onions, red	
Onions, green	
Onions, Vidalia	
Parsley	
Peaches	
Shallots	
Spinach	
Squash, Acorn	

3. Goals and Outcomes Achieved

This project contained the following program targets:

3.1. Prior to exposure of the 2012 Specialty Crops Video, teams choose 15% specialty crops for their menu in the 2013 competition. Did the students more than double this number in the 2014 competition?

As outlined in our proposal, students demonstrated their growing awareness of specialty crops through products selected for their menus and increased skills when cooking specialty crops, as evidenced through the state culinary competitions and judged by the same executive chefs, year-to-year. Students were tested/surveyed prior to exposure to the project video at the March competition and following the viewing. The overall goal was to increase scores over 30% for the utilization of specialty crops. *As a result of this project, specialty crops usage increased in 2014 by 30.6%.* This is detailed below in the section entitled, "Product selected for the menu." Student skill evaluations increased by 30%; this met the goal of 30% and is detailed in the section entitled, "Skill Level Using Specialty Crops." See details in Table 4.

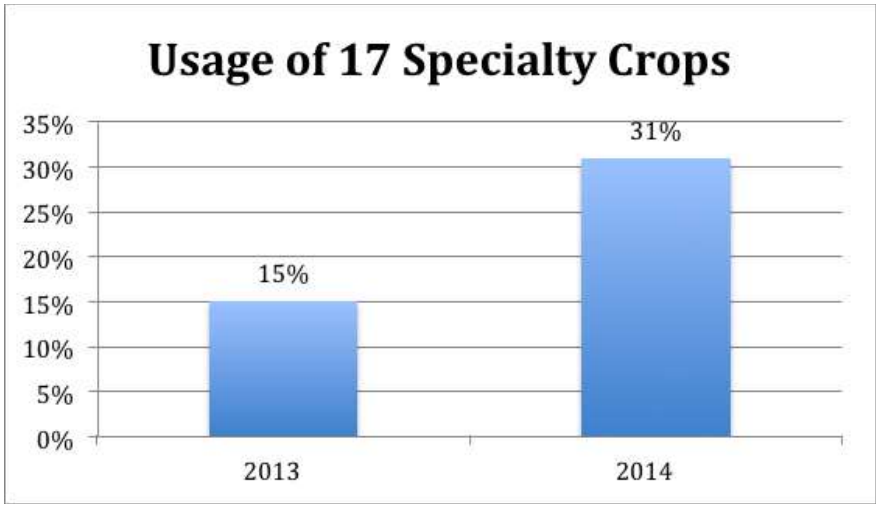
Number of specialty crops selected for their menus: Each team submitted their recipes as part of the competition. After reviewing the materials on multiple occasions, students selected between 18% and 36% of the 17 specialty crops in the study overall, 100% (17 of 17).

Table 4

Percent of Specialty Crops Selected by Students at 2013 vs 2014 Culinary Competition

Before (2013) and After Viewing (2014) the 2012 Specialty Crops Video

Items: Only items in 2012 Specialty Crop materials



When we expand the analysis to include the 2011 Specialty Crop Grant through the completion of the 2012 Specialty Crop Grant, and increase to 28 specialty crops, the result is more dramatic. See Table 5.

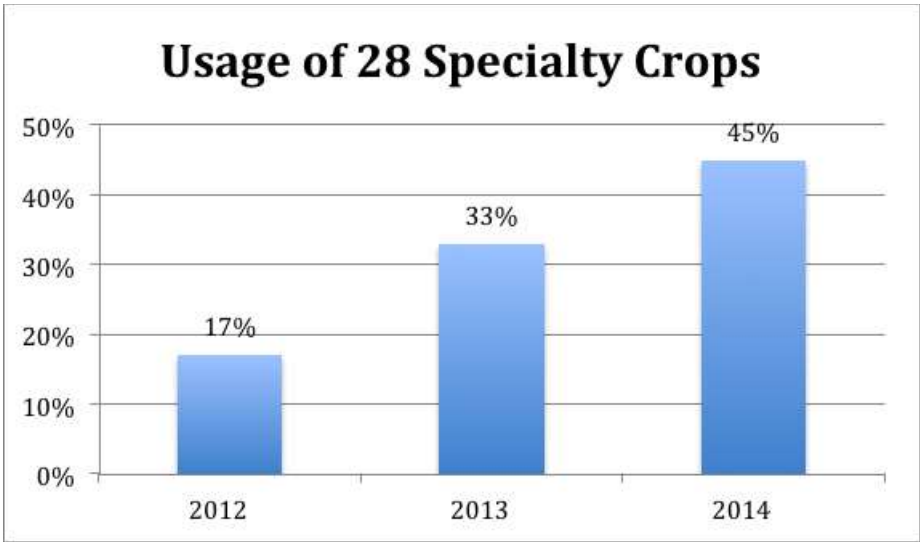
Table 5

Percent Specialty Crops Selected by Students

2012 (before exposure measurement), 2013 (after 6-month measurement),

2014 (after 18-month measurement)

Items: 28 Specialty Crops were analyzed 2012 - 2014



Please note in the following analysis: The charts combine similar specialty crops, for ease of reading. For example, all types of squash are reported under "squash" and not separated butternut, acorn, spaghetti, etc. The number of total items did not change but the reports now list 16 items instead of 28. See Table 6 for details.

Table 6

The following procedure was used for grouping.

The same total number of specialty crops was analyzed from year-to-year.

Herbs: Nine herbs were studied from 2011-2013. The results are combined under 'herbs'. These herbs are basil, bay leaf, cilantro, cinnamon, mint, nutmeg, parsley, tarragon, and thyme.

Squash: Six types of squash were studied from 2011-2013. The results are combined under 'squash'. These squash are summer Acorn squash, Butternut squash, spaghetti squash, and zucchini.

Peppers: All types of peppers were studied from 2011-2013. The results are combined under 'peppers'. These peppers are various colors of bell peppers.

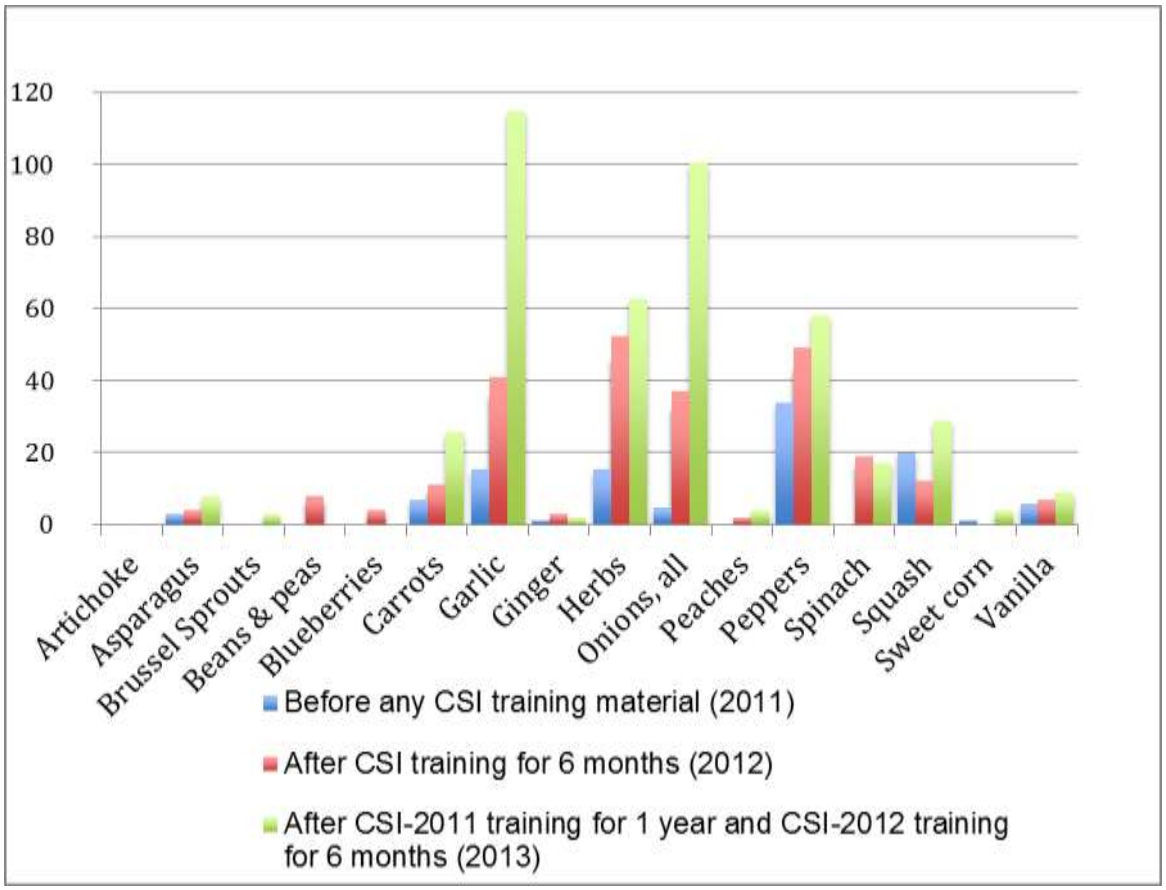
Onions: Four types of onions were studied from 2011-2013. The results are combined under 'onions'. These onions are red onions, green onions, Vidalia onions, and shallots.

Year-to-year growth: When we look at specific crops, the growth is very dramatic. For example, if we look at onions, prior to the introduction of the Specialty Crop project, the teams used just over four (4) ounces of any type of onion. *After six months of exposure to the training materials, the teams used about 37 ounces or just over two pounds of onions. And after 18 months of training with the first set of materials and six months of the second set, the teams utilized over six pounds or just over 100 ounces. Prior to exposure to the project few teams used these crops; after exposure, all teams were using the products throughout their menus in a variety of ways. As students and teachers learn about specialty crops and their cooking methods, they are self-selecting them for menus from year-to-year. See Table 7.*

Table 7

28 Specialty Crop Usage at the 2012, 2013, 2014 Georgia Culinary Competitions

All products listed by ounce



Skill Level Using Specialty Crops: To evaluate the impact on their programs, we used the students' performances at the competition. Evaluation of the students' use of specialty crops is critical to determine if the educational materials were successful. Over 25 industry chefs judged how the crops were utilized in the menus at the annual state culinary competition. The judges are consistent from year-to-year. The specialty crops were judged on over 20 different aspects and we found *the students did improve in most aspects. On a scale from 1 to 5 (5 being highest), the overall scores improved by 30.1%, meeting the project's overall goal of 30%.*

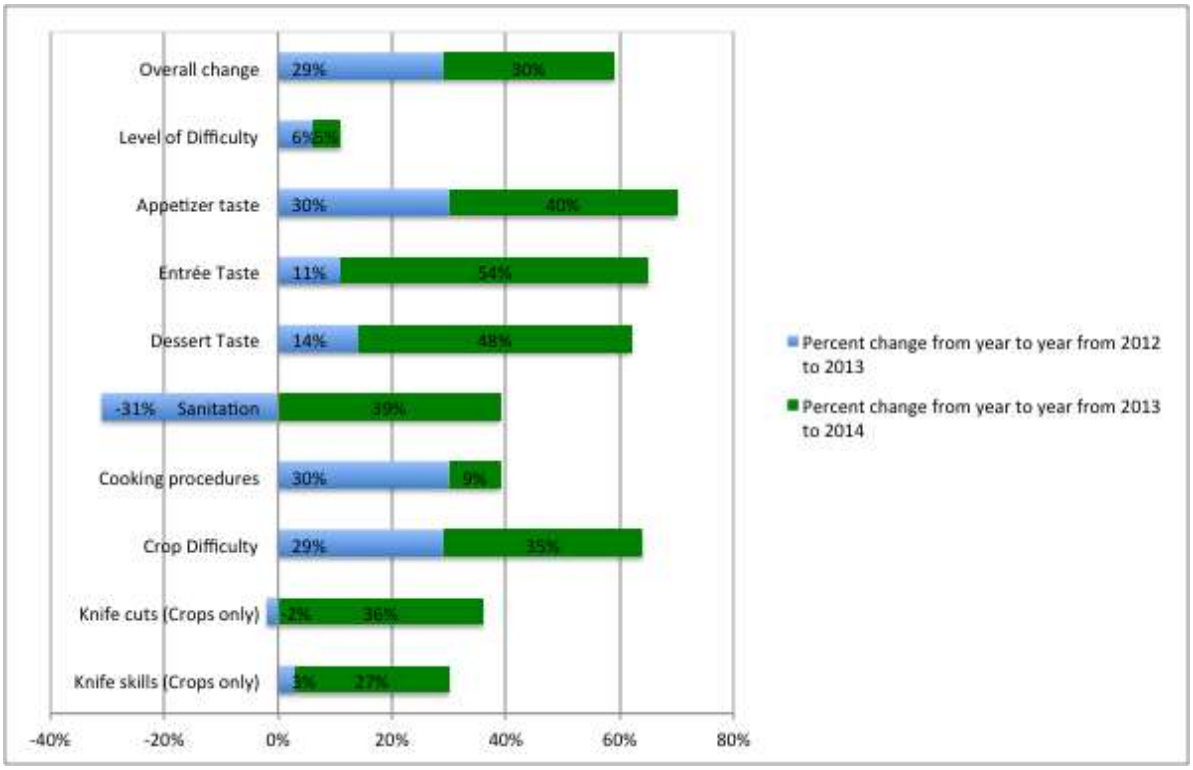
The data from the 2012, 2013, and 2014 Georgia Culinary Competition were compared in detail.

- As their skills improved, the overall taste of their menus improved dramatically.
- Sanitation was the area of most concern last year. After 18 months of exposure to the SCSP video, the students increased 39% over their previous scores.
- Two other areas of dramatic improvement included: (1) the student's ability to cut specialty crops. This is judged by 'cuts' which is determined by whether the completed cut is seen as perfect; and (2) 'skills' which determines if the process (product care/handling, correct knife, etc.) was completed to the highest of industry standards. After reinforcing these skills through two projects, the students jumped from -2% to 36% for the completed cuts and 3% to 27% for their skills.
- See details of the score in Table 8.

Table 8

Change In Team Scores Occurring at the Georgia Culinary Competition

From 2012 to 2013 by Percent and from 2013 to 2014 by Percent



To further demonstrate the impact of our project on a national level, we can point to national competitions, which Georgia participates in every year. We can look at Georgia's team's ranking during the National Restaurant Association Educational Invitational Competition.

In 2013, Georgia placed 16th out of 44 states competing.

In 2014, Georgia placed 3rd out of 46 states competing.

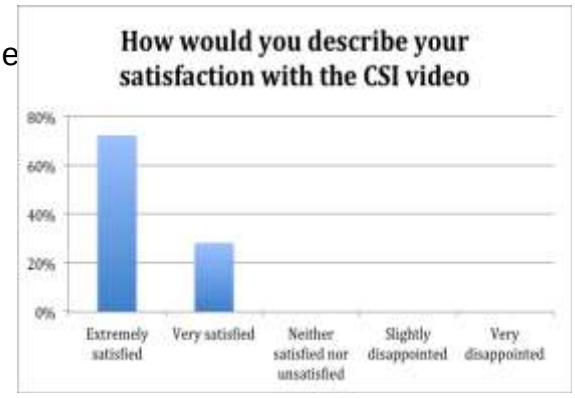
Picture 2

2014 Team Georgia Culinary Arts on stage collecting 3rd place trophy (left)

2014 Team Georgia Culinary Arts after completing the cooking competition (right)

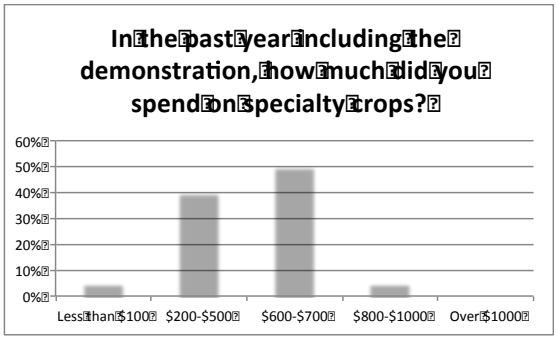
At the end of the project, a survey was sent to the 14 participating teachers, all (100%) of who responded, as detailed below. Overall the response to the video was overwhelmingly positive.

Table 9



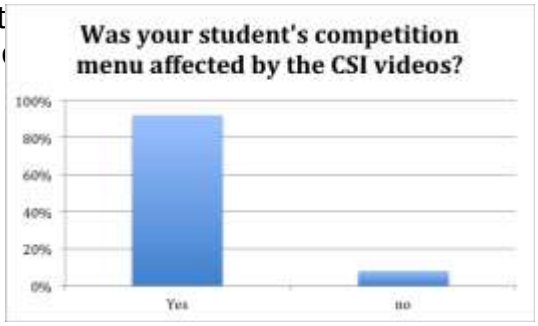
- All but one of the schools in the program watche video online. The remaining school was sent a DVD at no cost.
- 72% were extremely satisfied with the educational materials given to them and the remaining 28% were very satisfied. 100% of respondents were very or extremely satisfied the video. See Table 9.

Table 10



- The average participant spent $600 on specialty crops. This increased from last year.
- This is due, in part to the teams' Farmer's market demonstrations and practice related to the demonstrations.
  No participant spent less than $100 and one participant spent over $1,500.
  See Table 10.

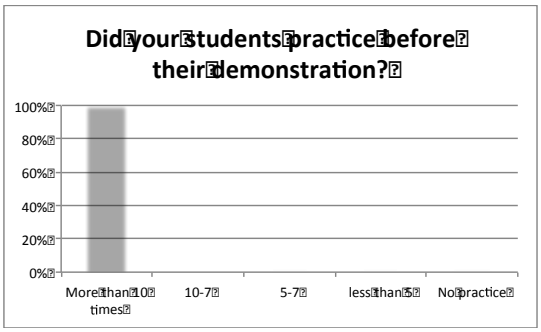
Table 11



- 92% of the participants reported their competit teams' menus were impacted by the CSI vid This was consistent from year-to-year. See Table 11.
- The team that reported not using the video lesser amount of specialty crops--21%, and noticeably lower scores, excluding cooking procedures and difficulty level attempted.

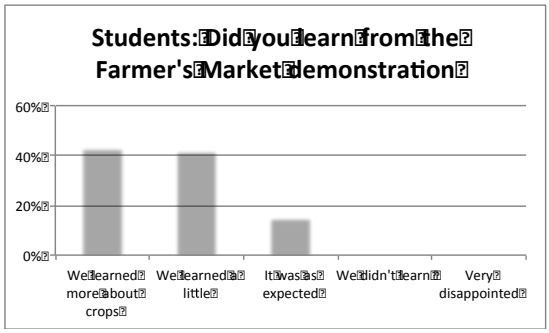
All students participated in a Farmer's Market demonstration. The purpose of the demonstrations was to pass on their knowledge, reinforce their skills, and change the community's food choices. We surveyed the teachers and students after they completed their demonstrations.

Table 12



- All teams practiced their demonstrations with specialty crops more than 10 times before arriving at the Farmer's Market. This achieved two things: 1) reinforced repetition of their skills; and 2) increased the amount of time working with specialty crops by each team. See Table 12.

Table 13



- While students' gaining additional knowledge at the farmer's market was not a project goal, we wanted to know if the students did use this experience to gain further knowledge. This would mean they would have to ask questions to the local vendors, chefs, or crop producers at the farmer's market. Eighty-five percent of the students turned the demonstration into a learning experience. See Table 13.

- We asked the teachers for any comments regarding the Farmer's Market demonstrations. Eight teachers chose to enter their comments. The overwhelming comment was related to the students' first visit to a farmer's market. See Table 14.

Table 14
Teacher's Feedback on Farmer's Market Demonstrations
Anonymous Comments

"I was worried my students wouldn't know what to say to the farmer's market visitors. This part of the project worried me. But my students did well and the people really seemed impressed with their knowledge."
"Many of my students never went to the Farmer's Market before. We've gone several times now. We're planning on going back next fall."
"The students weren't expecting grown ups to ask them questions on how to cook things properly. It helped them see that they have obtained skills that others haven't utilized to this point. They also loved going to the market and learning about all the produce. All my students left with a bag of some type of produce to return back to our kitchen to experiment with."
"Students got a chance to meet other chefs and learn about jobs, and receive more information about the items we were demonstrating. We learned so much they

couldn't stop talking about it for days."
"It was an incredible outdoor cooking experience! Many of the customers wanted to purchase the products we made. This was great!"
"For a lot of them this was the first time at a Farmer's Market. They got to see what goes on and what kind of products you can get there."
"For a few of my students it was their first experience to a farmer's market or away from our local market. They talked to all the vendors and they learned so much about the local products."
"We were able to showcase the dishes we made at competition. We went several times to see what products they had and to buy products from the vendors. We decided to make recipe cards and bring them so people could take cards home with them."

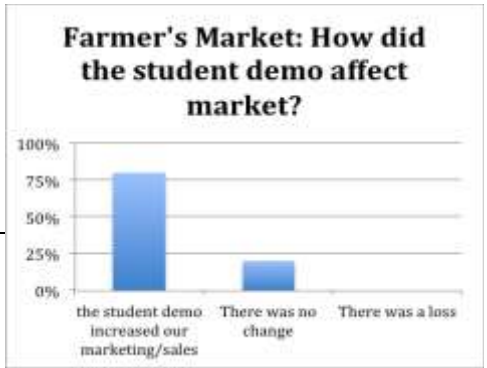
Pictures of demonstrations are included under Section 7: **Additional Information**.

3.2. Did the student demonstrations at the farmer's market have an impact on underserved communities? Did the spending on EBT cards increase on the days that the student's demonstrated the specialty crops?

- We used data from Wholesome Wave, who tracks federal and state benefits (EBT cards, WIC dollars) used at farmers markets.
  - We compared the student demonstration sales to sales the week before.
  - If there were student demonstrations two weeks in a row or students demonstrated on the first market of the year, we compared sales to the closest date that there was not a student demonstration.
- As would be expected, the student demonstrations that occurred on the first weekend of the farmer's market or during inclement weather produced the lowest result.
- The most and least successful demonstrations were recorded on the same day. Students performed at the Cotton Mill on May 10th. Sales tripled compared to the week before. Another student demonstration occurred in Decatur on May 10th. Decatur recorded a 40% drop in sales on between May 10th and the week before. There seemed to be no clear explanation for these extremes.
- The average of EBT cards sales for all our demonstrations was a 26% increase in sales compared to the week before, well above our projection. If we remove the two 'outlying' demonstrations on May 10th, there was little change to the average sales increase: the result for the remaining demonstrations was 22% a difference of 4%. This was well above the 10% projection.

