

ARKANSAS AGRICULTURE DEPARTMENT

FINAL REPORT

Agreement Number 12-25-B-1054

**Contact: Zachary Taylor,
Director of Marketing
Arkansas Agriculture Department
Zachary.Taylor@AAD.AR.GOV
501-219-6324**

December 28, 2013

Project 1: Phase 2 of Arkansas Pecan Industry

PROJECT SUMMARY

Pecans are regarded as the most important commercial nut crop grown in the eastern United States. Arkansas ranks 10th in pecan production in the United States. In 2010, the United States exported 40,622 metric tons (MT) of unshelled, or in-shell, pecans valued at \$143 million and 12,948 MT of shelled pecans valued at nearly \$109 million. The top buyer of U.S. in-shell pecans was Hong Kong. In the past 10 years, exports of pecan have grown, on average, 9% yearly.

Currently, Arkansas pecan production is among the least efficient in the United States. This inefficiency can be attributed both to the lack of knowledge about efficient production practices and to the lack of knowledge growers have about recommended practices in the areas of pest management, orchard management, and food safety. For the past two years, the Arkansas Pecan Growers Association has subcontracted the UA Division of Agriculture to conduct a needs assessment for the industry and provide educational opportunities to growers and industry representatives. To accomplish this, 12 commercial pecan growers (16 sites) geographically located in the various production areas of the state were selected to be monitored to gather information about horticultural and pest management practices. In addition, we continue to deliver information to growers and industry representatives to equip them with the ability and skills to make more effective management decisions. To gain more detailed information from a broader demographic, an Arkansas pecan industry survey was conducted. Based on the survey results, we propose to continue monitoring for important pests such as pecan nut casebearer; and we propose to begin monitoring for stink bug and for the nutritional status of trees. We also propose to offer pecan growers educational opportunities focused on improving production practices, minimizing inputs and increasing economic sustainability. Pecan is a perennial crop requiring multiple years of research to build a baseline to work from in developing recommendation guidelines concerning the complex issues facing the industry. This project is a continuation of efforts of previous funding for which the results have been incorporated into oral and written recommendations for growers.

PROJECT APPROACH

An assessment was conducted to determine the current status and needs of the Arkansas pecan industry. This assessment was conducted by two methods. The first method is a written, comprehensive survey which was sent to members of the Arkansas Pecan Growers Association, other commercial growers, and county extension agents. The survey results provided a clearer understanding of the cultural and pest management practices and economics of the pecan industry. For the second method, we continued to monitor (15 farms selected for Year 1 of this project) for pests to determine incidence and biology of major pests such as the pecan nut casebearer, pecan weevil, and scab. Soil and foliar samples have been collected to determine soil biotic and abiotic conditions and to determine nutritional status of the orchards. In addition, shelling and packing facilities were visited and direct interviews with three pecan brokers were conducted. Interviews were designed to determine the movement of Arkansas pecans, to ascertain if GAP 'Good Agricultural Practices' are being implemented in these facilities, and to discuss industry expectations and how Arkansas growers measure up to industry expectations.

Proposed project activities

1. A survey will be conducted to determine the status and needs of the Arkansas pecan industry.
2. Grower workshops will be presented to educate growers on horticulture and pest management practices, GAP and food safety, risk management, and marketing to increase their knowledge and skills to improve production practices, minimize input and make the industry more economically sustainable.
3. Four workshops to train growers in setting and monitoring insect pest traps will be presented throughout the state.
4. To continue monitoring for important pests such as pecan nut casebearer, start monitoring for stink bug (conducted by Donn Johnson, Professor in Entomology and his Ph.D. student, Brian Cowell)
5. Three fact sheets will be generated in which information obtained through this grant will be summarized to improve horticultural and pest management practices in pecan orchards.
6. A follow-up evaluation form will be mailed to growers to ascertain the implementation of practices.

GOALS AND OUTCOMES ACHIEVED

Written grower surveys and results:

Eighty surveys were mailed to growers and other pecan industry associated people and 38 responses were returned. The information gained from these responses has allowed us to determine the educational needs of the industry. It has also shown us the current status of the industry. For example, 41% of respondents have planted new trees in the last five years and 31% plan to plant new trees in the future. Most of the pecan orchards are small, with 64% of the orchards being less than 15 acres and 19% larger than 100 acres. Average farmer age is 65 years with 27.5 years of experience in farming, and 19 years of experience in growing pecans. The survey also indicates that most growers are not following basic horticultural or pest management practices. The majority of farmers do not prune yearly (only 18% of respondents), most growers do not thin their crop, and many growers have not conducted a soil or foliar test in the last ten years. Soil problems associated with the lack of soil testing are evident with pH ranging from 4.9 to 8.0 and low base saturation for Ca, high base saturation for Mg, and extreme compaction. The foliar analyses indicate deficiencies and toxicity for some of the minerals tested. Low or deficient nutrient levels were found for: P, K, S, Fe, Cu, and Ni and high or excessive nutrient levels were found for Ca, Zn, Mn, and B. These results indicate current and potential future problems with productivity and nut quality in Arkansas pecan orchards.