A survey was sent to the participating Farmer's Market representatives, as detailed below. Overall their responses were positive.

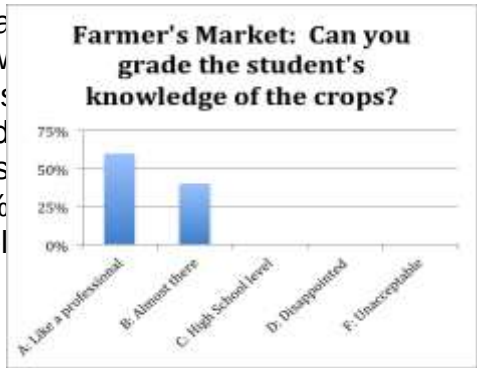
Table 15



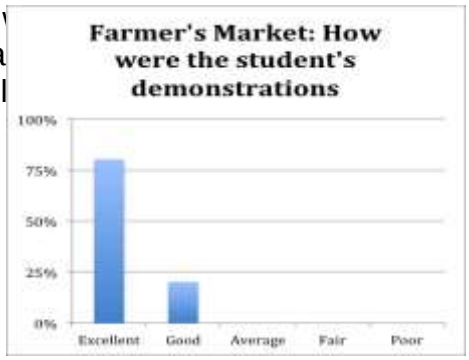
- Wholesome Wave's reports showed the actual sales change for the markets. We surveyed the market coordinators to see if their experience was similar. Eighty percent of the markets responding to the survey reported the student demonstrations increased the market's marketing and/or sales. See Table 15.

Table 16

- It is important the students showcase the specia crops well by demonstrating their knowledge. This w a project goal. We asked the market representatives comment on the students' knowledge. One hundred percent of the respondents thought the students were working above high school level and 60% thought they were working at the professional level See Table 16.



- It was important the students performed well since that the purpose of this project. We asked the ma representatives to comment on the students' overall demonstrations. One hundred percent of the respondents thought they performed above average, indicating 'Good' or 'Excellent'. See Table 17.



- We asked the farmer's markets' representative for any comments regarding the student demonstrations. Six representatives chose to enter their comments. The most consistent comment was related to the importance of this project. See Table 18.

Table 18
Farmers Markets Coordinator's Feedback on the Student Demonstrations
Anonymous Comments

"Having young people involved in this process is positive and crucial. Keep up the great work! We enjoyed having them and look forward to their return."
"We enjoy including students in the market. We feel it is important not only for the community to see student involvement, but for the students to see the impact they can make."
"The students looked very presentable, they acted mature and professional during the market day, and were very warm and social toward the other vendors and visitors at the market. They also incorporated organic pecans from Pearson Farms into their second demonstration, which I

was very impressed with!"
"The students were great and the food was delicious. We appreciated the students coming out to the market and hope to have them again in the fall if possible."
"The demonstrations were very professional and well thought out. I believe the students are well on their way to establishing a career in the hospitality industry, and interacting with a captive audience helped round out their skill set."
"It is important having students in our market and we would like to see them return. Next time I would like them to include more products into their demonstration. They used only a few items and there were no proteins."

3.3. Website traffic increased.

In January 2013, the videos were made available on the HEFG website and promoted through THE HEFG's newsletter and the teacher training workshop. Between June and December 2012, an average of 300 people visited the HEFG website each month. *After the launch of the Specialty Crops video, in January 2013, the HEFG website visits more than doubled, with over 650 viewers each month.*

4. Beneficiaries

Direct beneficiaries of this project were approximately 6,000 culinary students, 50,000 nutritional students, and teachers who watched the video or participated in the Georgia competition. In addition, 8,000 adults who visited the farmers market student demonstrations on specialty crops benefited.

One indicator of the impact to the beneficiaries was the sharp increase in website activities after the video was launched (please see section 3.3 above).

In addition, in August 2014, 23 sets of videos (Top Chef I and Top Chef II) were distributed to Culinary Arts/ProStart teachers in West Virginia. Each West Virginia teacher has six classes with an average of 23 students per class. The workshop and DVDs will impact an additional 3,174 students per year through the West Virginia school system.

5. Lessons Learned

This project was highly effective in raising awareness and increasing the amount of specialty crops purchased, used, and the growing skills of the students. Through menu selection

(purchasing items for students to produce for their menu) and challenging students to perform at a higher skill level, the educational video was highly effective.

With increased exposure, the students' skills and menu choices clearly increased. This was our project's primary objective. While some specific schools are still showing a need for improvement, as a group they are moving in a positive direction. It is exciting that this project met and in some cases exceeded our expectations.

Future follow-up projects have been scheduled to address this issue.

6. Contact Person

Lee Gray, Executive Director
Hospitality Education Foundation of Georgia
1579 Monroe Drive, Suite 224
Atlanta, GA 30324
LeeGray@hefg.org
678-887-8009

7. Additional Information

The 2012 CSI video can be found at www.hefg.org/resources/videos

9. Vidalia® Onion Committee – *Vidalia® Onion Themed Consumer and Retail National Campaign* - Final Performance Report

Project Summary

The objective of this promotion was to increase retail sales of Vidalia onions and to increase consumer familiarity with and usage of the Vidalia® brand.

The Vidalia Onion Committee (VOC) developed, produced, disseminated, and promoted an integrated campaign that encouraged retail stocking and promotion of Vidalia onions and consumer consumption of and familiarity with Vidalia onions. The 2012-2013 campaign theme was *Flavors of Summer* and was developed to promote the versatility and seasonality of Vidalia Onions (spring/summer season). The Vidalia Onion Committee (VOC) partnered with national brands to increase consumer awareness and expand the campaign budget. The VOC increased sales with 36,997 digital coupons printed during the promotion. In addition, 86,000 unique visitors logged onto the campaign website which was the largest consumer response to date. For the first time, the Vidalia Onion Committee was able to reach out to work with food bloggers which resulted in over 9,800 additional unique visitor referrals to the campaign website. Also, for the first time the VOC was able to conduct a wide variety of social media events and activities reaching a younger consumer demographic. The VOC partnered with sponsors that included: Johnsonville Italian Sausage, National Mango Board, Gourmet Garden, Avocados from Mexico, Stemilt Cherries and the National Watermelon Promotion board.

Project Approach

When our application was submitted, we had planned to conduct a baseball-themed promotion. We made a decision to change this theme to a grilling theme with the Flavors of Summer promotion when we reviewed the consumer statistics from the Home Patio and Barbeque Association showing that 82 percent of all U.S. households own a grill or smoke and 97 percent of those grill owners actually used their grill this past year. In addition, we found out that outdoor kitchens were named one of the 2012 “Top 10 Food Trends” by The Food Channel. Because Vidalia onions make a perfect complement to grilling meals, especially during the summer holidays, we felt this was a great opportunity to promote the versatility of Vidalia onions in summertime recipes and usage.

VOC partnered with six other sponsors to launch a promotional partnership, starting in 2013. The Integrated marketing campaign included diverse supply partnerships, National spokesperson Rebecca Lang, On Pack Brand/Message Integration, National Consumer Contest, Campaign website for consumers, digital coupons from participating sponsors, in-store point of sale (POS) materials, advertising and public relations activities (Family Features editorial), social media messaging, social media events, food blogger outreach, in-store events and retail display contest.

2013 Participating Retailers (28 retailers participated with in-store coverage including)

Southeast Retailers (including Texas)	**Northeast/New England Retailers**
Food Lion	Ahold USA (Giant Landover, Giant Carlisle and Stop n Shop)
Publix	A&P stores-all banners
Piggly Wiggly	Acme
Harris Teeter	Weis Markets
Harveys	Tops Supermarkets
Rouses	Big Y
K-VAT Food Stores	Price Chopper
Military Produce Group (DECA)	King Kullen
MDI (wholesaler)	Shaws
Midwest Retailers	Wholesalers: C&S and Bozzuto's
Kroger Corporate (includes several Kroger divisions)	Food Town
Roundy's	Market Basket
Hy-Vee	
Associated Wholesale Grocers (AWG)	
Affiliated Foods Norfolk NEB	
Lunds Byerly's	

VOC paid for campaign development and graphics costs, public relations and advertising related to campaign. This includes in-store point of sale (POS) materials; packaging; graphics for consumer print ads, trade ads, consumer online ads, video billboard; purchasing ad space; sales tool development for packers; public relations support; media outreach; photography and recipe development; newsletter development, printing and distribution; contest set-up.

POS included display toppers and shelf cards. Packaging included consumer bags with recipes, bins, ½ bins, and box wraps with the themed campaign messages. Retailers were able to enter a retail display contest to win prized consisting of a mini IPad, the Cuisinart 4-piece Grill set, Cuisinart Simply Grilling Nonstick Grilling Basket and The Barbecue Bible. The consumer recipe contest winners were awarded prizes in three categories: $1,000. – Salads/Sides and Desserts Category finalist; $1,000. – Marinades/Sauces/Salsas Category finalist; $1,000 – Grilling Category finalist and an overall prize of $1,000. Plus $5,000 Sears Gift Card prize for the Best in Show. VOC supported the in-store promotions with ads: online, video billboard, consumer and trade print.

PLEASE NOTE: no SCG funds were used for the above prizes.

The funds that the non-specialty crop brands paid for were used to fund the Flavors Summer marketing and PR campaign initiatives so we know that 100% of the funds were used to promote specialty crops. The food bloggers were required to provide us with their blog post for approval before it was posted to their blog. Because we reviewed and approved each blog post, we ensured that the blog posts were used to promote the Flavors of Summer campaign and in turn enhance the competitiveness of specialty crops.

Goals and Outcomes Achieved

Outdoor entertaining has become iconic to American culture. According to the Home Patio and Barbeque Association, 82% of all U.S. households own a grill or smoker and 97% of those grill owners actually used their grill this past year. By partnering with national consumer brands and providing consumers with an online resource of all things related to outdoor eating and entertaining, the VOC had hoped to achieve a measurable sales lift as well as significant consumer impressions.

Goal #1: To grow consumer website and social media users. The VOC chose to target the consumer micro site (Flavors-of-Summer.com) as the campaign website in 2013. In 2012, the VOC targeted VidaliaOnion.org as the main campaign website. Flavors-of-summer.com had 86,000 unique visitors in 2013 compared to 43,675 unique visitors to the VidaliaOnion.org site in 2012. The VOC Facebook page increased the number of likes by 1%; the VOC's Pinterest Page increased the number of followers by 32%; the Twitter page increased the number of followers by 45%. We did not reach our target of an 8 percent increase for Facebook; however, there was a small increase.

Goal #2: To reach new markets and age demographics. The VOC reached a younger demographic with the Flavors of Summer Campaign. According to Google Analytics, out of the 86,000 unique visitors to the Flavors-of-summer.com campaign micro site, 28% were between the ages of 18-24; 34% were between the ages of 25 – 34; 15% were between the ages of 35-44; and 19% were between the ages of 45 - 64 year olds. The VOC's social media efforts included the Twitter events, which resulted in 7.7 million impressions and over 10,000 tweets and the Virtual Picnic results in over 39,000 Facebook shares. According to Google's stats, 60% of consumers who participate on social media networks are between the ages of 18-44. Therefore, the VOC's social media outreach efforts combined with the website stats reached a younger demographic.

Consumer Web Site: The consumer micro site featured summertime recipes and resources including "How To" tips on summer dishes, grilling, marinades, entertaining, etc. In addition, this included a blog that was updated weekly by four high-profile food bloggers. The site also included a consumer recipe contest and downloadable coupons. The site received 86,000

unique visitors which was the largest consumer response to date and 36,997 digital coupons were printed.

Food Bloggers: The VOC worked with four high profile food bloggers with a combined stats of 1.24 million unique visitors to their blogs and 2.49 million page views. The bloggers developed weekly posts and linked these posts back to the campaign micro site resulting in 9,841 unique visitor referrals to the web site from these participating food bloggers.

Recipe Contest: Consumers were asked to provide both a recipe and photo for the consumer recipe contest. A total of 590 entries were received which is the largest response the VOC has received for a recipe contest.

Social Media Events: A variety of social media events were implemented including three Twitter parties that featured cookbook author Rebecca Lang and Guest Bloggers. All three Twitter events trended in the top 10 on Twitter resulting in a total number of 7.7+ million impressions, 2,939 individuals contributed with 10,132 tweets. A weeklong Virtual Picnic event included 13 participating food bloggers who posted a wide variety of recipes featuring the sponsors products as well as tips for outdoor eating and entertaining. The results include a 54 total blog posts, 43 recipe posts using Vidalia Onions as well as the sponsors products with a combined total Facebook shares of 39,454. The Virtual Picnic event included a drawing for a basket of items including a 5 pound bag of Vidalia Onions and other grilling accessories. A total of 3,056 consumers entered the drawing for the give-a-way.

Beneficiaries This project impacted approximately 100 growers and packers of Vidalia® onions by providing an efficient, enticing, customer-friendly, integrated retail and consumer marketing program to promote their product. State of Georgia and its residents will continue to benefit from tourism and related revenue streams from Vidalia onions retaining their popularity. Retail clients and Vidalia consumers, as a result of the program, better understand the Vidalia brand and are more likely to purchase Vidalia onions, whether in bulk for the stores or as shoppers looking for meal solutions.

Lessons Learned

For the first time, the Vidalia Onion Committee was able to work with food bloggers to promote the versatility, flavor and seasonality of Vidalia Onions on their blogger sites to a large audience of consumers. The results were very beneficial with over 9,800 unique visitor referrals to the VOC's campaign web site from food blogger's posts. As a result, the VOC will continue to expand its ongoing relationships with food bloggers.

The Vidalia Onion Committee was also able to expand its social media outreach with a series of Twitter parties and special social media events. This enabled the VOC to expand its reach to a younger demographic (18-37) year olds. As a result, the VOC will continue to expand its social media efforts in order to reach a younger demographic.

Having sponsors support the campaign was beneficial in expanding the reach with increased consumer awareness but this also required more time and expense to manage the sponsors and meet their expectations and needs. In addition, the co-branding with sponsors limited the VOC's visibility in the campaign. Therefore, the VOC has decided not to partner with sponsors in the 2014 marketing campaign.

Contact Person—Susan A. Waters; 912-537-1918; swaters@vidaliaonion.org

Additional Information—The Flavors of Summer promotion was a cost-effective way to maximize our marketing dollars with participating sponsors. The campaign provided tools, tips and educational information in a visible, appealing manner, and is in line with our continued goals and efforts to increase sales and consumer awareness.

10. Emory University – *Building the Consumer Base for Georgia Crops* – Final Performance Report

PROJECT SUMMARY

Three activities expanded awareness and desirability of Georgia specialty crops among employees, students, and visitors of Emory University.

Educational Food Gardens: Through the grant, our Garden Educator improved coordination among the garden teams and also carried out enhanced educational sessions on growing techniques in the six main gardens. In all, we estimate 200 garden team members were beneficiaries of the project. The gardens were all centrally located and visible to campus visitors, and improved signage to identify key crops spread knowledge about seasonal crops to passersby. We estimate 15,000 observers over the course of three years looked at and admired the gardens.

Farmers Market Special Events: Emory's weekly farmers market in the center of campus thrived over the course of the grant, supported by the monthly special events that featured chefs, free samples, and recipes. Though we were unable to document an increase in volume of purchases, we observed more vendors and shoppers. Featured crops were strawberries, raspberries, watermelon, cantaloupe, peaches, tomatoes, cabbage, and fennel, to name a few. We also distributed Georgia seasonal food guides, which were very popular.

Sustainable Food Fair: The fall fair featured over 40 booths, showcasing local farmers, local farm-to-table chefs, stores and nonprofits that also support specialty crops, and Emory organizations connected to sustainable food. Educational tables staffed by students offered games and displays. Over the three years, we saw stronger student preparation, increased attendance and interest in the educational tables, and increased sales of food by the farmers present.

All three of these activities became stronger components of campus culture, were more widely appreciated, and were excellent venues to expand the market for Georgia specialty crops. We are very grateful for the support and encouragement that this grant provided.

PROJECT APPROACH

Activity #1: Educational Food Gardens

To galvanize interest in locally grown, non-traditional Georgia crops, Emory maintained six food-related Educational Gardens: two in the center of the Emory University Campus (Cox and Depot), one in the center of the Oxford College campus, and one each adjacent to the Schools of Public Health, Medicine and Theology. Gardens also existed at the Yerkes Primate Center and the School of Nursing, but they were not primarily food-related gardens. During the course of the grant, the School of Theology garden was disrupted by construction, but it was re-established in a new and more visible location in 2014 and became a showcase garden.

A team of students, faculty, and staff joined together to grow specialty crops and some flowers for pest control in each site, and sites were identified by banners and yard signs (which invite volunteers). All gardens maintained some form of appropriate planting for most months of the year—stretching the growing season as much as possible—and signs described varieties and plant origins, helping newcomers to specialty crops understand what they are seeing. The teams met to plan activities in a kickoff dinner each semester. They ordered seeds and bought seedlings; planted, weeded, and harvested the crops; and

maintained laminated plant signs to educate passersby about what is growing and what is seasonal in Georgia. Produce from the gardens was eaten by the teams; some food was also donated or consumed in special events.

Garden teams benefited from volunteer labor as well, which offered hands-on experience with specialty crops to a broader group of students for a shorter amount of time. Garden volunteer opportunities were publicized widely at campus events, especially during new student orientation. Most gardens set specific weekly work days and times, which ensured that the gardens were maintained on a regular basis and allowed volunteers to arrange their schedules around garden workdays. Educational benefit from the Garden Project extended into the Atlanta community, especially in the summer; various children's and teen camps and workshops added a garden workday to their program. The Garden Educator was often present for such events and supported the educational component.

The Garden Educator helped each team with seed/seedling selection, weed and pest control, coordination of plant/seed starts in the Oxford College farm greenhouse, and general logistical hurdles, such as getting mulch delivered. The Educator also supported good administrative process among the teams and helped stabilize team leadership during times of transition. The Educator also worked with summer visitor groups and gave tours and offered special workshops or class lecture/tours as requested by faculty. Over the three years, classes in fields as diverse as philosophy and Italian used the gardens in their lessons.

The garden project benefited from much improved social media communications over the course of the grant. A successful email listserv was also developed in early 2013, which streamlined communication to all garden volunteers. In addition to scheduling, it disseminated information, as workers asked gardening questions and received responses from other team members or the educator. The listserv helped create a stronger sense of community among all of the garden volunteers.

Planting renewed Theology Garden after construction

…Several months later (with retaining rocks)

Tabling at the Earth Week Festival

Happy harvester

School of Medicine Garden Volunteers

Sumayya Allen, Educational Garden Educator, during Emory Farmers Market Tour

Activity #2: Farmers Market Special Events

The primary goal of institutions of higher education that seek to create demand for specialty crops is to educate about the taste, affordability, and seasonality of those dietary items. Emory's farmers market was one of the mechanisms for achieving these educational goals—and thus stimulating demand for specialty crops. The Emory Farmers Market thrived and received lavish praise in a recent university internal report (See Appendix 1). Highlighted were local farmers who sell specialty crops—and sometimes heirloom varieties—of vegetables and fruits, and produce from Emory's new Oxford organic farm was also sold. Other vendors sold prepared foods made from local products, many of them specialty crops, such as a pesto vendor who used local basil, and pastries, tarts, and quiches made with local fruits and vegetables. The market had 15-20 vendors on a regular basis, up from 4-5 when it began.

In order to increase the number of shoppers and volume of purchases of specialty crops at the Emory University weekly farmers market, we held special events throughout 2012-2015, five-six times a year. Georgia specialty crops were highlighted by the annual Berry Bash (featuring Georgia-grown strawberries and raspberries), Favorite Flavors of Summer (usually featuring watermelon and cantaloupe), Peach Picnic, Tomato Festival, Earth Day Festival (cabbage and fennel), and the Pumpkin Carving contest. Sometimes the special events included cooking demos, which also highlighted Georgia specialty crops.

The special events were publicized through emails, posters, and flyers, and they drew crowds of several hundred attendees. For some events where appropriate, Emory chefs prepared sample foods and handed out recipes that encouraged passersby to purchase the product and make the tasty food at home. These events created excitement around the market—keeping it fresh—and put a spotlight on specialty crops that were locally grown.

Though there was some variation, most years the events have been these:
August: Tomato Festival (Georgia heirloom and regular tomatoes)
October: Pumpkin Carving Contest and Sale (local pumpkins)
January/March: Farmers Market Cooking Demos (featuring specialty crops)
March: Kale Fest (local kale)
April/May: Berry Blast (Georgia strawberries and raspberries)
June: Peach Picnic (Georgia peaches)
July: Melon Mania (Georgia melons, all kinds)
August: Favorite Flavors of Summer (Georgia cabbage and fennel)

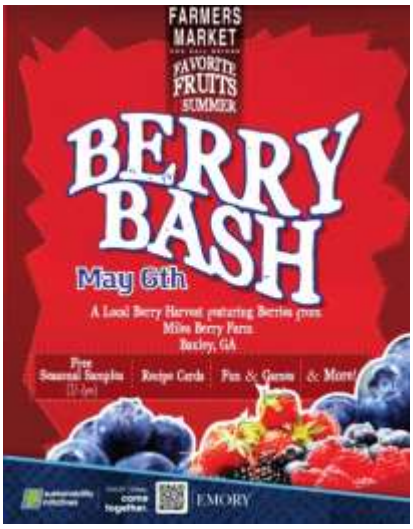
Samples and recipe cards of carrot & fennel salad


Students tasting tomato gazpacho at Tomato Festival


Georgia watermelon and cabbage coleslaw at Favorite Flavors of Summer

Poster for Pumpkin Carving Contest

Cooking demo featuring GA specialty crop farmer



Berry Bash flyer

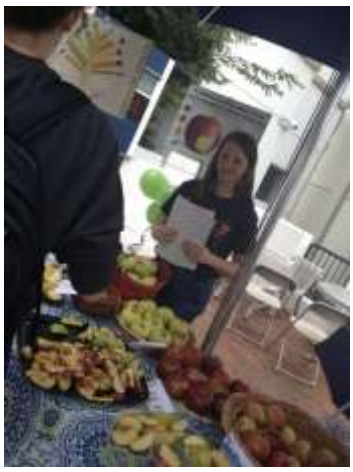

Berry cobbler samples at the Berry Bash

Activity #3: Sustainable Food Fair

To expand awareness of Georgia specialty crops and their connection to the wider local foods movement in the Atlanta area, each year we put on a Sustainable Food Fair on one Friday in October, from 10:30 AM to 1:00 PM. The fair featured over 40 booths and showcased local farmers, chefs distributing tastes of their restaurants' foods, local stores featuring Georgia crops, nonprofits that also support specialty crops, and Emory organizations that support sustainable food. A series of educational tables offered games, quizzes, displays, or food samples to highlight messages around sustainable food. The fair was lively with music playing, students in agriculturally-themed costumes roaming the fair, and crowds of faculty, staff, administrators, hospital workers, and, of course, students. The fair was organized by students as part of an anthropology course, a good example of public scholarship. Over the three years, we observed increasing attendance at the educational tables, which indicated that more attendees were interested to learn about sustainable food.