Respondents indicated pecan nut casebearer (PNC) and stink bug are the major insect problems facing the industry. To help growers to better manage these problems, we continued to monitor for PNC and results were sent to The Belt Wide *ipm*PIPE project (<http://pecan.ipmpipe.org/map/pnc/>) to be included in the Southeast pecan IPM monitoring system. In addition, the information was posted on our own Extension site (<http://comp.uark.edu/~dtjohnso/>), an interactive web page created to provide pecan producers and consultants with up-to-date temperature information and particular degree day accumulations for the current year, the previous year, and for the 30-year norm.

Stink bug monitoring:

To begin our understanding of the impact of stink bug damage to the pecan industry, in 2012, Donn Johnson advised Brian Cowell to develop sampling and decision-making protocols for implementing management practices against stink bugs in order to minimize damage to pecan nuts. Toews (2011) reported that stink bugs were commonly captured: in field margins of row crops early in the year; feeding on non-cultivated and cultivated plant hosts during spring and early summer; throughout the entire year in a pecan grove that was not mowed; in row crops like cotton and peanuts during the summer; and in late planted soybean and grain sorghum from

mid-September through mid-October. We hypothesize that the potential risk for stink bug damage increases in a pecan grove given a history of stink bug nut damage and/or increasing percentage of the grove perimeter that is adjacent to farmscapes of crops supporting stink bugs that mature between pecan water stage to shuck split. This will require development of sampling methods for estimating: density of stink bugs in the pecan grove understory; density of stink bugs in the pecan canopy; and a way for growers to quickly assess and make informed decisions about pest management of stink bugs.

Brian monitored for stink bugs and talked to each of six participating growers about recorded numbers of stink bugs per pyramid trap and percentage damage to pecan nuts in pecan groves with different adjacent farmscapes (fallow, hay for animal fodder, corn, rice, early or late maturing soybean, pecan, river, woodlot, etc.). Pyramid traps were constructed of yellow coroplast corrugated polypropylene plastic (4mm x 48" x 24") (Pack and Seal, Avenel, NJ) that act as a supernormal plant that attracts plant feeding insects, especially stink bugs. Each trap had both sheets of yellow plastic wired securely to a 4' rebar (3/8" diameter) set 1' into the ground which resisted winds of hurricane Isaac on August 30. A capture screen cage was wired to the top of the pyramid trap and rebaited biweekly with a rubber septum charged with 30 ul *Euschistus* spp. aggregation pheromone, methyl (E, Z)-2,4-decadienoate (Fig. 2 A-B). Three pyramid traps were set on the ground in each grove perimeter quadrant (north, east, south, west) and in the grove center of seven pecan groves: Fayetteville (University of Arkansas Agricultural Research and Extension Center); Blackwell (2 groves); Mayflower; Humphrey; Garland City; and Hope (University of Arkansas Southwest Research and Extension Center). Biweekly from 13 June to 25 October, insect specimens were removed from each trap, bagged, transported to the lab and specimens identified to species and counts tabulated. Once nuts reached water stage in early August, biweekly collections were made of two randomly selected nuts per tree from each of five trees at each trap site, bagged each 10 nut sample and transported bagged nuts to the lab. Later, each damage spot on nuts was sliced open to the kernel: if the kernel or nut meat was darkened it was recorded as stink bug feeding; whereas we tried to identify presence of frass or tunneling or a larvae as damage caused by pecan weevil (legless larva), or an internal Lepidoptera caterpillar of either hickory shuckworm or pecan nut casebearer. Once these data are analyzed, we hope to quantify the effect of each adjacent farmscape crop over time on temporal changes in stink bug densities in each quadrant versus the density in the center of each pecan grove.

We demonstrated that baited, yellow pyramid traps (Fig. 2 A-B) captured significant numbers of brown and dusky stink bugs (Fig. 2 C) but very few green stink bugs or

leaf-footed bugs that may also damage pecan nuts (Fig. 1). As we collected nuts for the damage assessments, we often observed stink bugs on pecan nuts. We quickly learned to identify a stink bug puncture on the shuck (Fig. 3 A), to slice under the puncture to confirm the puncture penetrated to the kernel and meat (brown stain) (Fig. 3 B) and count damage as stink bug. It was apparent that stink bug damage began in early August when the earliest nut cultivars were entering the water stage and that hickory shuckworm damage was occurring after late-August (Table 1).

We also took pictures of an adult male and female pecan weevil (Fig. 4 A-B), a pecan weevil Circle trap on a tree (Fig. 4 C), shuck damage by pecan weevil female that consisted of a hole with a circle of track marks (Fig. 5 A) with a tunnel penetrated through the kernel and often a legless larva inside (Fig. 5 B). We also noted damage by pecan nut casebearer and hickory shuckworm that left frass on the base of the shuck or inside the shuck, respectively.

Industry visits and interviews to determine market expectations:

This survey also included visiting shellers and packers to determine market expectations for this industry and how Arkansas growers measure up to these expectations.

December 2011- Visited Hauani Creek Pecan Company, Hauani Creek Ranch and Savage Equipment Company, Inc. Madill, Oklahoma.

Interviewed owners and key employees concerning pecan quality standards and aspects of food safety that are of concern to pecan buyers/brokers/processors.

Specific focus on pecans received from Arkansas

U of A representative received a tour of the cleaning facility and pecan equipment manufacturing plant.

Visited with Dr. Charles Rohla, from the Noble Foundation in Ardmore, Oklahoma to discuss research and general pecan issues.

April 2011- Visited with Nolan Branton, owner of Delta Pecan in Greenville, Mississippi, concerning pecan quality, food safety, economics and general management procedures that growers might implement to their benefit. Delta Pecan buys many pecans grown in Arkansas.

Upon request by University of Arkansas Extension personnel, the owner of Delta Pecan accepted an invitation to speak at the 2012 Arkansas Pecan Grower's Association meeting concerning "What Buyers Want" in relation to pecan management, type, quality and food safety.

State-wide workshop:

Results from the survey have helped us design and deliver science-based information to growers during educational meetings. A state-wide workshop was conducted on May 5th. The workshop content was driven by the survey results with a program focusing on areas of need for growers such as cultivar selection, nutrition, and pest management. This workshop was very well received by growers. Growers rated the workshop and provided feedback by completing an evaluation form. Aspects of the workshop were rated on a scale from 1 (lowest rating) to 5 (highest rating) with 3 being a "no opinion." Of particular note from the workshop evaluations is the mean rating of 4.82/5.00 on the question "Overall, how would you rate this workshop in terms of usefulness" and 4.76/5.00 on the question "Overall, how would you rate the quality of this workshop." Even more importantly, growers the statement "I have gained much useful information from this presentation" with a rating of 4.80/5.0 and the statement "the information presented has convinced me to change and/or adapt my practices" received a rating of 4.60/5.0. From these high ratings it is clear that the workshop and survey that informed the content of the workshop provided useful information for the growers. This project has convinced growers to adapt their practices and incorporate more effective and sustainable management practices in their pecan orchards. See evaluation results in Table 2.

Comments that were included on the evaluation forms were the following:

- I would like to see more information on marketing of the pecan grower.
- Good job.
- Some should have used microphone and repeat the question before they answered.
- It was a very informative conference – great facility – friendly staff.
- Interesting and informative

Tailgate Meetings

Three tailgate meetings were conducted in late summer, 2012 to train growers to set and monitor insect traps. The locations for these meetings were: Humphrey,

Morrilton, and Texarkana. Information on how to identify various signs of insect damage, severity of damage, and management practices to minimize damage was given at these meetings. A total of 27 people attended.

Web Site

A web site was launched by the Arkansas Pecan Growers Association (<http://arkpecangrowers.org/>) to serve as a repository for timely and pertinent information for this group. The U of A Faculty have contributed information for posting to the site.

List of completed activities:

Date	Activity	Completed
Oct-Nov	Develop surveys	Yes
Oct-Dec	Assess crop load and nut quality; interview shellers and brokers	Yes
Dec-Jan	Conduct surveys	Yes
Jan-Feb	Compile survey results; collect soil for soil analysis	Yes
April-Sep	Set and monitor traps; assess for diseases and crop load; conduct foliar collection	Yes
April	Conduct grower demonstrations to teach use of insect traps at 4 locations	Yes
Sept	Gather data collected. Develop horticultural and pest	Yes Web site

	management fact sheets Conduct grower workshop to disseminate information and knowledge gained from project Follow- up evaluation	Yes No
Oct	Final summary report will be submitted to the Arkansas Dept. of Agriculture	Yes

BENEFICIARIES

A total of 35 pecan growers attended the Pecan Grower Workshop on May 5 in Little Rock, AR. At that meeting, Elena Garcia summarized the pecan grower survey, Charles Rohla (Noble Foundation) talked about nutrition management and how to thin pecan trees, Donn Johnson reviewed pecan IPM, Brian Cowell presented his proposal to develop a stink bug sampling program in Arkansas, Harrison Pittman (National Agricultural Law Center) outlined liability issues facing the pecan industry and we toured a local pecan orchard where we answered grower questions.

Pecan tailgate meetings occurred in: Blackwell, AR (Faulkner Co.) on 12 September (7 attendees); Texarkana, AR (Miller Co.) on 17 September (5 attendees); and Humphrey, AR (Arkansas and Jefferson counties) on 26 September (15 attendees). We informed these 27 pecan growers and county extension agents about our project findings and recommendations from the soil and petiole nutrition samples, stink bug trap catches (Figure 1), percentage insect damage (Table 1) and answered questions. Attendees were surprised and impressed as to how well the baited yellow pyramid traps captured stink bugs. Many participants expressed their appreciation for the University of Arkansas beginning studies on management of pecan nutrition, stink bugs and other pests.