Another goal was to increase sales of food by the farmers present. Of the 13 food sellers at the fair in 2014, 8 rated the fair very highly for the value of their sales, and this represents a significant improvement from previous years. We were pleased to boost sales of Georgia specialty crops such as peppers, tomatoes, potatoes, sweet potatoes, onions, honey, apples, jams, and other products made with local fruits.

Fair attendees guess which vegetables carry higher levels of pesticides.



Heirloom apple samples from Mercier Orchards, Blue Ridge, GA

Fair vendors included local farmers

Student offering educational speech to fair attendees.

Seasonal food guide distributed at the Fair

GOALS AND OUTCOMES ACHIEVED AND BENEFICIARIES

Overall, we are very pleased with the way our program offered hands-on guidance to members of the Emory community about how to integrate Georgia specialty crops into their lives on a regular basis.

Activity #1: Educational Food Gardens
Our goal for the gardens was to increase the average of 50 garden team participants each year by 10%. **In all, we estimate 200 garden team members were BENEFICIARIES of the project, an increase of 33%.** Garden teams fluctuated over the course of each year and over the three years of this grant, but in the six primary gardens, at least 3 and at times 22 people were actively involved in working in each garden. **Over the course of a year, a good estimate is 75 students/staff actively involved, and though there is a little carryover from year to year, we think 200 individuals benefitted from direct gardening experience as a result of our efforts.** Garden coordination was particularly strong in the last year of the grant, and all of the garden teams remained well organized that year, meeting our goal of stronger participation and enhanced education about non-traditional crops in Georgia.

An indication of interested folks is the **listserv** that was created during the time of this grant. From 145 participants, it grew to 239 in the summer of 2015. The listserv shows the total number of people who would like to volunteer at any one time. Unfortunately, our hope for an electronic tracking system to count volunteers and their workdays did not prove feasible. Given that the Educator has restricted hours and garden team members have no incentive to clock in, any form of registration proved too cumbersome. Nevertheless, we asked each team leader each year for their estimated count, and since they all knew each other, this was a reasonably accurate way to keep track of participants.

Another group important to our goals and direct BENEFICIARIES were the garden observers. Students walking to class, staff members from nearby buildings, faculty walking to lunch, prospective students, hospital patients and families, and campus visitors often paused and looked at the growing

Georgia horticultural crops. **We estimate that 15,000 observers over the course of three years looked at and admired the gardens (at least 5,000/year).** This number is probably conservative; the gardens were often pointed out by Emory tour guides to the legions of prospective students and parents who visited the campus. Observers were especially well served by the improvements in signage in the garden, which included not only the name and origin of plants, but also sometimes information about the uses of the plant.

Our goal was also to expand connections between the first year residence halls and the nearby garden. Considerable effort was expended to build connections, but students did not respond well. We were not sure if first year students found working in the dirt unappealing, were too busy, or simply had other priorities. We did, however, conduct a number of tours of the gardens for both Emory and off-campus groups. Garden special events during Orientation, Family Weekend, Earth Day, Campus Sustainability Day, and the Food Fair occurred in most of the three years of the grant. These events garnered more interest than programs in the first year halls—as many as 40 people volunteed at a good event.

As we proposed, we gathered qualitative evidence from team members of how **BENEFICIARIES** appreciated the garden project: Said one Emory employee: "I love to walk by and catch the strong whiff of basil every time I pass this garden. Now which one of the plants is basil?"

A Theology graduate student said: "The dream is to feed people at Candler and Emory and beyond. People do not have food. Even some graduate students go hungry. This garden is not only a quick snack fix but also a powerful witness to what a small space of land, some seeds, water, sunshine, and patience can grow: nourishment and empowerment."

Janet Baek, counselor for Blueprint summer camp, brought high school students to the Emory campus in 2015. Twenty young people pulled weeds in the Cox Hall Garden, and she said, "I am so glad that Emory has these veggie gardens on campus. This is a great opportunity to teach [the students] about where our food comes from, and get them to think more about what they eat."

An Emory first-year student said, "I went to the Depot Garden at 4:30 p.m. Emily Cumbie-Drake showed us how to water different plants, weed some of the grasses growing in the garden, pick some ripened fruits and vegetables, and plant different seeds. I saw all sorts of produce already planted: radishes, salad mix, potatoes, tomatillos, baby carrots, Brussel sprouts, lettuce, cucumber, string beans, peppers, broccoli, oregano, red mustard, and brandywine tomatoes. I also watched as other students planted spinach and beets."

Said another student in the same class, "It is amazing to see the difference in taste between store-bought and freshly-grown produce. I am glad we both got so much from the experience!"

And a third student said, "I definitely want to volunteer at the Emory gardens again and I want to try planting my own vegetables and herbs at home over the summer."

See Appendix 2 for a summary of special events, which also gives a snapshot of the numbers of individuals who benefitted from the Educational Garden Project.

Activity #2: Farmers Market Special Events

Our goal with the Farmers Market special events was to increase the number of shoppers and volume of purchases by 15%. **The main BENEFICIARIES of the farmers market were, of course, the customers who treasured their purchases of local specialty crops. We estimate that 500-1,000**

passersby each week visited the market and 250 active customers patronized the 6-8 farmers who come to the market, at one point or another in the growing season. We think there was some continuity in buyers from year to year, so we cannot estimate the total number of participants over the three years.

We are confident we achieved the first goal, simply by the greater crowdedness of the locale each Tuesday. The days of special events drew an even larger crowd, and we estimate these numbers may be doubled. Because the market was held in the center of campus, a corridor in which some people are passing for reasons separate from the farmers market, it is difficult to get an exact count of attendees or customers. There is no doubt, however, that the special events were crucial to maintaining the viability of the market and building awareness of local, Georgia produce. Especially in the summer months when the market was held only once a month, the special events were an increasingly visible and valued educational and community-building event that supported awareness of Georgia specialty crops.

The second goal, to increase sales, turned out to be harder to verify. We saw that the number of farmers was very low in the winter and then rose in seasons of high farm productivity. Prior to the grant, the Farmers Market Manager was able to gather sales information from enough vendors to see an increase in sales (which was the basis for our projection). However, that individual retired and with turnover in vendors, it was not possible to gather valid data about growth in sales. In the final year of the grant, consistent inquiries were made about sales, but a number of vendors were reluctant to share their data, and with the variability in vendors present each week, we concluded that we could not generate valid data. Nevertheless, the enthusiasm of the **vendors** attending the Emory market was one kind of evidence that we met our goal with regard to farmers' sales; **therefore, they were BENEFICIARIES of the farmers market.**

Finally, in this activity, we hoped to build a stronger tradition on campus for both the special events and for the weekly market itself. The news story in Appendix 1 supports our observations that the farmers market is a now treasured component of life at Emory.

Activity #3: Sustainable Food Fair

Our goals were to improve publicity for the fair, to distribute Georgia seasonal food guides, and to focus on 3-4 key messages that fair attendees learned through the fair activities. New strategies to reach graduate students, to post announcements on social media, and to place strategic "yard" signs around campus were our primary innovations. Feedback from students' networks of friends showed that the fair was better known every year.

BENEFICIARIES of the fair included the attendees, but most importantly, the student group that put on the fair. Because of rising student interest learning how to put on a fair, we had to expand the enrollment slots from 20 to 30 during the three years of this grant. In 2014 and 2015, we had an additional 10 students volunteer to help on the day of the fair, as well.

We handed out the pocket-sized seasonal food guides all three years, and they were especially popular with attendees. There was always a student educational table around seasonality, and local vegetables were highlighted in that presentation.

With regard to the third goal, we saw big improvements in the messages created and delivered. Students participating in the Food Fair course exhibited stronger learning over the course of the grant, thanks to some new teaching methods. In addition to two quizzes, teams prepared briefing papers and "elevator speeches"
on issues related to the fair, including biodiversity and the importance of Georgia heirloom apples, issues around pesticide residues and the value of eating organic vegetables and fruits, home cooking of sauces

made with Georgia herbs, and advantages of eating seasonal and local foods. These briefing papers and speeches substantially improved students' ability to deliver an educational message to fair attendees. Because student interests varied from year to year and also because we learned that effective groups were 2-4 students, we usually focused on 7-8 key messages, not 3-4. But through posters and stickers, we became more focused in finding the important elements of each topic to communicate.

Students tried a variety of measures to assess learning during the Fair. **One year a team interviewed 20 randomly selected attendees and asked what they had learned at the fair, recording their responses on camera. About half of those interviewed mentioned an intention to purchase more Georgia-based produce from local farmers markets.** Interviewees were particularly excited to make further use of Emory's weekly farmers market as a source for local produce. For student attendees, accessibility nearby was particularly important. One interviewee noted, "…there are quite a lot of local vendors in the area that are pretty accessible for all sorts of things: fuits, vegetables. It's all here." Though the number of persons interviewed was small, the data suggest that attendees expanded their knowledge of specialty crops and their willingness to alter their current purchasing patterns.

A second method asked several hundred fairgoers as they left the fair to indicate levels of participation by voting which educational table was most enjoyable and most educational. The tables highlighting non-traditional crops for Georgia—the heirloom apples, the "dirty dozen/clean fifteen" table, and the local sauces table—scored high ratings on both enjoyability and educational value. Overall, 347 votes were cast, showing considerable excitement about the educational activities of the fair.

In 2013-15, we used a third method to count attendees, using stickers. Each educational booth handed out a small sticker with a sustainable/local food slogan or symbol on it to each person who interacted with the booth. In 2013, roughly 1,000 stickers were handed out, and since some tables ran out before the fair was over and an estimated one in three people refused a sticker, we think 3,000 is a fair estimate of attendees who interacted with at least one of the educational tables. Some attendees, however, stuck to the free food or focused on purchases, and this leads us to estimate a total attendance closer to 5,000 each year, for a total of 15,000 over the course of the grant.

Simply strolling through the Fair also had an impact, and especially for attendees who sampled delicious tastes from local chefs or Emory Dining's booth, the fair awakened interest in specialty crops. We noticed in year 3 that our new class schedule allowed the fair to have a more consistent attendance during the whole 3-4 hours, which also boosted the number of people who benefited.

LESSONS LEARNED

Activity #1: Educational Food Gardens

Staff turnover was the main challenge for the Educational Garden Project, but activities continued successfully at the six gardens during all three years. We learned that the Garden Educator position was under-funded, offering too modest a salary and for only 5 hours a week. Nichole Lupo, our Garden Educator at the beginning of the grant in 2012, stepped down from her position in December 2012 because she was offered a full-time garden educator position at the Wylde Center. Amanda Martin replaced Nichole as Garden Educator in March 2013, with bridging help from Emily Cumbie-Drake, Office of Sustainability staff member. However, in August 2013, Amanda left Emory for a position with the Clean Air Campaign. Emily continued to provide continuity and team support, and in October 2013, Sumayya Allen was hired as the new Garden Educator. Sumayya was very effective in providing high-quality educational events, backstopping the teams, and creating enthusiasm for work in the gardens. It was with great sadness that we accepted her resignation in April, 2015, as she decided to attend graduate school while accepting also a full-time job. We then raised the salary of the Garden Educator, and in the

summer of 2015 hired Sam Boring, a graduate of UGA who specialized in organic agriculture. He brought creativity and hard work to this project, and the teams and gardens thrived.

In the time periods between coordinators, Office of Sustainability Initiatives and Campus Services staff continued to publicize the gardens at new student orientation events, as well as to ensure that the gardens were maintained and volunteers received adequate support and guidance. We learned that our team can fill in when we have staff turnover.

A second difficulty was recruiting first year students to the garden effort. Though several staff members including the Educator have worked with Campus Life staff and students in the sustainability-themed living and learning communities, first years have not been a major force in the garden project. To try a new direction, Emory has allocated funds to support a new student position of Garden Intern for the Fall, 2015, and we hope that an enthusiastic graduate student working with the living/learning community can galvanize interest with first and second year students.

Another challenge was the decision by Emory Healthcare to end the Wesley Woods Horticultural Therapy program. This greenhouse site had provided important support to the Garden Project by starting seeds in the winter and summer, for spring and fall planting. It also allowed disabled students to gain some gardening experience, since it was handicap accessible. However, we overcame this loss in the final year of the grant because of the establishment of the Oxford College organic farm. The farm has a greenhouse and has been willing to start plants for the garden teams.

Activity #2: Farmers Market Special Events
We also experienced staff turnover in our Farmers Market, as noted above. Julie Shaffer, Emory Farmers Market Manager, retired in August 2013, and Chad Sunstein was hired in September 2013 to replace her. There was no interruption, however, in the schedule of events. In year 3, Chad's efforts were supported by an intern, Valerie Morrill, paid for by the Office of Sustainability Initiatives.

We found that tracking sales and vendors at the farmers market was more difficult than expected. Farmer vendors were not present every week, and thus income fluctuated from that cause. Also, some were not willing to share their sales figures. While overall, sales at the Emory market were not large, the vendors stated they were very happy to be participants and appreciated the enthusiastic reception for their sales. There were also obstacles to a higher volume of sales; many students who pass by were on required meal plans or had limited access to kitchens or cooking equipment. Faculty and staff attendees may not have had refrigeration options at the office or have had long walks to their cars, and so are inhibited from large vegetable purchases. But vendors said they "really love" being at the market, being part of the university atmosphere, and they appreciated having connections with students. Beginning in 2015, students will be able to spend a portion of their dining plan funds in the farmers market, and this innovation should dramatically boost sales. It will also allow a new level of tracking of sales.

We conclude that the educational function of the Farmers Market worked well, both for the students and employees who stopped by and chatted with vendors and for those who purchased and sampled their wares. Knowledge of and access to Georgia specialty crops was much stronger than it would be without this lively campus tradition.

Activity #3: Sustainable Food Fair
We learned valuable lessons over the three years in how to publicize the fair and how to foster rapid and accurate learning with students, so that they could develop effective communication strategies with fair attendees.

We struggled with the difficulty of measuring attendance at the fair; it had multiple exits and entrances, some people simply passed through, and even the most enthusiastic attendee may not be willing to pause to be interviewed or to record what they learned. We tried photographs from above, clickers at the entrances to the fair, and other means of estimation, but they did not work. Using stickers to measure attendance specifically at the educational tables turned out to be very successful, and by this means we determined that a sizeable group of fair attendees had an opportunity to learn more about Georgia specialty crops. The bean-counting method was also useful, but may not yield a more sophisticated assessment of student learning.

Another way to measure the impact of the fair is to assess if the resources of the fair—the tables, food samples, and activities—were adequately utilized. From our observations and many comments from participants, they were. Vendors mostly ran out of food, and student teams at the tables were mostly exhausted from all the interactions they had by the end of the fair. In fact, we did not want too many more people at the fair because it was so crowded that more people might make movement down the street frustrating and make educational speeches more difficult to deliver. We probably found an ideal balance between the space available and the numbers of attendees.

In conclusion, we want to thank the Georgia Department of Agriculture—and the USDA/AMS-SCBGP funders—for their valuable assistance with these three activities to expand a market for Georgia specialty crops. All of our projects thrived, despite some setbacks, and generations of students were informed and engaged. A new awareness of specialty crops—among staff, faculty, administration, and campus visitors—was visible in the many groups of beneficiaries of this grant. Our partnership with the Georgia Department of Agriculture was noted, and participants acknowledged their gratitude for this support and for the opportunities provided. We look forward to continued efforts to expand the market for Georgia specialty crops.

CONTACT PERSON

Peggy F. Barlett, Office of Sustainability Initiatives, 404-727-5766, pbarlett@emory.edu

ADDITIONAL INFORMATION

Mercier Orchards display, Sustainable Food Fair, October 2014.


Signs and heirloom corn varieties from the Emory Educational Gardens.

ADDITIONAL INFORMATION

Appendix 1: Excerpt from Emory University Strategic Plan Report, Summer, 2015—***[key section in red]***

WHAT MAKES A CAMPUS:
DID YOU HEAR THE ONE ABOUT EMORY'S MASCOT? INSTEAD OF AN EAGLE, IT SHOULD BE A CRANE.

That's the joke circulating the past few years among Emory students. Yes, we've all seen the Jurassic Park-sized orange towers looming over Fishburne, Dowman, and Dickey drives, and currently they are nesting on Clifton Road. Their perch at Emory is temporary, but their effect will have far-reaching implications for learning and discovery for the students, faculty, and staff on the university's campuses.

To see what's lasting and the goal of all this digging and lifting, take a stroll on Tuesday at lunchtime outside Cox Hall. There at the weekly farmer's market is a cross section of the university -- sophomores on skateboards, doctors in scrubs, faculty in khaki, administrators in suits, graduate students deep in discussion (nursing and public health students say, "it's what lures us over the bridge"). The market has become a campus magnet, serving needs that go beyond getting nutrition to nurturing community. Common wisdom these days is that the market is the place to go if you want to run into someone "accidentally."

The site, however, isn't an accident. A decade ago, the location was a busy roadway that bisected the campus. In the years since, the Campus Master Plan has transformed Emory into a pedestrian-friendly, sustainable campus, with indoor and outdoor spaces that draw people together to facilitate communal and intellectual life.

President James Wagner, in his introduction to the master plan in 2005, identified three guiding principles: superb stewardship of the natural environment, advancement of the community's intellectual life, and enhancement of the quality of life for students, faculty, staff, and Emory's neighbors.

"I don't think anyone would say that Emory has fully realized its vision [for sustainability]; it is a long journey, and there are miles to go. Still, the transformation of the campus has been profound, leading recently to the naming of Emory as the eighth 'Greenest University' in the country by BestColleges.com."
-- Ciannat Howett, Director of Sustainability Initiatives, in an essay for *The Atlanta Journal-Constitution*

Appendix 2: Educational Garden Project Outreach - Schedule of Events (Fall 2012 through Summer 2015). Note: unevenness in event frequency is due to personnel turnover.

2012
August 28: Sustainability Showcase, Few Hall. Volunteer sign-up = 9
September 9: Garden Meet and Greet, Depot Garden, educational outreach = 11
2013
October 4: Sustainable Food Fair, Volunteer Sign-Up ~20; Table visits ~100
October 23: Wonderful Wednesday, Volunteer Sign-Up ~5, Table visits ~20
November 11: Green Networking Night, Volunteer Sign-Up ~3, Educational reach ~20
2014
January 13: ALFI meeting and garden tour, Educational reach ~20, Tour participants 2
January 13: Spring Student Activities Fair, Volunteer Sign-Up ~5, Table visits ~15
January 15: Spring Garden Kick-Off Dinner, Participants ~20, New volunteers ~5
April 22: Emory Earth Day Festival, Volunteer Sign-Up 5, Table visits ~15
June 24: Emory Farmer's Market Garden Tour, Tour participants: 4
August 26: Emory Market Garden Tour, Participants: 2
August 26: Sustainability Showcase Few and Evans, Volunteer Sign-Up: 28, Table visits ~60
August 27: Fall Student Activities Fair, Volunteer Sign-Up: 52, Table visits ~70
September 8: Italian Freshman Seminar Garden Tour, Participants: 18
September 23: Fall Garden Kick-Off Dinner, Attendees: 39
October 23: Emory Graduate Sustainability Group Compost Workshop, Participants: 11
2015
January 19: Volunteer Emory Workday at Cox and Depot Gardens, Participants: 17, Volunteer Sign-Up: 13
January 22: Spring Garden Kick-Off Dinner, Attendees: 40
April: Kale Wrap Party (Kale, lettuce, and herbs on pita and tortillas at the Theology Garden), Attendees: 86
May: Theology Garden workday to build stone retaining wall and plant summer crops, Attendees: 17
July 17: Medical School Garden Summer Meeting and Cleanup, Participants: 9
August 25: Sustainable Showcase
September 24: Fall Garden Kick Off:
October 2: Sustainable Food Fair: est. 3,000 attendees

11. Fort Valley State University – *Establishing Advanced Technology and Innovative Horticultural Practices for Ecofriendly and Sustainable Production of Stevia in Georgia* – Final Performance Report

Project Summary:

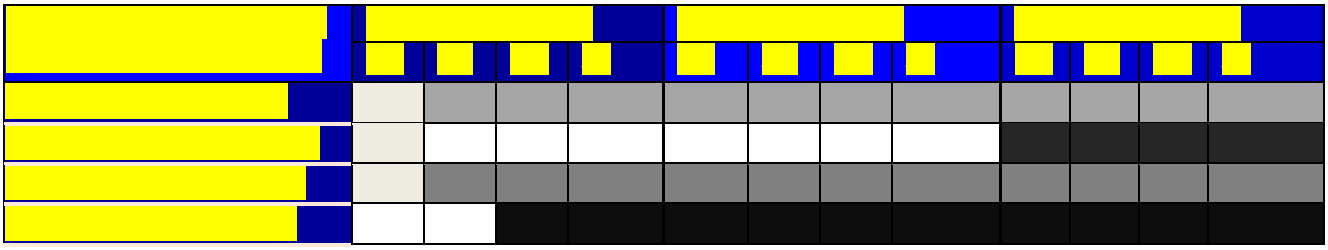
The College of Agriculture Family Sciences and Technology, Fort Valley State University (FVSU), through the Georgia Department of Agriculture, received a $100,000 grant from the USDA/AMS Specialty Crop Block Grant Program to establish advance technology and innovative horticultural practices for the ecofriendly and profitable production of Stevia in Georgia.