LESSONS LEARNED

Information gathered from the industry survey has given us much insight into what areas of research and education are needed by the industry to improve their production practices to become more competitive in the market place where high quality pecans bring much higher prices than low quality pecans. For example, growers now

recognize that the nutritional status of their orchards is not what it should be in order to maximize nut production and quality. Several growers have taken action to ameliorate this problem. Results also indicate that most growers get their pecan management practices information from grower meeting such as that delivered through this grant. Insect monitoring has shown us that nut damage sampling needs to be fine-tuned by cracking open each damaged nut sampled to check for stink bug staining of kernel or presence of frass or larvae of internal Lepidoptera or the pecan weevil. Biweekly percentages of stink bug damage of nuts in the trees appears to increase until shuck split and then drop as nuts mature, whereas percentage of nuts damaged by internal Lepidoptera and the pecan weevil appears to increase after mid-August. We speculate that mature nuts damaged by stink bugs fall from the tree whereas those damaged by internal Lepidoptera and the pecan weevil stay stuck in the shucks in the tree. If growers learn to scout for pests and sample soil and petioles they are expected to benefit by properly timing insecticides to prevent nut damage and create a more balanced soil nutrient complex that results in higher nut quality and yields per acre.

Baited yellow pyramid traps attracted and captured mostly brown and dusky stink bugs and not green stink bugs or leaf-footed bugs that may also be feeding on pecan nuts. Presently, we are unsure how to use stink bug counts from pyramid traps set on the ground in the pecan understory to predict the start of stink bug feeding on nuts. Therefore, we plan to evaluate several methods to assess temporal changes in densities of stink bugs within the pecan canopy including: spraying a quick knockdown insecticide (pyrethrum + PBO) into a randomly selected pecan canopy to cause all stink bugs to fall to a ground cloth to be counted; and compare stink bug captures on ground and in lower, middle and upper pecan canopy in three groves using both UV light traps (Kamminga et al. 2012 reported this trap attracts green stink bugs) and baited yellow traps.

Over all for the project, we have been very well received. Growers are more than happy that we are working on pecans again. They express their appreciation nearly every time that we talk to them telling us how much the growers affiliated with the project really appreciate what we are doing. **CONTACT PERSON**

Dr. Elena Garcia, Professor

Office: (479) 575-2790

E-mail: megarcia@uark.edu

ADDITIONAL INFORMATION Tables and Figures:

Table 1. Percentage damage by stink bugs (SB), pecan weevil (PW) and internal Lepidoptera (IL) (either pecan nut casebearer or hickory shuckworm) in five pecan groves in Arkansas (2012)

Date	Blackwell 1			Blackwell 2			Mayflower			Humphrey			Garland City		
	S B	P W	IL	S B	P W	IL	S B	PW	IL	S B	P W	IL	S B	P W	IL
Aug. 16	0	0	0	0	0	0	10	0	0	15	0	0	-	-	-
Aug. 30	0	0	0	0	0	0	4	0.7	0	18	0.7	0.7	-	-	-
Sept. 13	2	0	0	2	0	0	4.7	0	0.7	22	0	10.7	-	-	-
Sept. 18	-	-	-	-	-	-	-	-	-	-	-	-	4	0	12
Sept. 27	4	0	5.3	2.7	0	2	8.7	0.7	3.3	21	2.7	10	-	-	-
Oct. 10	2.7	0	3.3	2	0.7	2	7.3	0.7	4.7	21	21	11.3	5.3	0	26.7

Table 2. Summary of evaluation form responses for the annual pecan growers association educational meeting (May 5th, 2012) at Little Rock State Extension Office:

	1 Least Informati ve	2	3 No Opinio n	4	5 Most Informati ve	Rating Avera ge	Respo nse Count
Overall, how would you rate this workshop in terms of usefulness?	(0)	(0)	(0)	(3)	(14)	4.82	17

Overall, how would you rate the quality of this workshop?	(0)	(0)	(0)	(4)	(13)	4.76	17
The time allotted for the workshop was appropriate – not too short or too long.	(0)	(0)	(0)	(2)	(15)	4.88	17
I have gained much useful information from this presentation	(0)	(0)	(0)	(2)	(14)	4.80	16
The information presented has convinced me to change and/or adapt my practices	(0)	(1)	(0)	(3)	(12)	4.60	16

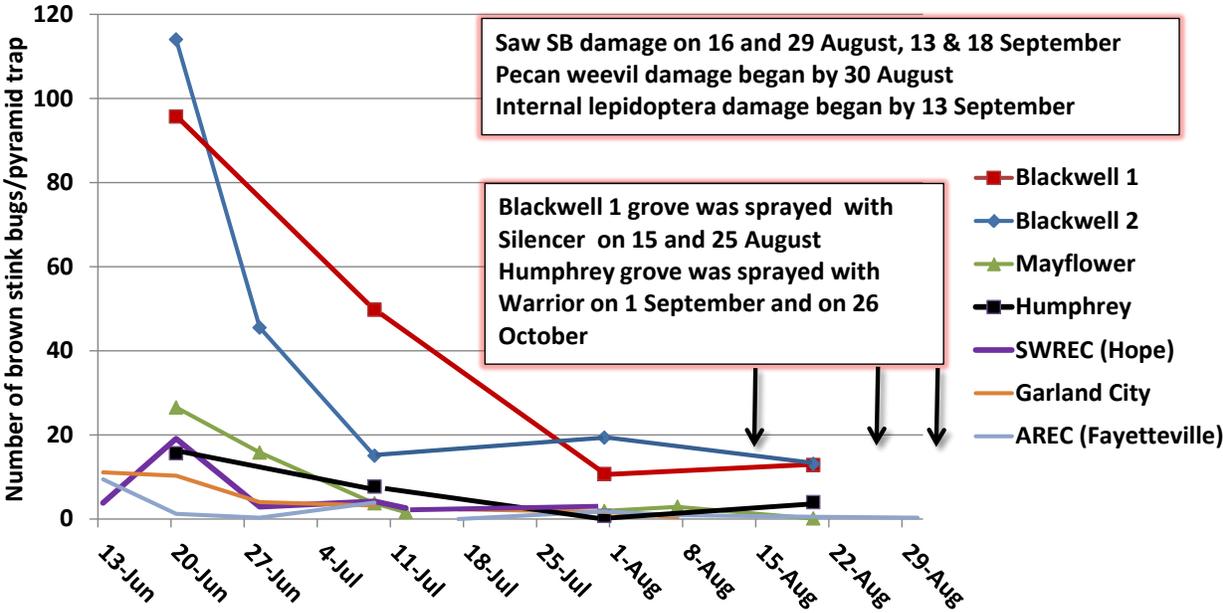


Figure 1. Mean numbers of stink bugs per pyramid trap captured in each of seven pecan groves sampled in Arkansas in 2012.



Figure 2. A) Yellow stink bug trap in a pecan orchard perimeter, B) screen cage on the top of the stink bug trap with an aggregation lure attached inside above the funnel opening, and an C) adult brown stink bug (Photos: D. Johnson).



Figure 3. Pecan nuts past water stage with A) two types of stink bug damage on the shuck: circular depressions or dimples (left circle) or circular holes (right circle). When the shuck is sliced beneath the puncture to expose the kernel, you see a B) discolored spot where the stink bug fed on the kernel (Photos: D. Johnson).

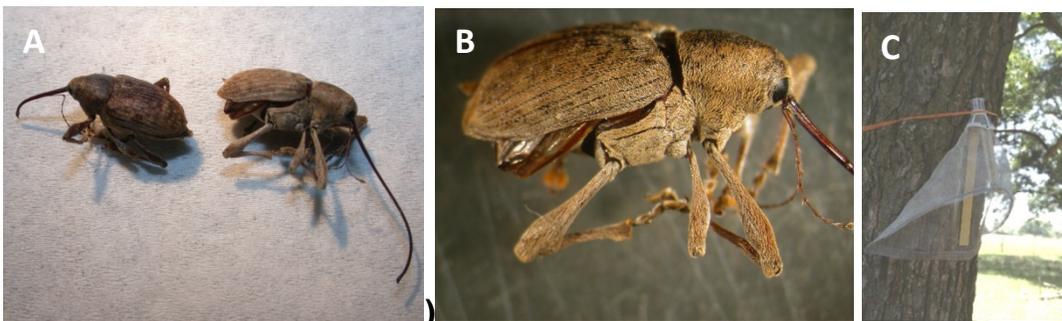


Figure 4. A) Pecan weevil male (left) and female (right), B) close up of a female pecan weevil (Photos: D. Johnson), and C) pecan weevil Circle trap on pecan trunk (Photo: Oklahoma State University EPP-7079)



Figure 5. Pecan weevil damage consists of an A) egg laying hole with a circle of tracking marks or scratches on the shuck and B) a hole in the kernel often filled with frass from the larva feeding inside on the endocarp or pecan embryo (Photos: D. Johnson)

Project 2: Delta Fresh Produce Market Infrastructure Development

Project Title: Delta Fresh Produce Market Infrastructure Development

Project Summary

Fresh produce frequently generates considerably more revenue, and profit, per acre than traditional row crops. However, the profitability of this sector is closely linked to the effectiveness of the producers' ability to market their crops. Successful producers must be able to develop a reputation for being able to:

1. Demonstrate to their customers that they have taken reasonable steps to ensure that their crops are safe (i.e. pathogen free). They have met applicable auditing requirements and their operation has been determined "Certified".
2. Reliably and consistently grow "high quality" crops;
3. Be responsive to customers' needs, with respect to price, quantity and quality, on an efficient and timely basis; and,
4. Be flexible to alter their production plans to meet market needs.