Stevia (*Stevia rebaudiana*), a perennial sweet herb from the Asteraceae family, is safe for diabetics as it does not affect blood sugar levels, has no neurological/renal side effects associated with some artificial sweeteners, and is helpful in weight and blood pressure management. Stevia leaves are 12-30% sweeter while Reb-A crystals from stevia leaves are 270-400% sweeter than the cane sugar. Cultivation of stevia with higher contents of sweet agents has been selected to meet an increasing industry demand.

To address stevia concerns and opportunities, FVSU used this grant to establish stevia research in the field, in the specialty plants house and in in-vitro studies on stevia in the laboratory. We established innovative horticultural technology for the profitable production of stevia in Georgia to fulfill the following objectives: (1) the feasibility and cost-effectiveness of direct seeding vs. transplanting; (2) intercropping stevia in fruit and tree nut crops to enhance grower profitability; and (3) monitoring and quantitatively exploring the potential to improve sweet agents in stevia leaves.

Two graduate biotechnology research students have completed their research on stevia and graduated. One graduated in Spring 2014, with his thesis entitled, "Investigating Stevia Germplasm and the Production of High Quality Materials" and another graduated in Fall 2015, with his thesis entitled, "Investigating Seed Germination and Genetic Analysis of *Stevia rebaudiana* Bertoni." Two more students have been conducting their research on stevia and will be graduating in Spring 2016. We have obtained adequate knowledge to grow stevia in middle Georgia and through our presentations, publications and marketing programs we have increased awareness among our community, small farmers, home growers and health conscious people.

Project Approach



We conducted various seed germination trials in the field, in the greenhouse and in our laboratory to screen seed germination percentage and viability. We conducted various seed treatments and germination trials with those seeds to enhance the germination rate. Light/Dark treatment: seeds were placed under constant light for a total of 15 days and constant dark for 15 days.

We also planted 1,200 peach trees to develop a high density peach orchard on another 2.6 acre land to investigate intercropping stevia and practicing BMP (Best Management Practices). We planted 8 different cultivars of peaches in 16 rows; the distance between peach rows was 11 ft and the gap between peach plants was 5.5 ft. The whole orchard ground was covered with 25-year-black fabrics to control weeds and to minimize long term cleaning costs; irrigation lines were run along with each peach row to irrigate both peach and intercrops. Raised beds were made with wooden blocks (16ftx2.5ftx8inch). All raised beds were filled with a mixture of miracle grow: stagreen: black cow manure (6 cft: 6 cft: 3 cft), to use as intercropping the plot for stevia. It was cheaper than ground soil and might be better for intercrops. Each row had 10 raised blocks and in 16 rows there were 160 raised beds prepared to use for intercropping stevia and other specialty crops.

We screened leaves from the upper canopy (younger leaves), middle aged leaves from the middle part of the plant, and the older leaves from the base of the plant using HPLC. We determined the stevioside and rebaudioside content using single leafs from the plant.

The sweet agent in stevia is due to the presence of stevioside and rebaudioside in stevia leaf extraction. We monitored the quantity of these two compounds using HPLC (High Performance Liquid Chromatography). This investigation screened selected plants of interest for the identification and estimation of stevioside and rebaudioside-A content from the extracted prepared sample. First the individual chromatograms of the standards were analyzed, and then samples were analyzed. The identification and quantification of glycoside content in the samples was done by comparing the retention time and peak area of the samples with that of the standard.

We observed the effect of various hormonal combinations on bud break and multiplication from stevia nodes. Murashige and Skoog medium (MS) was used as the basal medium as it is the most suitable and most commonly used *in vitro* culture medium for plant regeneration from plant tissues. We investigated the effects on single cytokinin as well as the combination of two and three cytokinins for increasing the shoot buds per nodal explant. We used non selected stevia plants to develop the micropropagation protocol on our laboratory first. Later, when we selected the best biomass and high sweetening stevia plants, we used that protocol to micropropagate the selected stevia plant to make more clones. Root induction experiments of *in vitro* grown stevia

plants were carried out. Once the shoot had enough root, they were transferred to soil and acclimatization was also carried out during this investigation.

Stevia is a perennial crop. The field trial of the stevia plant was one of the major goals of this project to evaluate the yield of stevia in middle Georgia soil and weather conditions.

Initially we planted two (G1 and G3) cultivars propagated through seeds of stevia obtained from 'Rigby Farm,' Alma, Georgia, which was provided by Sweet Green Field LLC. Later, SGF LLC provided us 25,000 seedlings for our planting. We also received 22 seed lines to evaluate them. Performance evaluation of these stevia germplasm was carried out in the Specialty Plants House as well as in the laboratory in vitro condition. We observed their growth patterns including plant height, branches per plant, and the average length. In the laboratory we measured sweetening agent using HPLC. Responses of these stevia lines were also studied including germination %, surface sterilization treatment, hormonal treatment for multiplication, and *in vitro*.

To study stevia production in the field employing BMP, two plots (approximately 3 acre land) were selected at the Agriculture Research Station, FVSU. Both plots were covered with metallic fence. In one plot (approx. 1 acre) raised beds were made and covered with 25-year-longevity black fabrics to control weeds (3 ft wide 210 ft long 13 beds). Stevia plants were planted in six different spacing to evaluate the best spacing to obtain high yield in middle Georgia soil and climatic condition. Those spacings were 6 inch, 9 inch and 18 inch gaps between two plants in each row and either 2 or 3 rows were in each 3 ft wide x 210 ft long bed. One drip irrigation line was put on the top of the carpet in the middle of each bed. Beds 1-10 were treated with 10-10-10, N: P: K (6 lb/bed) while the field was prepared for planting stevia. Bed one was dedicated for direct seeding, while all other beds were used for transplantation of stevia seedlings obtained from SGF. Bed 13 was prepared with compost (6 lb/bed), bed 12 was treated with neem leaf powder (6 lb dry leaf powder/bed) and nothing was added in bed 11 and was used as control bed. Plant to plat spacing for bed-2 was: 9 inch gap, 3 rows/bed; bed-3 was 9 inch gap, 2 rows/bed; bed-4 was: 6 inch gap, 2 rows/bed; bed-5 was 6 inch gap, 3 rows/bed; bed-6 was: 18 inch gap, 3 rows/bed; bed-7 was 18 inch gap, 2 rows/bed. Each bed from beds 8-13 were subdivided into six (6) small plots of 30 ft each having a 5 ft gap between two small plots. All six combinations of plant spacing were maintained to plant stevia in these six small beds of each of these beds 8-13. Plants were irrigated every day for 30 min during the initial 6 weeks using drip irrigation for establishing the stevia plants in the field.

To enhance the quality of stevia plants we designed some experimental methods to develop high water tolerant stevia, high cold tolerant stevia and high drought tolerant stevia. We also designed some experiments to enhance the sweetening of stevia by developing cell lines *in vitro*.

Goals and Outcomes Achieved

A. SEED GERMINATION TRIALS

Issue

Seed germination is one of the major problems in stevia and the rate is very low. We received our stevia seed supply from SGF (Sweet Green Fields) LLC for our trial. A total 22 different types of stevia seeds were obtained. Two of them were coated in granules and the other 20 types were not. The purpose of this study was to attempt to improve seed germination and determine if genetic differences between the varieties contributed to poor seed germination. We would screen seeds and determine which varieties have the highest rate of germination and determine if the seeds grown, cuttings, or *in vitro* grown stevia performed better in the field.

GOAL/TARGET #1

The seed germination of stevia in Georgia will be at least 5-10% quicker than what has been on the west coast, which will increase product sales in Georgia by at least 20 percent.

This target has been achieved as we found the way to increase the germination percentage significantly, which will increase product sales in Georgia by at least 20 percent.

In our experiment, the range of germination rate varied from 0%-100%. Six seed lines out of 22 seed lines (A-V) revealed having the highest germination and viability. The highest germination (100%) rate was observed in seed line P. The reason for the variation was the two main types of Stevia seeds: black-colored and tan-colored. The black-colored seeds weigh more than the tan-colored seeds.

Over 40% of the seedlings were obtained in the greenhouse seed germinating tray while direct seeding in the field was less successful. One of the main reasons behind the lowest seedling development was due to the optimum moisture requirement (70%-80%) for stevia seed germination during the 1st week of seed germination and growth. Low or over irrigation at the beginning of germination affected the germination and seedling growth percentage.

Outcome Measure

The information of seed germination was shared with SGF's past V.P. Mr. Hal Teegarden who provided these seeds for our experiments and was very happy to know this success. They wanted to use this protocol for their future use. We provided this seed germination information with a pack of stevia seeds to all interested local home growers and small farmers (over 200 packs) during the Moultrie Ag Exposition. We have been using this knowledge to improve seed germination to other lines of stevia seeds collected from our FVSU field grown stevia seeds.

B. INTERCROPPING EXPERIMENTS

The objective of intercropping of stevia was to help Georgia peach farmers get more benefit out of their land by growing this crop inside the peach orchard. Georgia is a peach state and farmers don't receive any income during the first 3 years of establishing a new peach orchard. Growing stevia as an intercrop in between a peach orchard can help farmers enhance their income from the same land.

GOAL/TARGET #2

Georgia will be able to produce at least 30% more harvests (cutting plants) per growing season, thereby increasing product sales by at least 20 percent.

The stevia plant we have selected for intercropping has 200% more biomass production than normal the average production. At this time, we have not obtained enough of the results of intercropping due to unavoidable circumstances. However, we will achieve this goal.

We were delayed preparing our field due to massive rain in this region of middle Georgia in the first year. We planted stevia in between other crops in our specialty plants house as intercropping, where stevia performed well for one year and grown for the second year but growth was around 50% than those grown in the monoculture (solely growing) stevia in the field. In the second year we prepared the field for intercropping stevia with peach plants and planted peaches. By the time we finished the field preparation we were late for intercropping as the cold came. We decided to start planting stevia in the 2014-2015 crop season and waited to receive the stevia plants from SGF. Due to some unavoidable circumstances SGF couldn't supply us those plants. With that situation we produced some stevia plants at the FVSU for intercropping and we planted them and they were enough.

Outcome Measure
We also planted some other specialty crops in raised beds as intercrops for trial as stevia plants were not available to plant. Some of them came up pretty fast and good especially where those crops growing under the shadow of the peach trees, required less water and performed better. We expect stevia will grow well under intercropping.

GOAL/TARGET #3
To increase the knowledge of Georgia farmers and others interested in stevia production by at least 25 percent using presentations, workshops, and field demonstrations.

We presented our findings of stevia research through presentations, meetings, publishing annual reports and field demonstrations in order to increase the knowledge of Georgia farmers and others interested in stevia production. We distributed over 200-300 packets of stevia seed samples grown at FVSU among interested farmers, growers and health-conscious people, including the information of how to grow them.

We verbally surveyed farmers and others to determine if they would like to grow and use stevia. One hundred percent said they were interested to grow/use stevia or that they were already growing/using stevia. Over 300 people gave their opinions about stevia while they were visiting our stevia plot or during stevia presentations.

C. MONITORING SWEET AGENTS

Issue
Stevia leaves are 40-300 times sweeter than sucrose and this varies plant to plant due to the high genetic diversity in stevia germplasm. Particularly, stevia is a cross pollinated plant so the genetic makeup of every seed grown plant is different so their sweetness varied from plant to plant. Hence, it was very important to monitor them and select a plant with a high sweetening

agent to multiply that plant colonially using cutting and or *in vitro* propagation method to increase the productivity.

Outcome

Our objective was to screen as many stevia plants as we could through the time period of this project. The reason was to select a stevia having the highest sweetening agent. Our current study showed that the stevioside and rebaudioside varied among them. The field grown stevia germplasm pool plant # B7R1.13 exhibited high biomass production with a high glycoside concentration. HPLC analysis revealed that B7R1.13 containd 0.26 % stevioside in its leaves indicating future promise in the development of B7R1.13 as an agricultural crop in Georgia and possibly the United States.

Outcome Measure

On the basis of the HPLC result, a stevia plant has been selected from field grown stevia having higher rebaudioside. That plant has been used to further micropropagate in the laboratory and cuttings were made in the greenhouse for intercropping.

D. DETERMINING BEST LEAVES

Issue

The sweetness of each leaf varies based upon their age due to the condition of leaf physiology. It was one of our finest objectives to determine the leaves which have highest sweetening agents in them depending on their positions on the plant.

Results

The study performed showed that the stevioside and rebaudioside content was higher in single leafs than those from the middle part of the plant.

Outcome Measure

We relayed this information during the meeting for developing a future stevia research proposal under USDA-SCRI where Fort Valley State University will join with North Carolina State University, Michigan State University, Alabama A & M University, PepsiCo, and Sweet Green Field (SGF) LLC.

E. IN VITRO CULTURING STUDIES

Issue

Tissue culture is the only rapid process for the mass propagation of Stevia. It must also be understood that due to the self-incompatibility of stevia, an *in vitro* propagation protocol had to be established in order to preserve and develop selected germplasm for the production of quality materials. *In vitro* cultures limit the loss of plant germplasm. The i*n vitro* study of stevia was a very important part of this project.

Results

The combination of two Cytokinins showed better results than single cytokinin, and the combination of three produced more shoots per node than a combination of two Cytokinins. The

earliest bud induction was recorded from explants within three days of culture in MS medium supplemented with 2.0 mg/L BAP + 0.5 mg/L Kn + 0.1 mg/L Ad.S. On day six explants were recorded as being an average of 3.5 cm in length. By day seven the explants were ready for sub-culturing. This process generated an average of eight plants from one inter-nodal section within four weeks. After rooting the regenerated plantlets were transferred in small containers filled with regional soil, then transferred to a plant house for a period of ten days. After primary acclimatization, the plantlets were shifted into larger areas along with an optimum water supply to retain a high humid condition until transplantation in the field.

Outcome Measure

One master's thesis was submitted and the student graduated on this work. One master's student and one high school science fair student got help on this developed protocol and she used the protocol. Two more master's students have been working on this protocol as well.

F. HARVEST AND YIELD DATA

Issue

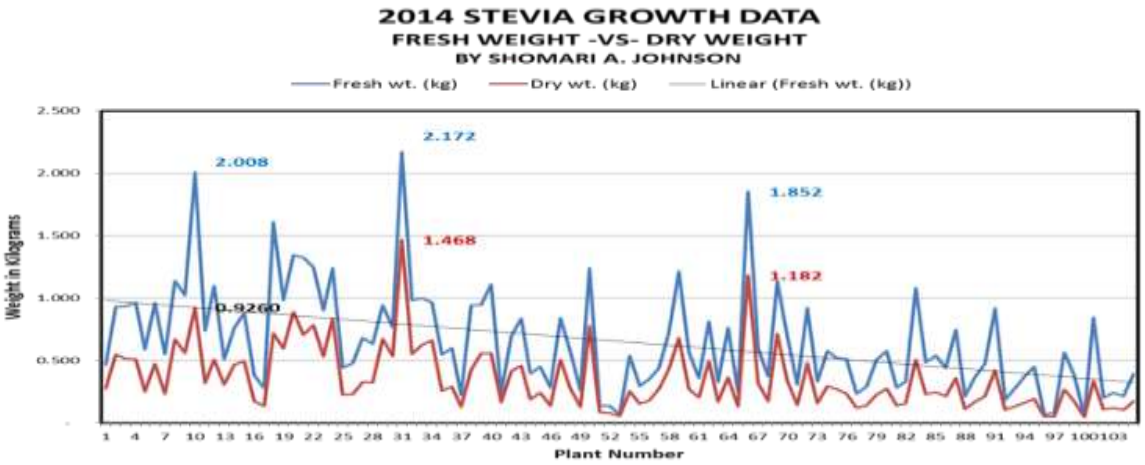
The demand for biomass of medicinal plant resources such as stevia reflects the current health statis of the populace. Cultivation of plant tissues or organs for the production of valuable compounds of commercial interest have gained significant importance globally and more specifically the United States. Germplasm is a very important material for the improvement of crops. The total glycoside concentration in stevia leaves is heavily influenced by environmental conditions. The success of a stevia germplasm investigation and development program depends on the choice of the parent plant, the raising of adequate populations, and further selections.

We designed the field trial experiment and planted stevia plants on raised beds (3 ft wide and 210 ft long). Beds were covered with 25-year weed barrier fabrics to avoid the cost of weeding. Stevia plants were planted in 2 and 3 rows per bed. The distance between plant to plant in each row was 6, 9 and 18 inches to observe their yield in each condition. The soil has been treated with nothing (control), neem leaf powder, compost, and N-P-K (10-10-10) 500lb/Acre. As a first time grower in middle Georgia, we didn't want to harvest the crop before flowering as we wanted to observe the whole life cycle of stevia in our middle Georgia conditions.

Results

We measured the height of each stevia plant and harvested manually each plant. We measured the fresh weight and dry weight of each plant. The fresh weight yield varied from 0.058-2.17 kg/plant and dry weight (whole plant) varied from 0.048-1.47 kg/plant which is significantly higher than our preliminary observation we got in 2013. The plant height varied significantly from 25 – 145 cm.

TABLE . Harvest Data (Germplasm Mean and Variance)



Outcome Measure

First year of establishment of the yield is very low but gradually it increased in the second year harvest and retained the same for the 3rd year harvest, which is very promising.

G. STEVIA CULTIVAR EVALUATIONS

Issue

Stevia is a self-incompatible crop (a cross pollinated crop). Therefore, the stevia germplasm has a lot of variations due to cross pollination. Seedlings vary for their qualities from cross pollinated plants. There was no specific breeding or germplasm evaluation data available on stevia for us.

Results

We found vast differences in crop height and yield in biomass in the field trial. We found the sweetening agent stevioside and rebaudioside content varies plant to plant as well as lower, middle and top leaves of the same plant. Germination % varies among different seed lines (0%-100%). Those seeds germinate well--P line was one of them. We found seedlings obtained from P line also varied between themselves for *in vitro* growth. Stevioside and rebaudioside content in *in vitro* grown plants varied as well. Surface sterilization was varied between G1 and G3 stevia plants. We selected one of the highest biomass producing plants from the field trial that had the highest quantity of sweetening ingredients. From 22 seeds lines (A-V), six lines showed better germination %. From the seedlings from P (P1-P7) only P2 shows a significantly faster growth rate. But unfortunately we lost this line.

Outcome Measure

A selected stevia plant had at least four times more biomass production potential. We have been using this selected elite stevia plant for further clonal multiplication. This could be a great achievement if the field trial in the coming season retains the capability as its parent plant.

H. STEVIA RESPONSE TO BMP

Issue
Best management practices (BMP) in the field trial for stevia plants is one of the major objectives of this research.

Results
The BMP was a very important goal for this project as stevia is a food commodity; we didn't use any chemical pesticides and wanted to keep the field clean from weeds using weed barrier fabrics. Stevia is a perennial crop (plants survive and grow 3-5 years continuously even after harvesting). After the first year's harvest in November 22/23, 2013, frost came on November 24 and killed the upper part of the plant. At the end of February new shoots appeared from the underground parts of each stevia plant. We didn't irrigate them as rain water was enough for their growth. The second year's stevia plant canopy size was larger than the first year. The third year crop came the same way it came from the second year and the canopy size was similar to the second year.

Outcome Measure

As a part of the BMP we evaluated stevia by the performance of stevia and yield in various plot designs, plant to plant spacing, neem treatment, and irrigation frequency. Small growers and home growers will get benefit from this trial. Those people who are interested to grow their own food commodity (especially stevia) as organic loved this BMP for stevia, as we came to know during our discussions with them in various meetings.

I. CROP ENHANCEMENT TASKS

Issue
Stevia is a very cold, water and drought sensitive plant. Therefore, crop enhancement tasks were undertaken to develop a biotic and abiotic stress tolerant stevia plant. Stevia plants die if there is water logging in the field due to rain, or it can die if there is no water supply at the initial stage of establishment. Stevia also cold weather sensitive and a little frost can kill the whole plantations.

Results
We found some stevia plants could survive over several months in water logging conditions. During this investigation, we didn't irrigate one stevia plot for an entire year and they performed well; this proves that the stevia germplasm we had was very drought tolerant. Our stevia plants were cold susceptible and foliage died when the temperature fell to 2-4^{0}C. As a part of our crop enhancement task we also tried to develop cell lines of stevia. We examined the production of stevioside and rebaudioside in various calli/Cell lines we developed from stevia leaves and found the presence of those stevioside and rebaudioside in various concentrations (even higher than leaf).

Outcome Measure
We have gained enough knowledge to use our experiences for future stevia research for producing biotic and abiotic stress tolerant stevia. We were invited to write a multistate collaborative stevia research grant based upon our expertise we developed though this project.

Beneficiaries:

1. Researchers gained new knowledge on the stevia plant.
2. Researchers informed growers. A few growers like Rigby Farm, Alma, Georgia, and others grew stevia on their tobacco farm for more profit.
3. Companies like Sweet Green Field have been buying materials for processing.
4. Public and consumers who are looking for the availability of a reliable and economic source of sweetening agent, rebaudioside-A (Rev-A), for their various uses.
5. Several graduate students who conducted research on stevia topics were financed for graduate assistantship through this project.

Other Beneficiaries Impacted: There were a number of other beneficiaries impacted in one way or another through this project. The grower community in Georgia, Florida, North Carolina, Alabama and Tennessee learned how to grow stevia from us. The SGF Company, a partner with FVSU, benefited from research data on seed germination, the best stage of leaf development for the highest quantity of Reb-A, feasibility of stevia intercropping in orchards and innovative best management practices. The Fort Valley State University research team has gained practical experiences in handling stevia production and developed the capability for future innovations. The general public was impacted with new knowledge of stevia and the sources of the sweet agent's availability thorough stevia plot and stevia booth visits. We anticipate that the project results had a positive economic impact not only on the FVSU, but also on the participating Georgia growers, the SGF Company, students, home growers, farmers, and the American public.