Many individual producers are too small and/or lack the capability to address these issues on a cost effective basis. However, efficiencies can be generated when individual producers from a reasonable small geographic area coordinate their production through the development of some form of a production and marketing entity that is designed to serve as an intermediary between the individual producers and their customers.

The plan of this project was to develop a marketing infrastructure to serve limited resource and socially disadvantaged farmers so that they can gain access to the nation's mainstream wholesale fresh produce market. The production of fresh produce is an enterprise that can restore economic vitality to small farmers and our rural communities. However, with limited resources, small producers face a number of barriers that have kept them out of regional/national markets.

- ◆ An under-developed market structure and an over-reliance on small, easily saturated local markets
- ◆ Inadequate post-harvest processing, packing and storage facilities that have experienced some but limited certification support.
- ◆ Inability to comply with increasingly complex food safety, trace back, packing, and labeling requirements

Inability to access needed operating credit for the conversion to nontraditional crop production

Project Approach

Initially the project was staffed and organized under the oversight of the project director. Emphasis was immediately placed on recruiting produce growers as project participants. This project was briefed at all conferences and regional workshops that ALFDC conducted during its performance of other projects. Flyers and local radio media was also utilized in recruitment of

participants. Through ALFDC's founding and continued sponsorship of the Livestock Association of Eastern Arkansas (LAEA), the LAEA members were encouraged to diversify their farming operations to include vegetable production. These growers in conjunction with those recruited from conferences, workshops and advertisements created an average of over 30 participants. The LAEA was reorganized as a cooperative along with the forming of the Delta Produce Cooperative.

No grant funds were expended on activities associated with the reorganization of LAEA.

Training focused on the following:

- Food Safety – The applicable portions of the Food Safety Act was explained. Preventive measures were stressed. Sources of food containments and mitigation approaches were addressed. Employee training and worker hygiene were also emphasized.
- GAP/GHP – the AMS Audit Checklist was used to trained participants on certification audits. Farm Safety manuals including trace back methodology were prepared for growers desiring to be certified. Also, the participants were assisted in the development of food safety policies, standard operating procedures, logs, forms, etc. Mock audits and self-audits were used to finalize audit training.
- Vegetable Production/Farm Management – Basics of farming vegetables including risk management, soil nutrient management, weed control, etc.
- Marketing – Packaging, value added, retail markets, cooperatives, local markets, risk management were topics of focus.

Goals and Outcomes Achieved

The project goals and outcomes are presented below:

- Organize a cooperative with a minimum of 30 members – A cooperative (LAEA) was organized with a membership of 36 members. Twelve growers who are not members of the co-op are project participants. Written marketing agreements were not obtained. Of this collective group, one farm of 800 acres, one field packing operation and one packing facility were GAP/GHP certified at the Harmonized level. Twelve growers are able to market their produce through the certified packing facility to the retail market (Wal-Mart). This accomplishment in addition to the previously mentioned packing facility satisfies the planned goal of a marketing entity that serves a minimum of 30 producers. That is, although the planned goal of a marketing entity that serves a minimum of 30 members executing marketing agreements to supply the co-op was not explicitly achieved, the certified packing facility serves as a direct market entrance to Wal-Mart. Marketing agreements are verbal and are growing in participants. The point is that a certified marketing entity with the capacity of supporting more than 30 members was created and is being supplied by small growers with produce to Wal-Mart.

- A minimum of 20 members will have passed a GAP/GHP audit – Only three GAP/GHP certifications were achieved. In several cases contaminated (e-coli/coliforms) well water precluded certification, and the audit cost was also a barrier. During the performance of this project, eight regional workshops with an average attendance of 15 attendees were conducted. Additionally, two ALFDC Annual Conferences with over 50 growers present were conducted. Produce production, marketing and certification were integral features of these workshops.
- The goal of establishing a licensed kitchen was not achieved. Several members are planning valued added products for the upcoming season and have started cooking and food processing training at UAPB.

Beneficiaries

The beneficiaries of this project include:

- Carpenter's Produce who achieved GAP/GHP Harmonized Certification for his 800 acre fresh produce operation therein allowing direct sells to Wal-Mart. This certification was a direct result of the training activities of this project.
- D & S Produce, a packing facility supported by twelve growers, achieved GAP/GHP Harmonized Certification. This facility now serves as a market entrance to Wal-Mart and other retail markets for twelve growers. This certification was a direct result of the training activities of this project.
- Many small farmers transitioning from row crops to alternate crops received training and technical assistance from this project increasing their probability of success in vegetable production.
- Small new and beginning producers of fresh produce were well trained in food safety and are primed for GAP/GHP Certification. They now realize that without food safety certification available markets are extremely limited.

Lessons Learned

The lessons learned from this project include:

- There are enough small farmers who are willing to grow sufficient quantities of certified fresh produce to sustain a regional market structure. Since it was clearly shown that the Wal-Mart will buy from small certified growers, it is now easier to recruit. That is, given the perception of a real market, farmers will produce.
- The audit cost, approximately \$92 per hour including travel time, is a serious barrier to small growers. This prohibits many from pursuing certification. Although ALFDC did not subsidized the actual (\$92/hour) audit cost, ancillary and peripheral costs associated with preparing farm safety manuals, safety policies, standard

operating procedures and the various forms, log sheets, signage posters, etc., together with the training and implementation of the safety plans were absorbed by ALFDC.

- It is difficult to convince former row crop farmers that with small acreage, it is more economically feasible to grow fresh produce as opposed to row crops.
- Market and production risk without a safety net is a barrier. That is, it is generally perceived that NAP is insufficient assurance to combat production and market risk.
- The notion of a regional market infrastructure with value added products, prepared meals, canned products, etc. will require significant front end subsidies. However, it should serve local economies well and would be of enormous benefit to small minority farmers, who have been driven from row crops due to large acre requirements and production costs.
- The idea of a cooperative is still a hard sale within our client base.

Contact Person

Calvin R. King, Sr.

(870)734-1140

calvinrkingsr@yahoo.com

Project 3: Economic Impact Study of Grapes and Wine in Arkansas

Project Summary:

At the time this project was initiated economic impact data as it related to grapes and wine in Arkansas was inconsistent, leaving a lack of understanding about the impact of the industry on the economy of Arkansas. Arkansas Tech University-Ozark Campus and its industry partners collaborated through this grant project to commission a current economic impact study of the grape and wine industry in Arkansas. This study worked to inform the public, media, and current industry of the influence the grape and wine industry has on the state.

Project Approach:

After receiving notification of the successful grant application on 6-16-11 and completing the grant agreement soon thereafter, ATU-Ozark issued a Request for Qualifications (RFQ) in order to solicit interested qualified candidates from which one would be chosen to conduct the economic impact study. Responses to the RFQ were due by 12-9-11. After receiving the responses, Frank, Rimmerman, & Co. (FRC) was selected to conduct the study.

The study was set to be completed by 3-31-12, however complications with data collection delayed the completion and the study was not finalized until 9-14-12. Once complete, multiple methods were used to disseminate the study and its results. These include the following activities:

On 9-27-12, ATU-Ozark released to its media contacts an article describing the study and an email link to a copy of the full report. This press release was picked up by many of the media outlets in print and on television within and outside the state of Arkansas.

On 10-28-12, Dr. Ken Warden forwarded the study to all ATU-Ozark viticulture and enology contacts, to the Arkansas Association of Grape Growers (AAGG), and to all contacts within the National Science Foundation (NSF) Viticulture and Enology Science Technology Alliance (VESTA) consortium.

On 11-02-12, ATU-Ozark hosted the inaugural Arkansas Association of Grape Growers Conference. During the conference Dr. Warden presented the findings of the study and offered electronic copies to all those in attendance. Paper copies were also made available upon request.

On 1-29-13 thru 1-31-13, Veronica Post attended the Unified Wine and Grape Symposium in Sacramento, California. While a presentation opportunity was not made available, Ms. Post met with multiple vineyard owners, winery owners, and educators. The study was discussed and copies made available to all those interested.

On 2-05-13 thru 2-07-13, Dr. Warden and Ms. Post attended the VESTA Management Team meeting which was held in conjunction with the Midwest Grape and Wine Conference in St. Charles, MO. During the meeting, Dr. Warden presented the study findings and disseminated copies of the study. Copies of the study were also made available during the tradeshow at the VESTA booth.

Goals and Outcomes Achieved:

The study was commissioned in December of 2011 and successfully completed in September of 2012. Multiple dissemination methods, as described in the project approach section, were successfully implemented following the completion of the study.

The study results found a full economic impact of Arkansas grapes and wine in 2010 to be \$173.2 million dollars. The following outline describes the impact in more detail.

Full-time Equivalent Jobs	1,668
Wages Paid	\$42 million
Wine Produced (Cases)	121,913
Retail Value of Arkansas Wine Sold	\$20 million
Vineyard Revenue	\$300,000
Number of Wineries	13
Number of Grape Growers	40
Grape-Bearing Acres	600
Wine-Related Tourism Expenditures	\$21 million
Number of Wine-Related Tourists	306,000
Taxes Paid: Federal / State and Local	\$11 million / \$12 million

Beneficiaries:

Beneficiaries of this project include all those associated with the grape and wine industry in Arkansas and all those who want to be more informed about the impact of the industry on the state's economy. The information was shared with at least 50 grape and wine industry holders at 2 AAGG conferences. This information was provided to U of A along with being provided to VISTA.