Lessons Learned

Stevia seeds need high humidity (85%) for higher germination rate. Seedlings cannot tolerate over irrigation during first 7 days of germination. Planting should be completed during the spring (February-March); ground cover helps to protect from weeds, root rot disease which affects stevia production; raised bed could be better but the results are not available until next year.

HPLC is a very sensitive analyzer. Even handling with extra care makes this piece of equipment crazy. We hardly can test even a couple of leaf extract samples a day, someday none. However, it is a very reliable analyzer for authenticity. We got very good and expected results, but we need to conduct more samples. We need a very efficient HPLC.

Stevia is a crop with much potential for improvement in the cultivation process. More research can produce better results for crop improvement and faster production of its germplasm.

Stevia plants need to be harvested before flowering. In Georgia, two to three harvests can be acquired per year.

Stevia has enormous potential to enhance its productivity and high yielding crop development for USA farmers. It requires at least 3–5 years more from where we are now for that development.

Stevia requires very little or no irrigation; has none or less insect damage; is a very good crop for organic growers. Covering the ground helps to grow clean stevia.

Stevia is a very good crop to conduct this kind of research; it is very responsive. It is not very difficult and not time consuming. We will be able to produce better lines if we can continue our work 2-3 more years.

Contact Information:

1. Dr. Biul K Biswas, Principal Investigator
   Research Assistant Professor
   Graduate Faculty in MS
   Biotechnology Program
   College of Agriculture, Family
   Sciences and Technology
   Fort Valley State University
   Email: biswasb@fvsu.edu
   Phone: 478-825-6827

Additional Information

N/A

12. Georgia Tech Research Institute – *Chemical Sensing for Armillaria in Orchards* – Final Performance Report

Project Summary

Due to the estimation that approximately 12% of the U.S. crop is lost to pests and another 12% is lost to diseases, the need for early detection of pests and diseases in agricultural systems in order to enable timely interventions and the prevention of lost crops is critical. Specifically, it is estimated that pathogen *Armillaria tabescens* is responsible for more than $10 million in lifetime production losses each year in the Southeastern US peach industry. In this project, Georgia Tech Research Institute (GTRI) proposed to develop a chemical sensing technology based on detection of volatile organic compounds (VOC) released by pathogen *Armillaria tabescens.* VOCs are byproducts of fungal metabolites, which could be unique to the genetic types of the fungi, therefore can be used as chemical markers for rapid fungus detection. Unique VOCs from inoculated *Armillaria* samples in growth media have been detected and identified**,** VOCs signature/fingerprint of *Armillaria* at different growth time also have been obtained through the purge and trap GC/MS system. Data analysis from infected *Armillaria* soil samples and infected *Armillaria* peach tree root samples collected from USDA's Southeastern Fruit and Tree Nut Research facility in Byron, Georgia, validate the identified VOCs. Successful results obtained through this project lay a good foundation for the development of a VOC sensor for rapid disease detection in farms and orchards. This sensor could be a fixed asset or it could be mounted to a small ground or aerial robot to rapidly traverse the orchard.

Project Approach

By collaborating with experts in horticulture and chemical analysis, four major goals were achieved during this project: developed a sample collection method to collect VOCs in the lab and in the field; developed a VOC analysis method based on purge and trap GC/MS system for VOC detection and identification; identified the *Armillaria* VOCs signature/fingerprint through GC/MS data analysis; and validated the identified VOC signature/fingerprint in the field. Four tasks have been accomplished during this work:

Task 1: *Armillaria* sample inoculation in the lab and filed sample collection

Inoculated *Armillaria tabescens* in growth media, along with the growth media as background checks were prepared and incubated by USDA's Southeastern Fruit and Tree Nut Research facility in Byron. The well-cultivated samples were shipped to GTRI for headspace VOC analysis using purge and trap GC/MS system (Agilent and Teledyne Tekmar). EPA 8260C method was evaluated to analyze the headspace VOC of both the inoculated *Armillaria tabescens* and the growth media. VOCs of *Armillaria* at different growth time were analyzed and compared.

Field samples were collected at the USDA's Southeastern Fruit and Tree Nut Research facility in Byron. Soil samples near both infected and uninfected peach tree roots (about 0.5 feet away from the crown) were collected using a specialized soil collection tool; 2", 4" and 6" depth of soil samples were collected. Different types of control soil samples were also collected and compared. Collected soil samples were kept inside a cooler which maintained around 4°C and

shipped back to GTRI for headspace VOC analysis using purge and trap GC/MS system. EPA 8260C method was applied to analyze the headspace VOC of the collected soil samples. Peach tree root infected with *Armillaria* were collected and headspace samples were analyzed, as a comparison; healthy peach tree root were also collected and headspace samples were analyzed.

Task 2: *Armillaria* VOCs analysis

The Agilent GC/MS operating in electron ionization mode with an Atomx purge and trap sample introduction system (Teledyne Tekmar, Mason, OH) was used to perform the experiments. The purge and trap conditions are presented in Table 1 and represent standard conditions for the analysis of method of VOCs by EPA Method 8260C. The Agilent GC/MS conditions are presented in Table 2. The GC conditions were optimized to provide adequate separation while keeping the analytical runtime as short as possible. During this work period, only qualitative information obtained.

No Water Soil Method Purge and Trap Parameters			
Variable Name	Value	Variable Name	Value
Valve Oven Temp	140°C	Presweep Time	0.25 min
Transfer Line Temp	140°C	Water Volume	0.0 ml
Sample Mount Temp	90°C	Sweep Water Time	0.25 min
Water heater Temp	90°C	Sweep Water Flow	100 ml/min
Sample Vial Temp	40°C	Sparge Vessel Heater	off
Prepurge Time	0.00 min	Sparge Vessel Temp	20°C
Prepurge FLow	0 ml/min	Purge Mix Speed	Medium
Preheat Mix Speed	Slow	Purge Time	11.00 min
Sample Preheat Time	0.0 min	Purge Flow	40 ml/min
Soil Valve Temp	100°C	Purge Temp	20°C
Standby Flow	10 ml/min	Condensate Purge Temp	20°C
Purge Ready Temp	40°C	Dry Purge Time	2.00 min
Condensate Ready Temp	45°C	Dry Purge FLow	100 ml/min
Dry Purge Temp	20°C		

Table 1: ATOMX Purge and Trap Parameters

GC Parameters	
GC	**Agilent 6850**
Column	**DB-624, 25m, 0.2 mm ID, 1.12µm**
Oven Program	**45°C for 1 min, Ramp rate: 18°C/min, hold time 0.3 min, temp range: 45°C - 220°C**
Inlet	**200°C**
Column Flow	**0.8 ml/min**
Gas	**Helium**
Split	**40:1**
Flow	**0.8 ml/min**
Pressure	**13.9 psi**

MSD Parameters	
MSD	**5975**
Source	**230°C**
Quad	**150°C**
Solvent Delay	**3 min**
Column Flow	**0.8 ml/min**
Scan Range	**mz 35-350**
Scans	**4.45 scans/sec**
Threshhold	**150**

Table 2: GC/MS parameters

Task 3: GC/MS Data analysis for *Armillaria* VOCs signature/fingerprint identification

The chromatography data for each sample contain values of total ion chromatogram (TIC) at every retention time point. Components were identified with the aid of an automatic system of processing data of GC/MS supplied by NIST mass spectra library. The MS library search was performed by using PBM (probability based matching) algorithm. Each analyte peak was evaluated for peak purity and resolution from the nearest eluting peak. Qualitative information on VOCs produced by *Armillaria* was obtained using Agilent Chemstation Enhanced Data Analysis Software.

Task 4: Validation of *Armillaria* VOCs signature/fingerprint in the field

The identified VOCs signature will be validated using the trees infected with *Armillaria tabescens.* Peach tree root infected with *Armillaria* were collected and headspace samples were analyzed, as a comparison; healthy peach tree root were also collected and headspace samples were analyzed.

Goals and Outcomes Achieved

The expected measurable outcome of this project was to increase the production of peach tree orchards. The development of chemical sensors for early detection of the disease will enable growers to detect the disease before any outward manifestations of the disease occur. This will allow the growers to eliminate the infected trees before they can spread the disease through the roots. This will have a significant economic impact on the growers who will be able to minimize the impact of the disease to just a few trees as opposed to losing an entire orchard.

As stated earlier, four major goals were achieved during this project: developed a sample collection method to collect VOCs in the lab and in the field; developed a VOC analysis method based on purge and trap GC/MS system for VOC detection and identification; identified the *Armillaria* VOCs signature/fingerprint through GC/MS data analysis; and validated the identified VOC signature/fingerprint in the field. *Successful results obtained through this project will lay a good foundation for the development of a VOC chemical sensor for rapid disease detection in farms and orchards.* This sensor could be a fixed asset or it could be mounted to a small ground or aerial robot to rapidly traverse the orchard.

Our goal of reducing the number of lost trees in 2012 due to peach root rot by at least 75 percent, is still in progress. Reaching this goal has turned out to be much more complicated than expected. We were forced to spend more time in the identification of the volatile organic compounds than anticipated. We learned that the detection was complicated by the soil more than anticipated and the development of the sensor took longer than planned, as the construction was significantly more complex than anticipated.

We have been able to identify a chemical signature for the pathogen. We are able to identify the pathogen 100 percent of the time in the laboratory. We were not able to test in the field due to early setbacks in the chemical analysis.

We will have a field test of the system completed by the end of the summer 2014. This will give us a baseline so we can determine if we achieve this goal. Of course, to actually meet this goal would require commercialization of the technology. However, with the sensor, we can determine if we can meet that goal on an individual orchard.

Beneficiaries

1) Peach growers who will be able to detect this pathogen early enough could prevent the loss of an entire orchard; 2) this pathogen and its related species also impact a wide variety of other woody plants, such as pecan growers; and 3) while the work proposed is specific to Armillaria, the proposed system is to serve as the backbone for a suite of sensors and vehicles to detect a variety of pests and diseases in a field as well as the quality/ripeness of crops.

In addition, a presentation on the initial results of this work was presented at the 2013 SE Fruit and Vegetable Conference in Savannah, Georgia. There were approximately 50 farmers and researchers in attendance.

Lessons Learned

Soil is a very complex matrix. The tremendous diversity of the bacterial and fungal kingdoms paralleled by the heterogeneity of habitats these organisms are able to occupy. Soil itself is a complex blend of weathered minerals and organic material mixed with biota. It was learned that more interferences exist within the VOCs in the field soil samples, and the soil sample needs further treatment (such as pasteurizing) in order to get better understanding and more clear identification of *Armillaria* VOCs.

This means that very early detection of the pathogen in the soil might be very difficult to detect. However, once the disease progresses on a single root onto a second root then should become easier to identify the disease at the soil/tree interface of the tree. This would certainly qualify as an early detection since the tree at that time might not be showing any physical symptoms.

Contact Person

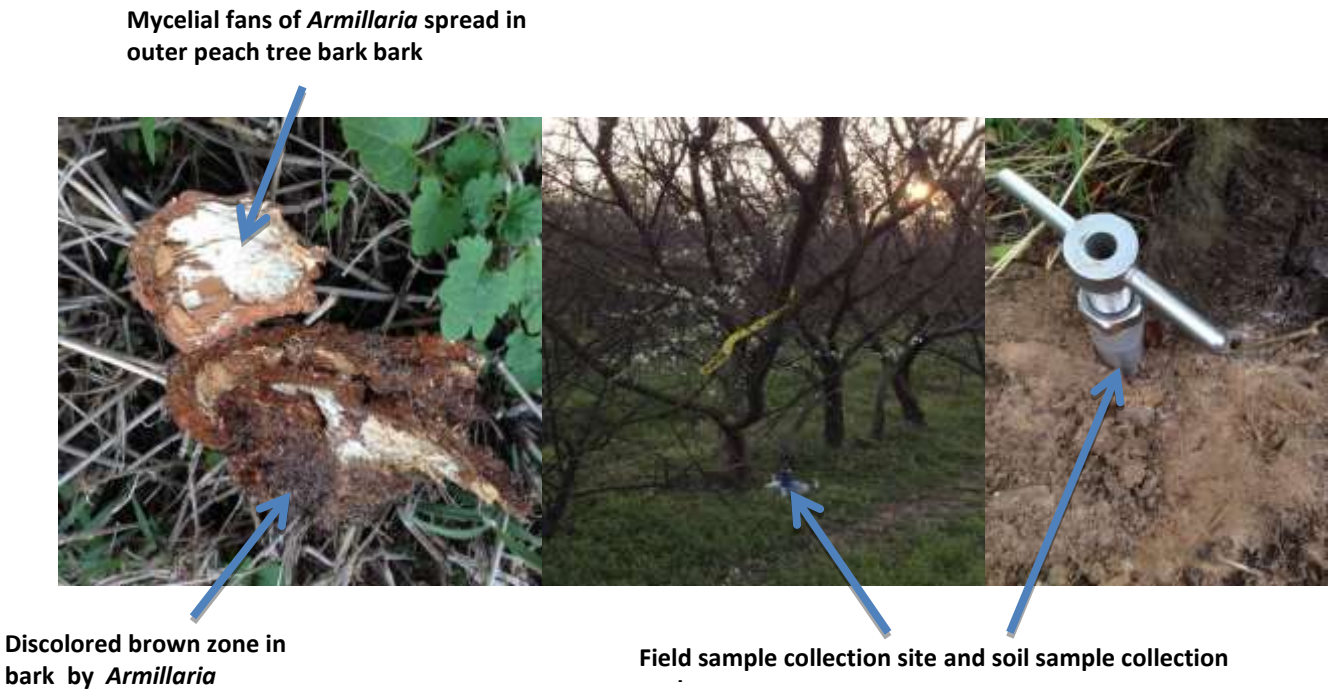
Gary McMurray, Principal Research Engineer, Gary.McMurray@gtri.gatech.edu

505 Tenth Street NW

Atlanta, GA 30318

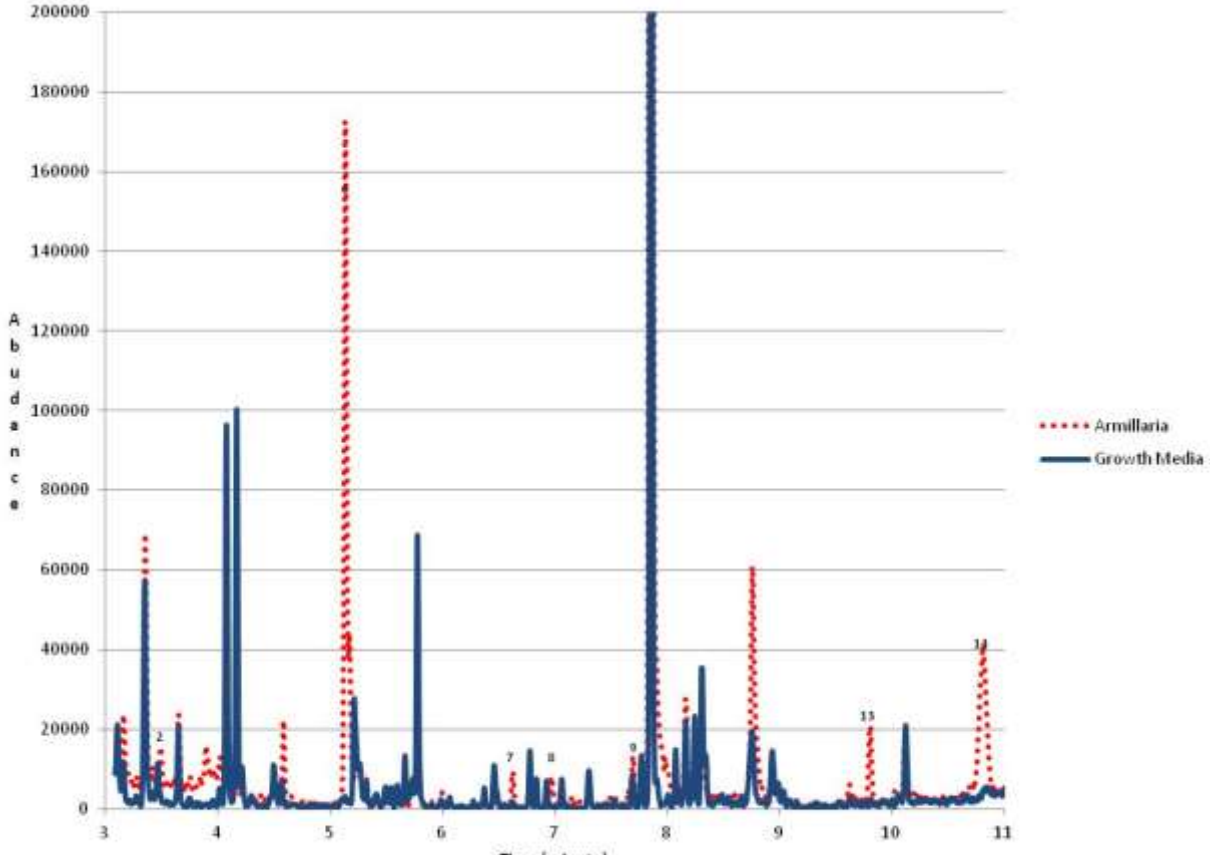
Telephone: (Bus) 404-407-8844 (Cell) 770-355-3934 FAX: 404-894-8051

Additional Information



Picture 1: *Armillaria* infected peach tree and sample collection site

Picture 2: *Armillaria* infected peach tree root and healthy peach tree root



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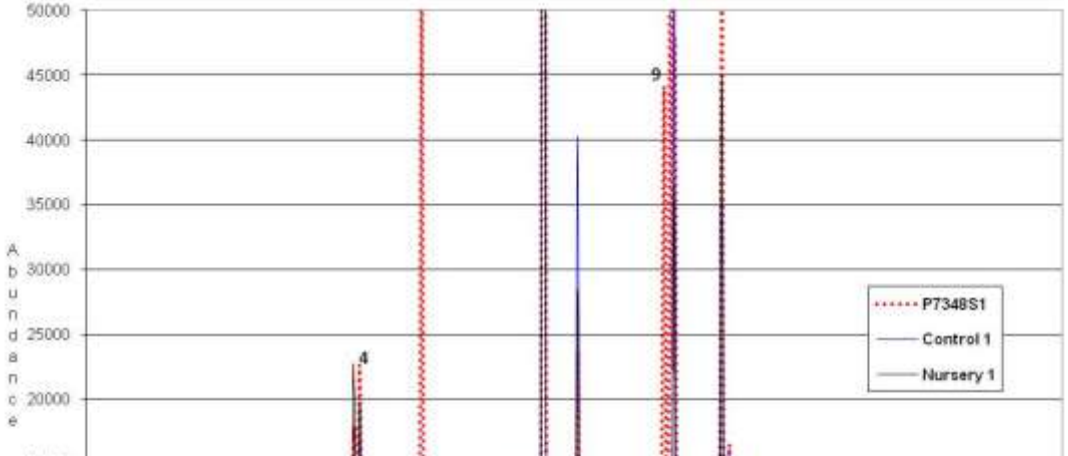
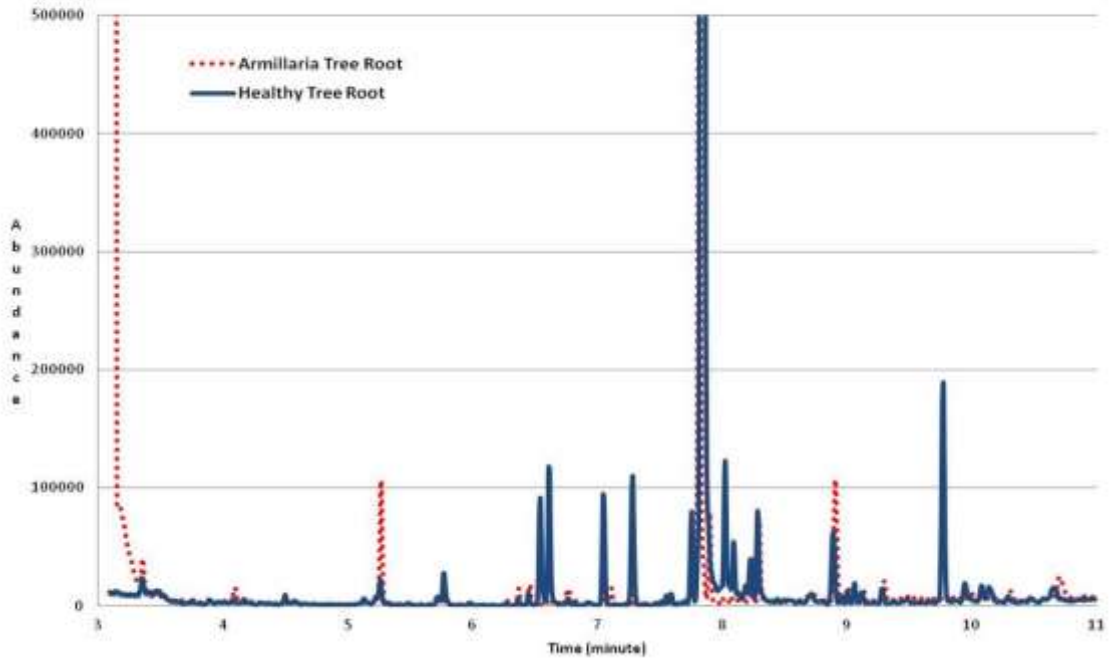


Figure 2. GC/MS Spectrum comparison between infected *Armillaria* soil sample and controlled soil sample



l ach tree

Deconvoluted VOCs Relates to *Armillaria*

Compound Group	Volatile Chemical Compound	Retention Time (minute)	Probability (%)
Carboxylic acids and esters	Ethyl Acetate	3.502	71
Alcohols	1-Propanol	3.895	69
Alcohols	3-methyl-Butanal	4.087	66.7
Ketones	3-Pentanone	4.591	41
Alcohols	3-methyl-1-butanol	5.139	63
Alcohols	1-octen-3-ol	7.776	12
Nitrogen containing heterocyclics	2-pentylfuran	7.657	82

13.UGA – *Sustainable Turfgrass and Water Conservation: Phase 2* Final Performance Report

PROJECT SUMMARY

This project targeted the entire turfgrass production, installation, and maintenance chain, all components of which are integral in establishing a sustainable, low input turfgrass product. Consumers desire sustainable turfgrass; it is critical to the growth of the industry in Georgia. Only sustainable turfgrass can ensure the environmental and social benefits consumers demand of turfgrass.

The objectives of this study were to: 1) assure and promote the environmental benefits of sustainable turfgrass by educating sod producers, landscape industry workers, and County Extension agents in turfgrass BMPs (proper turfgrass variety selection, soil preparation, installation, and maintenance); 2) determine the impacts of increased soil organic matter on turfgrass water use, and insect, disease, and weed pests; and 3) assess the impact of increasing soil organic matter on the economics of the WaterSense New Home Construction Certification, homebuilders, commercial property owners, managers, and homeowners.

This project integrated research results of field tests, greenhouse tests, and economic analysis into the educational process and addressed water conservation issues that have negatively impacted turfgrass sales in recent years. The size and impact of the landscape and horticultural industries in Georgia have been determined by the UGA Center for Agribusiness and Development. To date, over 1,500 landscape workers have been trained in sustainable turfgrass. Agents have had access to five trainings focused on turfgrass sustainability.

PROJECT APPROACH

This is Phase II of a three-phase project, all funded through the USDA/AMS Specialty Crop Block Grant Program. Phase I involved the development of training materials and initiated training for landscape workers and Extension agents who work with the industry. The size and economic impact of the industry on the state of Georgia was assessed and a field test of the impact of organic amendments was initiated. Phase II continued the field testing of organic amendments, as well as worker and agent training. Phase III, still in progress, completes the field testing of the organic matter on turfgrass quality and water use. All three phases have had a positive impact on a product that is in high demand and critical to the growth of the industry in Georgia.

As stated earlier, the objectives of Phase II of this project were to: 1) assure and promote the environmental benefits of sustainable turfgrass by educating sod producers, landscape industry workers, and County Extension Agents in turfgrass BMPs (proper turfgrass variety selection, soil preparation, installation, and maintenance) which create the sustainable product consumers desire and which ensure the environmental and social benefits of turfgrass; 2) determine the impacts of increased soil organic matter on turfgrass water use, and insect, disease, and weed pests; and 3) assess the economic impact of incorporating soil organic matter on the turfgrass industry, homebuilders, and homeowners. In order to accomplish these objectives, the following activities were conducted (please see Table 1 below).

Table 1. All activities in Phase 2 of the project and status.

Phase 2: Activities			
Phase 2. County-offered, builder incentives for participation in the EPA WaterSense program identified and value assessed.	Nguyen and Bauske		See section entitled "Lessons Learned"
Phase 2. Program Associate conducted 15 Sustainable Turfgrass trainings worked with County Agents, GCLP, and UAC to recruit participants and wrote four articles for popular press.	Bauske and Woodworth		Completed
Phase 2. Data collected on water use, root growth and general health in Organic Matter Study.	Waltz		Completed
Phase 2. Sustainable Turfgrass Programs presented to Cooperative Extension Agents.	Waltz		Completed
Phase 2. Preliminary report on initial year of Organic Matter Study.	Waltz		Completed
Phase 2. Preliminary report on the economic impact of builder incentives and homeowner water savings resulting from application of	Nguyen and Bauske		Goal Modified, see Section "Lessons Learned"

WaterSense BMPs.		
Phase 2. Agents receiving training were surveyed to determine training impact on their activities.	Bauske	Completed
Phase 2. Preliminary report on second year of Organic Matter Study.	Waltz	Completed

GOALS AND OUTCOMES ACHIEVED

Goal: To increase the knowledge of sustainable turfgrass systems by increasing training opportunities offered by Cooperative Extension for landscape professionals.

Target: Create at least 15 additional trainings a year focused on sustainable turfgrass management..

This target was met and exceeded. A total of 789 landscape workers were trained in 43 turf classes throughout nine counties. Landscape workers receiving training were given pre- and post-training knowledge evaluations. Post-training scores increased by 30%. This exceeded the 15% increase benchmark suggested in the original proposal.

Target: A minimum of four articles on sustainable turfgrass will be written and published in the popular press.

This target was met. The following newspaper articles were written and released:

- Plant new seed into tall fescue lawns now for great results later
- Follow tips from UGA Extension to get a healthy summer lawn
- Popularity of St. Augustinegrass growing across Georgia
- UGA researchers working toward more water-efficient lawns

In addition, 22 Facebook postings on sustainable turfgrass were sent out to agents in Georgia, Alabama and North Carolina. These postings included pictures and comments for agents to use on their county Facebook pages with information about sustainable turfgrass. They were widely used and appreciated.

The Extension Associate visited 188 green industry business contacts, promoting the benefits of sustainable turfgrass. A photo library consisting of 118 turfgrass photos was organized and posted online for agent use.

An on-line review session on sustainable turfgrass was developed for the Georgia Certified Landscape Professional

Training program and is now available for all participants in that program.

Target: Two training opportunities will be created for 20 Cooperative Extension agents and the impact of these of trainings on their professional activities will be assessed via survey.

This target was exceeded.

- A Distance Learning Training session was held October 31, 2012 in which 30 agents received training. Agents rated the training with an average of 9 on a 10-point scale. Several commented that, "the training covers issues we are confronted with every week."
- The Turf Update was held May 14, 2013 and 26 agents received training. Dr. Waltz gave agents a walking tour of the sustainable turfgrass projects on the UGA Griffin campus discussing in detail water, shade, pesticides, and fertilizer issues impacting sustainability. No written evaluation was completed, as the venue was not appropriate for such evaluation.

Target: Reports will be created on the results of studies to determine the impact of organic matter on water use of three turfgrass species. Report results will be incorporated into trainings.

This target was met. Data collection on water use, root growth and general health in Organic Matter Study was completed.

> Griffin, B., E. Bauske, and C. Waltz. 2014. Sustainability of turfgrass with soil incorporation of organic matter. Turfgrass Research Field Day. pp 32-34.

The preliminary report was prepared and published. Results of the study were presented at both of the agent trainings mentioned above and in trainings held in Phase III of the project.

Target: Develop a preliminary model for the use of organic matter in turfgrass installation and determine the effect on water use. Ultimately, the model will be used to assess the effectiveness of potential builder incentives in the WaterSense New Home Certification and guide the implementation of the incentives.

This target was modified. The preliminary model to guide the use of organic matter and builder incentives in the WaterSense New Home Certification has been greatly simplified. Due to the current lull in housing starts and recent abundant rains, the counties did not pursue builder incentives for participation in the EPA WaterSense Program. The indoor requirements associated with WaterSense New Home Construction are also required by State law (as of July 2012) and therefore incur no additional expense to the builder.

The only cost to the builder remaining is the cost of the WaterSense irrigation installation and the cost of the final inspection to determine if the home is up to the WaterSense specifications.

To determine the cost of a WaterSense irrigation installation, a study was conducted to determine if WaterSense (WS) Irrigation Partners charged more than non-partners for their services. A typical residential landscape plan was designed using the WS Water Budget Tool. The WS Budget tool estimated the water budget of the test landscape at 10,685

gallons/month. This assumed the use of a smart controller, drip irrigation on the bushes in front of the home, and no irrigation on a tree island.

Contractors were asked to provide a bid, identical to that which they would provide a potential customer, for the landscape. Bids were solicited from over 31 irrigation contractors throughout the state of Georgia. WS partner irrigation contractors are listed on the EPA website and were contacted via telephone and email. Non-partners were contacted by telephone, email or by visiting their place of business as well as referrals from the leadership at Georgia Green Industry Association, irrigation distributors, and other irrigation companies.

Eleven bids were received, five were from WS partners and six non-partners participated in this study. In addition, seven Irrigation Association (IA) certified contractors participated.

The bids ranged from $1,530 to $3,480 with an average bid price of $2,417. WS Partner bids, with an average cost of $2,297, were not more expensive than non-Partner bids, which averaged $2,517. There were seven IA certified contractors participating, (average = $2,549). The IA Certified contractors tended to charge more than the four, non-certified contractors (average = $2,188), though no statistically significant differences were found between bids for certified and non-certified contractors.

Study results were submitted to two trade magazines for publication, presented at the American Society for Horticultural Scientists meeting in Orlando, Florida and presented at the Georgia WaterWise Counsel meeting. The study results were also incorporated into an Extension publication.

Publications/Presentations from Study:

Bauske, E., C. Waltz, and K. Nguyen. In press. Irrigation contractors in Georgia offer many systems and many prices. HortScience 50(9): S222.

Bauske, E., G. L. Hawkings, and T. Hurt. 2014. Choosing a landscape irrigation contractor. University of Georgia Cooperative Extension. Circular 1056. 3 pages.

Bauske, E., K. Nguyen, C. Waltz and K. Wood. 2014. Irrigation installation: don't forget to include the cost of water in the bid. Georgia Green Industry Association Journal. WinterGreen (Jan.).

Bauske, E., K. Nguyen, C. Waltz and K. Wood. 2013. Many systems, many prices. Urban Ag Council Magazine. Nov/Dec.

Woods, K., Bauske, E., K. Nguyen, and C. Waltz. 2013. Irrigation installation: pay now or pay later? Georgia WaterWise Counsel, Atlanta, GA. Jul. 23. Poster Presentation.

BENEFICIARIES AND HOW THEY BENEFITED

This project has benefited the urban agriculture industries and the general public. Workers in Georgia's green industries and their employers benefited from the training, improving their skills in identifying, installing, maintaining, and watering turfgrass. The many Extension agents trained in turfgrass sustainability will continue training professionals and the public long after this project ends. The public has benefited from the newspaper articles that highlight the

sustainability of turfgrass and provide tips on increasing turfgrass sustainability. The irrigation industry was keenly interested in the results of the irrigation contractor study. The study suggested that contractors might be able to "upsell" waters-saving systems to their clients by including the cost of water in their estimates.

LESSONS LEARNED

We were surprised at the lack of progress the five metropolitan counties had made on the development of builder incentives to support the WaterSense New Home Construction Program. As of the writing of this report, it appears there is little political will to create builder incentives and it is unlikely this will happen in the future.

Fortunately, this gave us the opportunity to study contractor pricing in greater depth. Many in the industry had assumed that the WaterSense Partner irrigation contractors would be more expensive than non-partners. Our results indicate this was not the case. Many in the industry were keenly interested in the results of this study.

The model initially proposed in this project has been greatly simplified since the county governments did not pursue builder incentives to support WaterSense New Home Construction. The indoor requirements associated with WaterSense New Home Construction are also required by State law (as of July 2012) and therefore incur no additional expense to the builder.

The WaterSense Partner irrigation installation does not appear to cost more than other installations. The only additional costs are associated with the landscape itself and the cost of the inspection to assure WaterSense compliance. It remains to be determined if the cost of organic matter amendments significantly impacts turfgrass performance and/or water use.

CONTACT INFORMATION

Dr. Ellen Bauske

Program Coordinator

Center for Urban Agriculture

University of Georgia-Griffin

ebauske@uga.edu

770-233-5558

ADDITIONAL INFO

N/A

14.UGA – *Control of Foodborne and Plant Pathogens on Tomatoes with a Good-Grade Biorational Product* – Final Performance Report

Project Summary

This project was to evaluate a newly developed sanitizer that contains levulinic acid and sodium dodecyl sulfate (i.e. Fit) for control of foodborne and bacterial plant pathogens on tomatoes. Population of *Salmonella typhimurium* (a 5-strain mixture) was reduced by 2.0 log colony forming units (cfu)/cm^2 tomato leaf when the sanitizer was preventively applied 60 min before inoculation with the pathogen. When the sanitizer was applied 60 min after pathogen inoculation, population of *S. typhimurium* on tomato leaves was reduced to undetectable levels (< 1.7 log cfu/cm^2 leaf). Population of Shiga toxin-producing *Escherichia coli* (STEC) was reduced by 2.2 log cfu/cm^2 leaf when the sanitizer was applied 60 min before inoculation with the pathogen. When the sanitizer was applied 60 min after pathogen inoculation, population of STEC on tomato leaves was reduced by 1.6 log cfu/cm^2 leaf. In laboratory studies, the sanitizer completely inhibited *Ralstonia solanacearum* and *Pseudomonas syringae* pv. tomato when used at concentrations higher than 1:910 or 1:4545, respectively. In greenhouse studies, population of *R. solanacearum* on tomato leaves was significantly reduced when the sanitizer was applied at 1:176 and 1:352 dilutions either 24 hours before or after inoculation with the pathogen. Application of the sanitizer also significantly reduced severity of bacterial speck on tomato leaves and populations of *R. solanacearum* and *P. syringae* on tomato fruit. The results indicated that the sanitizer was effective in reducing populations of the foodborne and plant pathogens on tomato.

Project Approach

2a. Suppression of plant pathogens

Isolates of *Pseudomonas syringae* pv. tomato and *Ralstonia solanacearum* were grown on TSA agar plates at 28°C for 48 h. The isolates were transferred to sterile distilled water amended with different concentrations of levulinic acid and sodium dodecyl sulfate. Bacterial suspensions were incubated at room temperature by shaking at 100 rpm for 3 hours. The suspensions were serially diluted and 50 µl were spread plated on each TSA plate. The plates were incubated at 28°C for 48 h, and bacterial colonies on each plate were enumerated.

Tomato seeds were sown in a commercial potting mix in expanded polystyrene flats with 3.5 cm by 3.5 cm cells in a greenhouse. Seedlings were transplanted into plastic pots 4 weeks after seeding. The plants were maintained in a greenhouse and were watered and supplied with fertilizers (NPK) regularly. Tomato plants were inoculated with *Pseudomonas syringae* pv. tomato and *Ralstonia solanacearum* separately by spray application of bacterial suspension (10^4 CFU/ml) onto the foliage one week after transplanting. Different concentrations of levulinic acid and sodium dodecyl sulfate were spray applied to inoculated plants 24 h before or after inoculation with the pathogens. Non-treated plants and plants treated with Kocide (a.i. copper hydroxide) were used as controls. For *R. solanacearum*, leaf samples of tomatoes were taken 3 weeks after inoculation and placed in 10 ml 0.1% peptone in a Whirl-PAK bag. The bags were sonicated for 7 min and the suspensions were serially diluted with sterile distilled water. A volume of 50 µl was spread plated on selective SMSA plate. The plates were incubated at 28°C for 48 h and bacterial colonies on each

plate were enumerated. For *P. syringae* pv. tomato, disease severity was quantified using a 0-5 scale. Data were analyzed using GLM procedures of the Statistical Analysis System and means were separated by Fisher's protected LSD.

To study effects of the sanitizer on pathogens on tomato fruit, fruit samples were submerged in pathogen suspension for 60 sec and then air-dried for 20 min in a laminar flow hood. The tomatoes were placed in a stomacher bag containing 500 ml of chemical solution with agitation at 150 rpm. Following treatment, the tomatoes were removed and placed into another stomacher bag containing 100 ml of PBS. The suspensions were serially (1:10) diluted in PBS and enumerated for the pathogens according to the procedures described above.

2b. Suppression of foodborne pathogens

Tomato plants were grown in a greenhouse as described above. The plants were inoculated with *Salmonella typhimurium* and *Escherichia coli* by spraying bacterial suspensions onto the foliage. Levulinic acid and sodium dodecyl sulfate were spray applied to the plants before or after inoculation with the pathogens. Leaf samples of tomatoes were taken and placed in 10 ml 0.1% peptone in a Whirl-PAK bag. The bags were agitated or mixed either on a shaker or in a stomacher at 150 rpm for 1 min. The suspensions were serially (1:10) diluted in 0.1% peptone. A volume of 0.1 ml from each dilution tube was plated in duplicate on XLD plates for *S. typhimurium* and sorbitol MacConkey agar for *E. coli*. The plates were incubated at 37°C for 48 h, colonies typical of *E. coli* O157:H7 (colorless) or *Salmonella* (black) were randomly picked from plates with the highest dilution for confirmation of *E. coli* or *Salmonella* by biochemical tests (API 20E assay) and for confirmation by latex agglutination assay. When *E. coli* O157:H7 or *Salmonella* were not detected by direct plating, a selective enrichment in universal pre-enrichment broth (UPB) was performed by incubating 25 ml of treated bacterial suspension in a 500-ml flask containing 225 ml of UPB for 24 h at 37°C. Following pre-enrichment, 1 ml was transferred to 10 ml of selenite cystine broth and incubated for 24 h at 37°C. Following incubation, a 10-µl loopful from the broth tube was plated in duplicate onto XLD plates and incubated for 24 h at 37°C. Colonies with typical *Salmonella* spp. morphology were selected and transferred onto XLD plates and incubated for 24 h at 37°C. All presumptive *Salmonella* isolates were tested by the *Salmonella* latex agglutination assay. Isolates positive for *Salmonella* by the latex agglutination assay were tested with the API 20E assay for biochemical characteristics for the identification of *Salmonella*. Selective enrichment for *E. coli* O157:H7 was done according to a standard protocol.

Goals and Outcomes Achieved

The goals of the project were to evaluate the efficacy of the new sanitizer for suppression of foodborne and bacterial plant pathogens on tomatoes. *After conducting the activities below, it was found that the sanitizer reduced pathogen population by 80 percent, and disease by 50 percent; this is estimated to lead to a tomato yield increase of 15-25 percent.*

3a. Foodborne pathogens on tomatoes

Application of the sanitizer (1:88 dilution) onto tomato plants 60 min before or after inoculation with the pathogens significantly reduced pathogen populations. Population of *Salmonella typhimurium* (a 5-strain mixture) was reduced by 2.0 log colony forming units (cfu)/cm^2 leaf when the sanitizer was preventively applied 60 min before inoculation with the pathogen (Table 1). When the sanitizer was applied 60 min after pathogen inoculation, population

of *S. typhimurium* on tomato leaves was reduced to undetectable levels (< 1.7 log cfu/cm^2 leaf) (Table 2). Population of Shiga toxin-producing *Escherichia coli* (STEC) was reduced by 2.2 log cfu/cm^2 leaf when the sanitizer was applied 60 min before inoculation with the pathogen (Table 3). When the sanitizer was applied 60 min after pathogen inoculation, population of STEC on tomato leaves was reduced by 1.6 log cfu/cm^2 leaf (Table 4). The results indicated that the sanitizer was effective in reducing populations of both *Salmonella* and *E. coli* on tomato plants when the product was applied before or after inoculation with the pathogens.

3b. Plant pathogens

In laboratory studies, the sanitizer killed *Ralstonia solanacearum* and *Pseudomonas syringae* pv. tomato when used at concentrations higher than 1:910 or 1:4545, respectively (Figures 3 and 4). In greenhouse studies, the sanitizer (1:176 and 1:352 dilution) was initially sprayed onto tomato plants 24 hours before or after inoculation with the pathogens. Population of *R. solanacearum* on tomato leaves was reduced by over 80% and 70% when the sanitizer was initially applied 24 hours before inoculation with the pathogen and used at 1:176 and 1:352 dilutions, respectively. When the sanitizer was initially applied 24 hours after pathogen inoculation, population of *R. solanacearum* on tomato leaves was reduced by over 60% when the product was used at 1:176 or 1:352 dilutions (Figure 1). Severity of bacterial speck caused by *Pseudomonas syringae* pv. tomato was quantified using a 0-5 scale. When the sanitizer was initially applied 24 hours before pathogen inoculation, the product significantly reduced disease severity at 1:176 and 1:352 dilutions. The sanitizer at 1:176 dilution also reduced bacterial speck severity significantly when applied 24 hours after pathogen inoculation, which was not significantly different from the standard copper fungicide Kocide (Figure 2). Treatment of tomato fruit with the product resulted in a reduction of *R. solanacearum* by 2.3 log cfu/fruit and reduction of *P. syringae* pv. *tomato* by 1.9 log cfu/fruit.

Table 1: Reduction of *Salmonella typhimurium* on tomato leaves by levulinic acid and sodium dodecyl sulfate (Fit, 1:88 dilution, v/v) as a preventive approach

Counts (log cfu *S. typhimurium*/cm^2) on leaves of tomato plants sprayed with Fit									
#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
2.0	1.7	2.0	+	1.7	+	1.7	+	+	+
Counts (log cfu S. typhimurium/cm^2) on leaves of tomato plants sprayed with water									
#1	#2	#3	#4	#5	#6	#7	#8		
3.3	3.0	3.6	2.6	2.7	4.0	1.7	2.7		

Salmonella typhimurium (a 5-strain mixture) was sprayed 60 minutes after application of Fit. "+" indicates selective enrichment was positive (detection level was <1.7 log/cm^2).

Table 2: Reduction of *Salmonella typhimurium* on leaves of tomato plants by levulinic acid and sodium dodecyl sulfate (Fit, 1:88 dilution, v/v) as a treatment approach

Counts (log cfu *S. typhimurium*/cm^2) on leaves of tomato plants treated with Fit				
#1	#2	#3	#4	#5
+	+	+	+	+
Counts (log cfu *S. typhimurium*/cm^2) on leaves of tomato plants treated with water				
#1	#2	#3	#4	
1.7	2.4	2.0	2.6	

Salmonella typhimurium (a 5-strain mixture) was sprayed 60 minutes before application of Fit.

"+" indicates selective enrichment was positive (detection level was <1.7 log/cm^2).

Table 3: Reduction of Shiga toxin-producing *Escherichia coli* on leaves of tomato plants by levulinic acid and sodium dodecyl sulfate (Fit, 1:88 dilution, v/v) as a preventive approach

Count (log cfu *E. coli*/cm^2) on leaves sprayed with Fit									
#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
+	1.7	+	+	+	+	+	+	+	+
Count (log cfu *E. coli*/cm^2) on leaves sprayed with water									
#1	#2	#3	#4	#5	#6	#7	#8		
3.0	1.7	2.0	3.1	2.0	1.7	3.2	2.5		

E. coli (a 6-strain mixture, including *E. coli* O26:H11, O45:H2, O111:NM, O121:H19, and O157:H7) was sprayed 60 minutes after application of Fit. "+" indicates selective enrichment was positive (detection level was <1.7 log/cm^2).

Table 4: Reduction of Shiga toxin-producing *Escherichia coli* on leaves of tomato plants by levulinic acid and sodium dodecyl sulfate (Fit, 1:88 dilution, v/v) as a treatment approach

Counts (log cfu *E. coli*/cm^2) on leaves treated with Fit									
#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
+	+	+	+	+	+	+	+	1.7	+
Counts (log cfu *E. coli*/cm^2) on leaves treated with water									
#1	#2	#3	#4	#5	#6	#7	#8		
1.7	2.5	+	+	3.3	2.5	2.0	2.2		

E. coli (a 6-strain mixture, including *E. coli* O26:H11, O45:H2, O111:NM, O121:H19, and O157:H7) was sprayed 60 minutes before application of Fit. "+" indicates selective enrichment was positive (detection level was <1.7 log/cm^2).

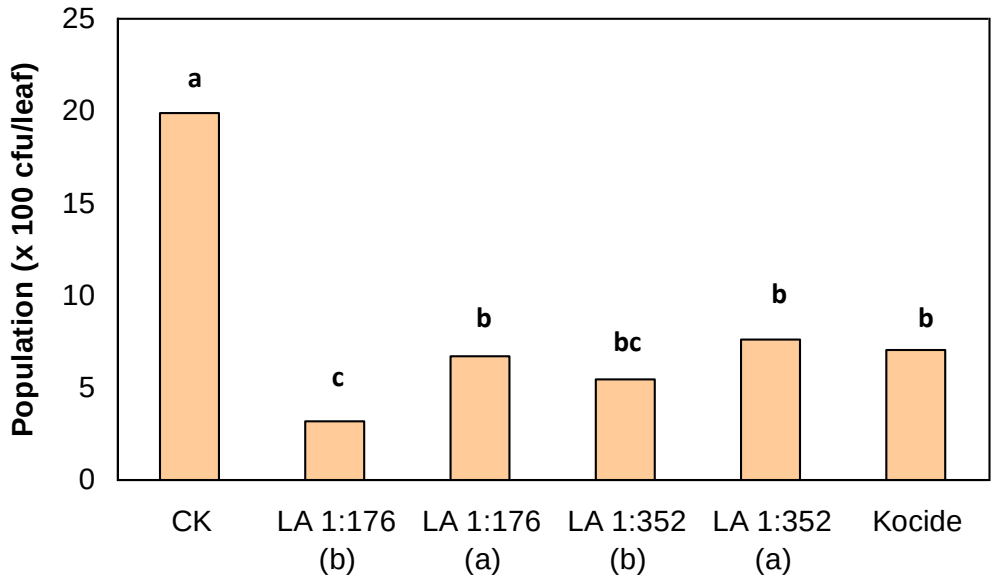


Fig. 1. Reduction of population sizes of *Ralstonia solanacearum* on tomato leaves by Fit. Same letters above the bars indicate no significant difference according to least significant difference test (*P* = 0.05). x-axis: b = Fit was applied before pathogen inoculation; a = Fit was applied after pathogen inoculation.

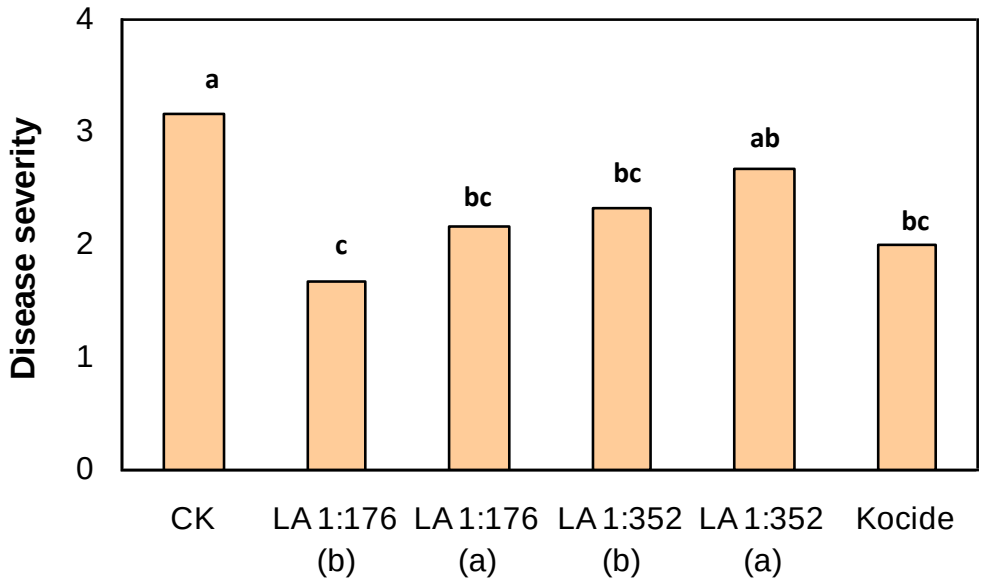


Fig. 2. Reduction of bacterial speck of tomato (*P. syringae* pv. tomato) by Fit. Same letters above the bars indicate no significant difference according to least significant difference test (*P* = 0.05). x-axis: b = Fit was applied before pathogen inoculation; a = Fit was applied after pathogen inoculation.

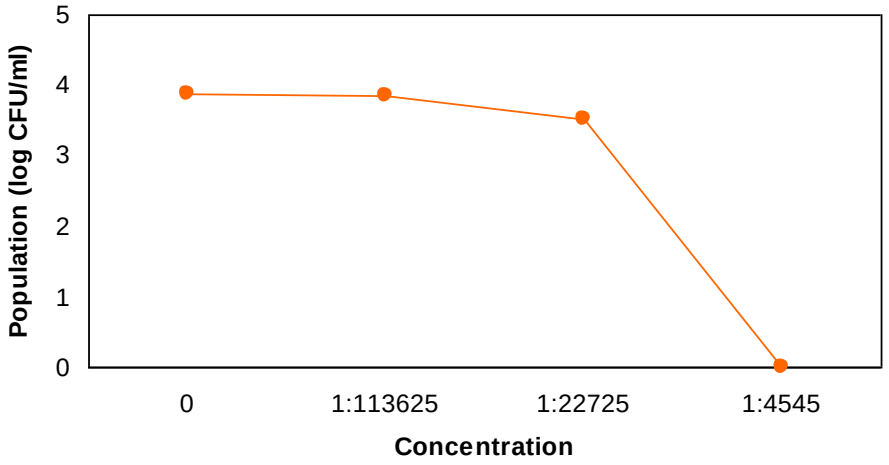


Fig. 3. Suppression of *Pseudomonas syringae* pv. tomato by Fit in vitro.

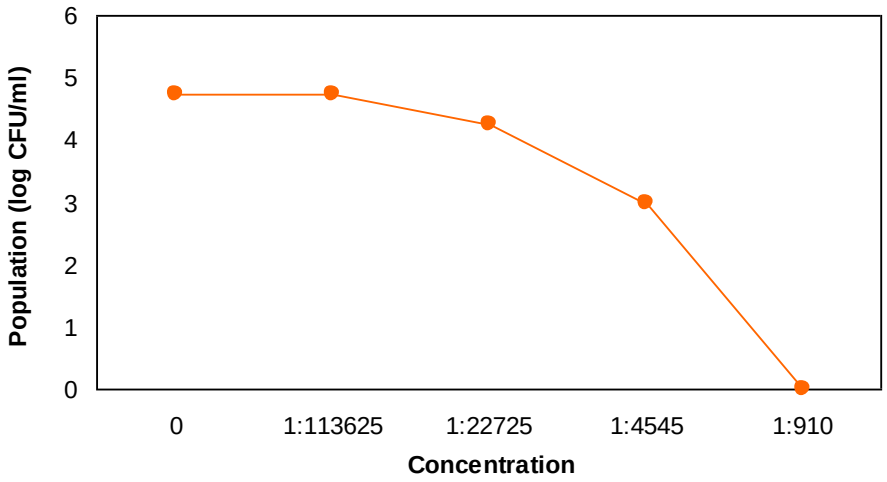


Fig. 4. Suppression of *Ralstonia solanacearum* by Fit in vitro.

Beneficiaries

Beneficiaries of the project include vegetable growers, consumers, vegetable industry employees, agriculture extension agents, scientists in agricultural and food sciences, and the public in general. Foodborne and plant pathogens are nationwide problems affecting production of tomatoes and other vegetable crops. There are approximately 35,000 vegetable farms in the nation that will be benefited from the techniques developed in this project. Potentially the project will benefit all residents by improving food and environmental quality.

Results of the studies have been introduced at frequent visits of extension agents, growers, industry representatives, students and other stakeholders. The studies have also been presented at a number of meetings including the 2nd World Congress of Food Science and Technology, Sept. 23-25, 2013, Hangzhou, China (700-800 attendants); Vegetable disease tour, June 4, 2013, Tifton, GA (35-40 attendants); Vegetable disease tour, June 3, 2014, Tifton, GA (35-40 attendants). Additionally, results will be presented at Southeast Regional Fruit and Vegetable Conference, Savannah, GA, January 2015; Georgia Vegetable Extension - Research Report, and will be submitted for potential publication in a refereed journal.

Lessons Learned

Communications with growers, private consultants and other stakeholders played an important role to confirm that foodborne pathogens and bacterial plant pathogens are serious concerns in tomato production. Identification of biorational and reduced-risk tactics and development of application methods is highly desirable for management of the pathogens. Determination of effective concentrations of the newly developed sanitizer in lab and greenhouse studies proved to be important to ensure the pathogens were significantly suppressed. The efficacy of the product in inhibiting the pathogens and reducing bacterial plant diseases showed to be promising for effective disease management programs. Further studies could be conducted under field conditions to determine the effect of the sanitizer on pathogen populations and tomato yield, which would provide a more comprehensive evaluation of the role of the product in disease management in tomato production.

Contact person

Dr. Pingsheng Ji, Associate Professor, Department of Plant Pathology, University of Georgia, 2360 Rainwater Road, Tifton, GA 31793. Phone: 229-386-3160; E-mail: pji@uga.edu

Additional Information

N/A

15. Georgia Public Broadcasting – *Pick, Cook, Keep* - Final Performance Report

Project Summary:

The 2012 Specialty Crop Block Grant funded a comprehensive educational program to reinforce branding and increase awareness leading to purchase of Georgia specialty crops through multi platforms in a program called Pick Cook Keep. This grant continued a 2010 funded project that educated about specialty crops through multi platforms with information including a brief history of each crop, its growth location within Georgia, and an introduction to a local farmer, family who produce the crop. From this 2010 beginning, the 2012 grant provided additional information and strategies demonstrating the ease of use and storage of individual Georgia specialty crops influencing the behavior of Georgians and leading to increased sales of Georgia specialty crops. This 2012 grant allowed us to reinforce existing information while adding information through multi channels about each individual crop showing: (Pick) how the crop is grown and harvested; (Cook) how to use each crop as demonstrated by a Georgia Grown Executive Chef in an easy-to-prepare recipe; and (Keep) tips for correct storage of the crop to retain freshness and flavor.

Ten specialty crops were featured during each crop's month of peak perfection as follows: December showcased pecans; Greens in January; Wine in February; Honey in March; Blueberries in April; Onions in May; Melons in June; Peaches in July; Veggies in August; and Apples in September. During each month for ten months, multiple channels promoted the seasonal crop using all assets available from Georgia Public Broadcasting, the Georgia Department of Agriculture and assistance from other partners including *Georgia Magazine*; Georgia Public Broadcasting's (GPB) nine-station television network; GPB's 17-station radio network; GPB's robust web support including the Pick Cook Keep web pages, social media, e-blasts to educators, members and supporters; Georgia Department of Agriculture's (GDA) print in their *Farmers and Consumers Market Bulletin* and its Consumer Q's column; and through their local media outlets and web through social media, website and e-blasts.

Using the power of multi channels and a strong partnership between two state agencies that touted and promoted quality products as they become available, this grant moved the needle for informing Georgians about Georgia Grown so that they would knowingly make decisions with their dollars to support Georgia Grown specialty crops.

Project Approach:

We believe that today's consumer and head of household is media savvy regardless of their educational background, age, gender or ethnicity and they need to receive information in a sophisticated manner as the veracity of the information correlates to the quality of presentation. Therefore, information needed to be a polished reflection of the recipient's standards for them to trust the content of that information. The Pick

Cook Keep approach had to mirror their expectations and be available in multiple ways. Our approach was to use multiple channels to show the ease and the advantages of consuming Georgia Grown specialty crops.

We created 10 three-minute vignettes showcasing in season Georgia specialty crops. Each vignette became a mini "documentary" opening with "broad brush" footage and copy about Georgia Grown as a chosen purchase category. This progressed to a recognizable Georgia Chef creating an easy to replicate Georgia dish using the "in season" Georgia crop with accompanying Georgia ingredients. Six chefs were selected as our presenters by the GDA from their Executive Chef program, a program where the GDA partnered with the Georgia Restaurant Association for statewide promotion of Georgia Grown produce and products and fostered relationships between chefs and farmers. Following the preparation segment with the chef using the product in a step-by-step recipe along with "how to" tips along the way, there was a preservation demonstration segment for each crop, again helping the viewer understand how to easily store the crop for future recipes.

All Pick Cook Keep information was broadcast and archived on a dedicated website as part of GPB's robust web offering. The site includes tabs for each aspect of the project: Episodes, Recipes, Chef Bios, Crop Calendar, Join Georgia Grown, and Partners. Additionally, each month as the vignette was broadcast to television audiences during the GPB Cooking block of programming on Saturday afternoons or during a Prime Time rotation, the information about "in season" crops was reinforced on GPB Radio, through E-Blasts to members and Georgia educators, through the web and print using the GDA resources including *Georgia Magazine* and publications using Consumer Q's. This project had the full support of the Georgia Department of Agriculture, with Commissioner Gary Black being an active spokesperson.

Goals and Outcomes – Grid

Department of Agriculture					
Impression 12/14/12 to 9/30/13					
	Number Due		**Unit #**	**Total #**	**Totals**
GPB Television Vignettes Broadcast	**50**				
Prime Time		14 Vignettes	42,803	599,242	
Cooking Block		37 Vignettes	25,480	942,760	
Total	**Delivered 51**	**51**		**1,542,002**	**1,542,002**
GPB Radio in season	**220**				

announcements					
AM Drive		72	18,800	1,353,600	
Mid-Day		48	12,500	600,000	
PM Drive		100	12,600	1,260,000	
Total	**220**			**3,213,600**	**3,213,600**
Web					
GPB Ad	Run of Site	skyscraper		559,789	
GPB/Pick Cook Keep web site	Landing page			9,706	
GPB.org Promotion	GPB.org Home Page	20 weeks	40,000	200,000	
GPB E Blasts	Members	2	113,000	226,000	
	Educators	2	67,000	134,000	
GPB Blog	General	2	5,000	10,000	
GDA web	Facebook		5,220	62,640	
	Twitter		2,152	25,824	
	Market Bulletin		4,838	96,760	
	agr.georgia.gov	1	35,496	35,496	
EMC	Web views of May		72,806	72,806	
	Social Media, E blast		6,603	6,603	
Total				**1,439,624**	**1,439,624**
Print					
EMC Mag	May cover story	1	520,000	520,000	
GDA	Consumer Q's	2	500,00	1,000,000	
	Market Bulletin	20	35,532	710,640	
	GA Grown Newsletter	10	22,869	228,690	
Exec Chefs	each sent out mailings	6	bonus	bonus	
Total				**2,459,330**	**2,459,330**
Total Impressions					**8,654,556**

Television: GPB Television was projected to reach 1,610,404 Adults 18+ and reached 1,542,002 Adults 18+ based upon Nielsen ratings for 51 broadcasts of Vignettes; 14 broadcasts during Prime Time and 37 during the Saturday afternoon cooking block of programs over 10 months. We were 68,402 impressions short of our projections, but made up this deficit through radio, print and web impressions.

Radio: GPB Radio promoted in-season produce and products throughout the 10 months with 220 broadcast spots read live by talent on the radio. Using Arbitron quarter hour impressions based upon Adults 12+ we reached the following: 72 spots broadcast during AM Drive Time reached 1,353,600, 48 spots broadcast during mid-day reached 600,000 and 100 spots broadcast during PM Drive time reached 1,260,000 for a total of 3,213,600 Adults 12+ surpassing the projection of 1,021,300 by 2,192,300.

Web: Our web impressions were 1,439,624 including GPB.org home page, landing pages, web ads, Social Media, E blasts to Educators and Membership, GDA's website and specialty pages, E Blasts and *Georgia Magazine's* Social Media and Web Support. Additionally our Executive Chefs each sent out their information to individual lists throughout Georgia. These numbers continue to grow as the materials are archived for visitors to view.

Print: The print impressions based upon *Georgia Magazine, Farmers and Consumers Market Bulletin,* partner publications of local newspapers including *Cordele Dispatch, The Times – Gainesville, The Herald Leader – Fitzgerald, Lincoln Journal, Jackson Progress Argus, Times/Herald – Newnan, Griffin Journal, Herald Journal – Greensboro, Americus Times/Recorder, Rome News/Tribune, Monticello News, Donalsonville News, Lake Oconee News – Eatonton, Courier Herald – Dublin, Pierce County Press, Advocate Democrat – Crawfordville, and the Thomaston Times* surpassed 2,459,330. Using all possible channels for communication, Pick Cook Keep with Georgia Grown information reached over 8,654,556 impressions.

Beneficiaries:

Using the power of Multi Platforms and all possible Channels including all the assets of Georgia Public Broadcasting, the Georgia Department of Agriculture and all our joint partners, the beneficiaries of this project has been and continues to be Georgians who receive information leading them to become more informed as consumers. Information was provided to Georgians where they "live, work, and play" helping them make informed nutritional decisions and tasty choices in expanding their repertoire of dishes to prepare for themselves, their families and their friends. Georgians who watched GPB Television, listened to GPB Radio, visited the GPB website, received E-blasts from GPB Education, GPB Member Services, received Social Media, visited GDA's website, print publications, local newspapers containing materials sent out by the GDA, received *Georgia Magazine*, a publication of the Electrical Membership Corporation, and Chef newsletters received Georgia Grown specialty crop information about what fresh, assessable Georgia Grown produce and products that could be purchased at farmers markets and local grocery stores across Georgia.

The Feed My School curriculum integration component did not come to pass this year. Due to staffing changes, challenges, reductions and time constraints on existing staff, GDA was unable to implement the class surveys.

Lessons Learned:

When the best chefs use fresh local produce and present easy-to-prepare dishes in a step-by-step manner, the audience is empowered to provide nutritious easy to prepare foods for themselves, friends and families. There is magic that happens when our audience, be they viewers, listeners, readers, or visitors are shown why and how to use Georgia Grown local produce and products.

Impressions served up through all platforms and channels drive consumer awareness and ultimately consumer behavior and purchase decisions. True education includes the implementation of a comprehensive quantifiable plan leading to increased awareness and increased sales of Georgia Grown specialty crops. The power of the media, the power of organizational partnerships, and the power of quality produce and products lead to the success of the Georgia Grown program.

Contact Person:

Carol Danford, Corporate Account Executive
Georgia Public Broadcasting
260 14th Street
Atlanta, GA 30318
cdanford@gpb.org
404-685-2583

Additional Information:

www.gpb.org/pick-cook-keep

http://www.gpb.org/blogs/staff-favorites?page=1

www.agr.georgia.gov

http://www.nxtbook.com/nxtbooks/gemc/georgia_201305/

16. Georgia Organics – *Increasing Profitability for Specialty Crop Producers at Georgia Farmers Markets: A Marketing Campaign to Drive 7,500 New Customers* – Final Performance Report

Project Summary

This program successfully attracted more than 5,000 first-time farmers market shoppers to six partner specialty crop farmers markets that used farmers market promotional materials as incentives. Approximately half of those shoppers returned to the market and spent additional money with specialty crop farm vendors to receive additional incentives.

The program has successfully created a replicable “Ambassador” welcoming program, which uses a new and innovative tracking and communication infrastructure involving first-time customers.

A loyalty incentive program, called **My Market Club**, was used to attract first-time shoppers to six pilot farmers markets, with $5 tokens given to first-time shoppers, which market managers and vendors only reimbursed for specialty crop purchases. The shoppers were given a **My Market Club** card, which was used to track return visits and repeat customers, who were instructed to make purchases from specialty crop vendors to receive their second and third rewards, such as tote-bags and t-shirts. The tote bags and t-shirts were only given to **My Market Club** members AFTER they had made a purchase at the market, and the purchases were required to be specialty crop items.

The customers attracted to the markets through this program were required to supply their email addresses to the Ambassadors, allowing us to create an online community through a robust email listserv.

Profiles of all the specialty crop producers were generated and distributed to **My Market Club** members, and have been made available on the Georgia Organics website, the website of each of the pilot farmers markets, and through the social media platforms of the previously listed entities.

In all, the program generated more than $19,000 in direct sales for 88 specialty crop farm vendors at the six markets, and created a larger customer base of at least 2,500 new, repeat shoppers. The $19,000 figure only accounts for a $5 token given to first-time shoppers, which market managers and vendors only reimbursed for specialty crops. funded through additional fundraising efforts to bolster the incentive package for program participants.

Project Approach

The project began with the hiring of a campaign coordinator, who primarily served as a key liaison with the following six pilot farmers markets: the Macon Mulberry Street Farmers Market, Decatur Farmers Market, Grant Park Farmers Market, Savannah Farmers Markets, East Atlanta Farmers Market, and Statesboro Main Street Farmers Market.

Georgia Organics staff and the campaign coordinator generated and printed welcome packets that included vendor profiles, a seasonality and recipe guide based on month, a Produce Guide that provided tips for newcomers on selection, storage, and nutritional benefits of specialty crops commonly available at Georgia farmers markets.

A loyalty incentive program, called the **My Market Club** was developed to attract and retain first-time customers to Georgia farmers markets, with strict requirements on the program participants that shopping had to be conducted with specialty crop producers, and only purchases of specialty crops counted towards receiving rewards and incentives.

Market Ambassadors were hired to welcome first-timers, answer questions, orient them to the market, and administer the **My Market Club** program and assist markets with the marketing and promotion of the pilot farmers markets' specialty crop vendors.

Staff and the campaign coordinator traveled to each of the pilot farmers markets to train and implement the specialty crop producer marketing program. We also had to explicitly communicate to non-specialty crop vendors that they were not eligible to be reimbursed for any of the specialty crop incentives by Georgia Organics or the market managers.

Georgia Organics and Ambassadors also traveled to the markets for special events like Harvest Celebrations, Market Festivals, and the Peach Jam.

We successfully united each of the farmers markets with community business partners who offered coupons and other incentives for **My Market Club** members, including restaurants, clothing stores and coffee shops.

Chipotle was an especially strong partner for the Atlanta-area markets, providing 2,000 coupons for free burritos or burrito bowls.

My Market Club participants were required to provide their email addresses, allowing the program to generate a robust online community through this vastly increased email listserv.

Thanks to donations by businesses and other community partners, we were able to increase the incentive packages return customers received after they made their second and third specialty crop purchases.

Goals and Outcomes Achieved

The program attracted more than 5,000 first-time farmers market shoppers to six partner specialty crop farmers markets that used farmers market promotional materials as incentives. *This accomplishment did not achieve our stated goal of driving 7,500 first time specialty crop customers to our six pilot farmers markets. However, approximately half of those 5,000 shoppers returned to the market and spent additional money with specialty crop farm vendors to receive additional incentives a minimum of at least three times.*

In all, the program generated more than $19,000 in direct sales for 88 specialty crop farm vendors at the six markets, introduced 5,000 Georgians to farmers markets for their very first time, and increased the customer base for these specialty crop producers by a minimum of at least 2,500 new, repeat shoppers. The $19,000 figure only accounts for a $5 token given to first-time shoppers, which market managers and vendors only reimbursed for specialty crops. *This created a 20-30 percent increase in sales.*

Beneficiaries

5,000 Georgians were provided with a positive exposure to farmers markets for the first time and purchased healthy Georgia Grown specialty crops.

88 specialty crop producers, of which 55 are Certified Organic, received a sales boost totally $19,000 over the course of this one-year grant.

6 emerging farmers markets with a vast majority of specialty crop producers were provided with essential marketing, online engagement, and customer tracking training.

Lessons Learned

Surveying of the program participants has revealed several helpful things, including:

- Of the incentives offered, including t-shirts, business coupons (donated), tote bags, $5 specialty crop tokens, 74 percent of program participants listed the $5 tokens for specialty crops as the most attractive reward, 21 percent listed donated tote bags, and 8 percent listed donated business coupons.
- 43 percent of participants heard about the program through friends, 35 percent through the new Welcome signs (which mentioned the $5 tokens for specialty crops and the **My Market Program** incentives) 11 percent through Facebook and other social media promotions, 7 percent through articles we generated in the press, and 5 percent by other means.
- When asked what factors they considered when shopping at the farmers markets, participants preferred, in the following order:
    - Benefit to Farmers
    - Benefit to Personal Health
    - Benefit to Local Economy
    - Interaction with Community at the Market
    - Interaction with Farms

- When asked why they had not attended a farmers market in Georgia in the past, respondents said, in the following order:
    - Haven't Found the Time
    - Didn't Know About it
    - Other
    - Inconvenient Time
    - Thought It'd be too Expensive

- 99% Felt Welcomed at the Market; 99% said they planned on coming back to the market; and 92 percent said they would consider regularly shopping at the market.
- What asked what they liked most about the market, respondents listed, in the following order of preference:
    - The Selection of Goods
    - Interaction with the Farmers
    - Interacting with the Community
    - Shopping Outdoors
    - Other

- When asked how they felt about the prices at the market, the respondents answered:
    - Very Low – 1%
    - Low – 10%
    - Moderate – 69 percent
    - High – 19 percent
    - Very High – 1 percent

Contact Person

Michael Wall; Georgia Organics Director of Programs; 200-A Ottley Drive; Atlanta, GA, 30316. Telephone: 678-702-0400 ext. 202.

Additional Information


---Front
Stamp Here
Cool fact: for every $100 spent at a conventional grocery store, $25 goes into local economy. But for every $100 spent at a farmers market, $62 returns to the local economy.
Back---
Welcome to the My Market Club!
As a member, enjoy discounts at local businesses, the farmers market and other great free stuff!
Bring your farmers market purchases to the My Market Club welcome area, get your card stamped, and you'll receive the next round of My Market Club rewards.
MY MARKET


The date is stamped here when the Member returns to shop.
They must make a purchase and bring it to the Welcome Tent to get their next round of rewards.
Stamp Here

MY MARKET

They Get: Seasonal Recipes

In Season This Month:

- Bok Choy
- Brussels Sprouts
- Cabbage
- Carrots
- Collards
- Mushrooms
- Sweet Potatoes
- Spinach

January

Sweet Potato and Cabbage Slaw

Ingredients:
- 2 tbsp canola oil
- 1 tbsp lime or lemon juice
- 1 tsp sesame oil
- 3 c sweet potato, peeled and grated
- 3 c cabbage, shredded
- 1 c onions, sliced
- 1 tsp jalapeño, minced (optional)
- salt and pepper to taste

Directions:
1. Whisk canola oil, lime juice, sesame oil, salt and pepper in large bowl
2. Add sweet potato, cabbage, onions and jalapeño(optional)
3. Toss and combine
4. Serve immediately

MY MARKET

GEORGIA ORGANICS

Sautéed Brussels Sprouts

Ingredients:
- 2 ½ lb Brussels sprouts
- 2 slices bacon, diced
- 1 tbsp olive oil
- 1 large onion, diced
- 2 tbsp fresh or 2 tsp dried thyme
- 2 tsp lemon juice
- salt & pepper to taste

Directions:
1. Boil large pot of water
2. Cut sprouts in quarters and cook sprouts until barely tender (3-5 min) then drain
3. In a separate pan, cook bacon over medium heat until brown but not crisp (3-6 min) then remove and drain oil
4. Add oil and onion to pan and cook until soft but not brown (4 min)
5. Increase heat to med-high, add Brussels sprouts, cook until tender (3 min) then add bacon and lemon juice

Roasted Bok Choy

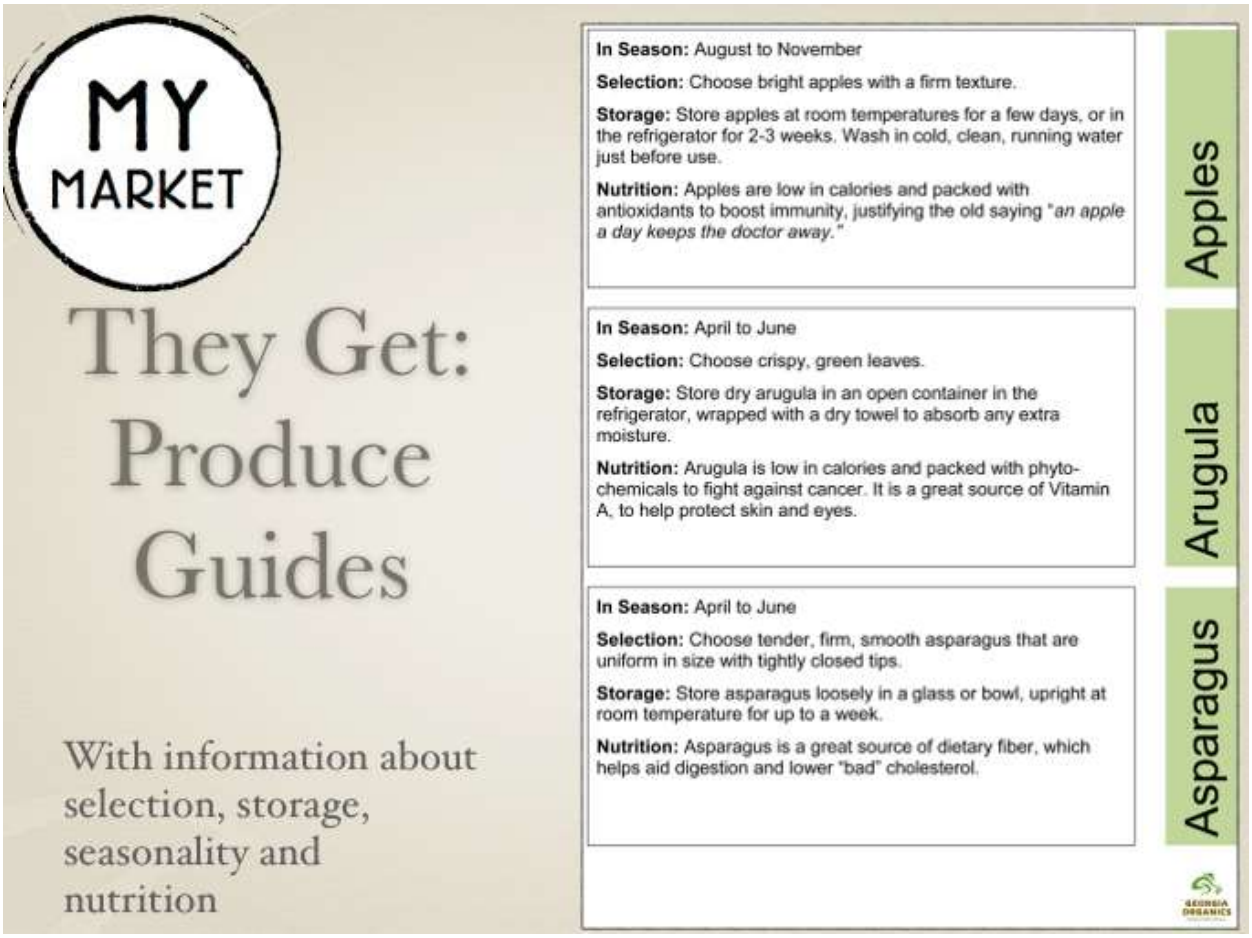
Ingredients:
- 4 heads bok choy, trimmed
- 4 tsp canola oil
- 1 small onion, diced
- ½ tsp freshly grated lemon zest
- 1 tbsp lemon juice
- 1 ½ tsp fresh or ¾ tsp dried rosemary
- 1 tsp white wine vinegar
- pinch of sugar
- salt and pepper to taste

Directions:
1. Preheat oven to 450°F
2. Toss bok choy, oil, onion and salt in roasting pan
3. Roast on lowest rack, stirring twice, until wilted and tender-crisp (6 min)
4. In separate bowl, whisk lemon zest, juice, rosemary, vinegar, sugar and pepper
5. Drizzle mixture over roasted bok choy

Southern Winter Greens

Ingredients:
- 2 lbs greens
- 1 tsp butter or oil
- 3 cups water
- 2 cloves garlic, sliced
- 1 onion, sliced
- honey to taste
- salt and pepper to taste

Directions:
1. Remove stems from greens and tear into pieces
2. Place deep pan over low-med heat and add butter or oil
3. Once hot, add garlic and onion and cook slightly
4. Add greens and water and bring to boil, then turn to low
5. Once greens are tender, drain and season with salt, pepper and honey


MY MARKET
They Get: Produce Guides
With information about selection, storage, seasonality and nutrition
In Season: August to November
Selection: Choose bright apples with a firm texture.
Storage: Store apples at room temperatures for a few days, or in the refrigerator for 2-3 weeks. Wash in cold, clean, running water just before use.
Nutrition: Apples are low in calories and packed with antioxidants to boost immunity, justifying the old saying "an apple a day keeps the doctor away."
Apples
In Season: April to June
Selection: Choose crispy, green leaves.
Storage: Store dry arugula in an open container in the refrigerator, wrapped with a dry towel to absorb any extra moisture.
Nutrition: Arugula is low in calories and packed with phyto-chemicals to fight against cancer. It is a great source of Vitamin A, to help protect skin and eyes.
Arugula
In Season: April to June
Selection: Choose tender, firm, smooth asparagus that are uniform in size with tightly closed tips.
Storage: Store asparagus loosely in a glass or bowl, upright at room temperature for up to a week.
Nutrition: Asparagus is a great source of dietary fiber, which helps aid digestion and lower "bad" cholesterol.
Asparagus


MY
MARKET


MY
MARKET
MY
MARKET

17. GDA – *The "Georgia Grown" Advertising and Consumer Education Program* – Final Performance Report

1. **Project Summary**

The purpose of this grant was to create and implement a strategic marketing plan of Georgia Grown Specialty crops. The grant program would utilized the new Georgia Grant initiative started by the Georgia Department of Agriculture in January of 2012. The grant would increase sales of local specialty crops by increasing consumer awareness and knowledge of Georgia Grown specialty crops.

The results of this program and grant have exceeded expectations. Georgia Grown has become one of the most successful local product branding programs in the country. It has been hailed by industry, consumers, and politicians as one of the top economic development initiatives in Georgia. This specific grant component has been able to increase consumer awareness of Georgia Grown products, their ability to identify local grown specialty crops, and the overall sale of local specialty crops.

2. **Project Approach**

This phase of the Georgia Grown promotion included a strategic approach to promoting locally grown specialty crops. We planned and implemented a marketing and promotion strategy based on market research. Our marketing and advertising strategy then guided the implementation of the program.

- Market Awareness – Performed pre and post campaign research to identify consumer awareness of Georgia Grown and determine the best way to identify and address key demographic groups.
- Marketing and Advertising Plan - Completed the Georgia Grown "Brand Book," a comprehensive brand and marketing plan for the Georgia Grown specialty crop campaign.
- Market Place Website – Created a new Georgia Grown marketplace website which allows specialty crop producers to create free profiles of their companies, identify which products they have for sale, allow for maps to their location, and links to their business website.
- Meals From the Field – Completed a total of 24 cooking demonstrations of specialty crops in partnership with Georgia Farm Bureau. These cooking demonstrations aired monthly on the Georgia Farm Monitor and can be found online at http://www.gfb.org/recipes/
- Agriculture Purchasing Guides – Developed and printed three different agricultural sale guides for welcome centers and point of sale locations. The Winery Brochure identifies locally grown wineries throughout the state and how their wine can be purchased. The Agritourism Guide showcased local agritourism locations and how specialty crops can be purchased directly from the farmer. The Georgia Grown trail guides (both hwy 37 and hwy 41) identify specialty crop sales locations and farms in two separate growing regions of Georgia.
- Winter Specialty Crop Promotions – Implemented a special social media campaign to promote local winter specialty crops and products that include specialty crops. Examples include sharing collard green recipes for the holidays on social media, using local chefs to demonstrate use of winter specialty crops, and retail signage identifying locally grown specialty crops.
- Special Events – The Georgia Department of Agriculture hosted or participated in several different promotional events highlighting Georgia's specialty crops.
    - 5-31-14 Macon – Georgia Grown Specialty Crop Showcase

- 6-14-14 Savannah – Georgia Grown Specialty Crop Showcase
- 6-21-14 Georgia Farmers Market Week Promotion
- 6-28-14 Atlanta – Georgia Grown Specialty Crop Showcase
- 9-6-14 Moultrie – Georgia Grown Specialty Crop Showcase
- 10-2-14 Georgia National Fair Georgia Grown Promotion event
- 11-16-14 Savannah Food and Wine Festival
- 2-26-15 Atlanta – Farm to School Source Show
- 3-1-15 Atlanta- Atlanta Motor Speedway
- 3-9-15 Atlanta – Flavor of Georgia Promotion
- 4-23-15 Vidalia- Vidalia Onion Festival
- 6-6-15 Macon – Georgia Grown Specialty Crop Showcase
- 6-27-15 Savannah- Georgia Grown Specialty Crop Showcase
- 7-11-15 Atlanta- Atlanta Farmers Showcase
- 9-5-15 Decatur – Decatur Book Fair Specialty Crop Stage
- 9-14-15 Atlanta- Georgia Grown Kroger Food Show
- 10-8-15 Perry- Georgia National Fairground Promotional Event
- 11-14-15 Savannah Food and Wine Festival

3. Goals and Outcomes Achieved

- We were able to implement 8 public advertising campaigns highlighting Georgia Grown Specialty Crops. These campaigns included public signage and in store point-of-sale signage of Georgia Grown Specialty Crops. The store campaigns included signage at Kroger, Walmart, Harvey's, and several IGAs. In total, Georgia Grown specialty crop store signage was used to promote specialty crops at more than 300 retail stores in Georgia.
- Consumer awareness of specialty crops grown has increased significantly. Our pre-campaign research in 2012 showed the commodities that Georgia consumers most associated with Georgia were peaches, Vidalia onions, corn, strawberries, peanuts and pecans. The Post-Campaign research added watermelons and blueberries to the list. We also increased awareness of pecans.
- Overall unaided awareness of Georgia Grown increased from 6% in 2012 to 33% in 2015. We believe this jump was solely caused by program in this grant.
- We have completed the first phase of the marketplace website. Over the last 9 months the marketplace has received over 50,000 website visits and more than 230 customer inquiries with farmers.

4. **Beneficiaries** and how they benefited

The major beneficiaries of the Georgia Grown program have been Georgia's fruit and vegetable growers. Over the past three years, we have seen increased growth in Georgia Grown fruits and vegetables that utilize the Georgia Grown logo.

- 14.78% Increase in Georgia Fruit and Tree Nuts – According to USDA survey data on Fresh Market Fruit and Tree Nut Production totals from 2010 to 2014, Georgia increased its fruit and tree nut sales by 14.87%. This increase is significantly greater than all other neighboring states (Alabama, Florida, North Carolina, South Carolina, and Tennessee). In fact, all other neighboring states saw a decrease in fruit and nut production, except for North Carolina, which only increased by 6.2%. (USDA NASS QuickStats 2.0)
- Growth of Georgia Farms and Businesses – More than 650 farms and businesses in Georgia now use the Georgia Grown logo to identify and promote their products.

- The Kroger Atlanta regional grocery stores have increased their purchase of Georgia Grown specialty crop products by 30% over the last 3 years.
- Increasing Demand – In October, *Produce News Magazine* reported on the success of the Georgia Grown program. Included within the article was a quote from Mike Jardina of Atlanta apple and stone fruit specialists, the J.J. Jardina Co.: "They do a very good job and that really helps us with local product. Just the recognition they have brought to 'Georgia Grown' has really helped. We don't see an end for the demand for locally grown — our sales in Georgia apples are five times higher than they've ever been. Thank Commissioner Gary Black for that one. They're doing a great job. The Georgia Department of Agriculture is pushing the 'Georgia Grown' program very well."
- Promoting major commodities – Through the Georgia Grown program, Kroger began including specially branded Georgia Grown bins in all their stores that specifically highlighted Georgia Grown watermelons. Most of these watermelons were sold through Leger & Son farm. The use of the Georgia Grown logo leads to increase sales of watermelons in Georgia directly benefiting these watermelon growers.
- Promoting local businesses (Case Study) – Verdant Resources is a small company that began growing fresh ginger in 2012. Their farm is located in Savannah and their production facility is in Atlanta. Their production facility creates everything from ginger cookies to ginger ale. They cite the Georgia Grown logo and marketing support as one of the major factors that have benefited their business. With help of the promotions in this grant and Georgia Grown they were able to grow their business over the last 3 years to become the largest ginger producer in the continental United States. Just this month two of their products were highlighted as one of Oprah's Favorite things. Add them to The Blackberry Patch in 2014 and this is the second year in a row that a Georgia Grown company using local specialty crops has made this prestigious list!

5. Lessons Learned

- The Georgia Department of Agriculture put a hold on most of its SCBG spending during Calendar year 2014. The purpose of this hold was for the Department to review its budgeting, accounting and procurement processes in regards to SCBG awarded to the Department. We believe this review has been very successful and allowed the Department to make needed changes that will allow for more effective implementation and greater accountability of the SCBG funds. However, due to the hold the grant schedule was delayed one year.
- This phase of the Georgia grown program also showed us that wholesale distributors and brokers are a necessary partner in the promotion of specialty crops. The Department of Agriculture was able to greatly increase promotions at major retailers by working with the brokers that sell to the retail chains.
- In addition, we found that there was significant benefit to market multiple commodities in combination. For example, a showcase highlighting multiple commodities under a common promotional theme, such as Georgia Grown, was more beneficial than promotional campaigns that only highlighted one commodity.
- Our post-campaign research study has shared with us many important lessons from this grant proposal. The following is from our post campaign study performed by the University of Georgia Center for Agribusiness and Economic Development:
    - It appears that surveyed consumers are sensitive to quality, state of origin brand, and the production's location. Hence, Grown in Georgia, Grown locally, or Family Farm grown are keywords that appeal to them.

- "Overall quality", "Freshness", and "Taste" are the main factors that seem to differentiate Georgia Grown products from not grown in Georgia products.
- Furthermore, near two third of consumers are willing to pay 1% or more to get these benefits.
- TV ads and displays appear to be the most effective advertising or promotional materials for "Georgia Grown": people recall seeing it, and it has an influence on their purchase.
- Lastly, it seems that once consumers are informed or aware about the Georgia Grown label, they are likely to purchase food products which have it.

6. **Contact Person** Information

Matthew Kulinski
Georgia Department of Agriculture
Marketing Division, Room 324
19 Martin Luther King, Jr. Drive, SW
Atlanta, Georgia 30334-4201
404-656-3680 x3603
404-656-9380 (Fax)
Email: *matthew.kulinski@agr.georgia.gov*
Website: *www.GeorgiaGrown.com* *www.agr.georgia.gov*

7. **Additional Information** (photos, brochures, etc.)

Press clippings showing the success of the Georgia Grown program.

http://blogs.usda.gov/2015/11/05/creating-opportunities-for-georgias-produce-industry/

http://www.theproducenews.com/more-what-s-new/17055-georgia-grown-program-spreads-the-gospel-about-state-produce

http://www.thepacker.com/fruit-vegetable-news/shipping-profiles/State-program-a-plus-for-locally-grown-items-222692541.html

http://www.thepacker.com/fruit-vegetable-news/shipping-profiles/georgia-produce/Georgia-Grown-produce-peaches-promoted-258630411.html

http://www.fox5atlanta.com/news/most-popular/45812407-story

http://www.wtoc.com/story/30477034/georgia-grown-trustees-wine-challenge-dinner-held-monday-night

Photos highlighting Georgia Grown


discover local
farms
G&R Farms
New!
Lower
prices
99


GEORGIA
grown


PEARSON
FARM
Natural Georgia Pecans
GEORGIA
grown


SEEDLESS
Sweet Dixie
WATERMELONS
4032


GEORGIA
grown


GEORGIA
grown


Georgia Grown Locator
Find Georgia Grown near you!
Find Now

18.GDA – *The Farmers Market Specialty Crop Advertising Program* - Final Performance Report

USDA/AMS-SCBGP approved our ***Request for Scope Change and Budget Modification*** on November 26, 2014 for this project. The project was cancelled and the awarded grant funds were transferred to the project, *The "Georgia Grown" Advertising and Consumer Education Program* (see project #17 above).