Lessons learned:

Data collection proved to be more difficult than originally anticipated. The completion of the study was significantly delayed due to a lack of response and participation from the Arkansas Wineries. Multiple attempts were made by FRC and by ATU-Ozark to retrieve supporting information from the wineries. While there were a few wineries that responded timely, most of them never responded. After five months of repetitive contact with the Arkansas wineries through multiple means (i.e. email, telephone calls, and

mail) it was decided to conclude the study and base the results on the information that had already been obtained.

If another project such as this were to be performed. ATU-Ozark would advise that written authorization and commitment to providing data by pertinent parties be secured in advance of commissioning the study.

Contact Person:

Dr. Ken Warden
Chief Business and Community Outreach Officer
kwarden@atu.edu
1700 Helberg Lane
Ozark, AR 72949
Ph. 479-209-3719

Additional Information:

The following is a link to ATU-Ozark's Viticulture and Enology Webpage where a .pdf copy of the study is available.

<http://www.atu.edu/ozark/academics/p-vit-eno.php>

Project 4: Muscadine Grape Variety Development for Arkansas Growers

1. PROJECT SUMMARY

- **Provide a background for the initial purpose of the project, which includes the specific issue, problem, or need that was addressed by this project.**

The muscadine grape, *Vitis rotundifolia*, is a southern native grape found from Arkansas eastward and throughout the deep south. The first varieties of muscadine, including the famous 'Scuppernong' were wild vines which were propagated for commercial production. In the early 1900s (confirm this) formal muscadine breeding was undertaken by the USDA in conjunction with North Carolina State University and by the University of Georgia. Other programs have also been active at times including those at the University of Florida and Florida A & M University along with the private program operated by Isons Nursery in Georgia. The larger programs were most active from the 1940s to late 1980s. A number of improved varieties have developed from these efforts and these have served as the basis of the commercial production for fresh, juice, wine, and other uses. Two major areas of genetic advancement included the incorporation of perfect or self-fruitful flowers (allowing a single vine to pollinate itself thus not requiring a pollen source from a separate vine) in the USDA/NC State program, and large fruit size emphasized in the University of Georgia effort. Advances in the late 1970s and 1980s included fruit with thinner skins, crisper texture, reduced stem scars, and overall higher consumer acceptance. Only limited breeding has been done since the 1980s, however, and further improvements can be achieved to further expand muscadines as a fresh fruit choice.

Muscadine grapes are adapted to all but the extreme northwest corner of Arkansas, and are limited there by low winter temperatures. Although once commonly harvested from wild vines, improved varieties grown by farmers provide most of the fruit consumed currently. Muscadines offer a range of positive attributes. Foremost is that this is a native species, and has good to very high resistance to most diseases and insects that attack bunch grapes and can allow more sustainable production than their more common grape cousins which require 10-15 pesticide applications each growing season. Arkansans and southerners as a whole enjoy the very fruity flavor of muscadines, with a flavor profile much greater than most bunch grapes. The newer varieties (from the 1980s primarily) also have improved characters such as edible skins and a more desirable texture (crisper). Finally, muscadines are a good source of antioxidants, another potential marketing attribute. Expansion in production can occur if

growers have improved varieties with high quality fruit borne on adapted vines. This expanded production could be marketed at the ever-increasing number of farmers markets, with on-farm sales, and potentially in retail grocery store outlets. Currently, fresh muscadines are found in some grocery stores in Arkansas, but are from production primarily in Georgia.

- **Establish the motivation for this project by presenting the importance and timeliness of the project.**

The University of Arkansas Division of Agriculture began its fruit breeding program in 1964. This effort, founded and directed for many years by Dr. James N. Moore, has been one of the most productive fruit breeding efforts in the United States in recent years. More than 50 varieties of fruits have been commercialized from the program, including blackberries, table grapes, peaches, nectarines, strawberries, and blueberries. These variety options have expanded fruit potential for Arkansas growers allowing enhanced profitability. The newest variety development effort was begun in 2005 focusing on fresh-market muscadines. Reasons to begin this endeavor included a potential for muscadine production in the State, Division personnel with training and experience to successfully carry out breeding activities, and a potential to make some substantial genetic improvements in muscadine quality and adaptation to Arkansas conditions. Only a rather low level of breeding has been done on muscadines since the 1980s, and traits for increased quality have not been fully exploited. Further, the most adapted varieties are developed where breeding and selection is done in the region where the crop is grown, and breeding and testing at Clarksville and Hope will allow evaluation for diverse areas of Arkansas. All key components are in place for a successful breeding effort. The overall motivation for this project is to provide new, adapted muscadine varieties for Arkansas growers.

- **If the project built on a previously funded project with the SCBGP or SCBGP-FB describe how this project complimented and enhanced previously completed work.**

The project did not build on previously supported projects.

2. PROJECT APPROACH

- **Briefly summarize activities performed, targets, and/or performance goals achieved during the reporting period. Whenever possible, describe the work accomplished in both quantitative and qualitative terms. Include the significant results, accomplishments, conclusions and recommendations. Include favorable or unusual developments.**

The muscadine breeding program activities for funding proposed in 2011 were completely carried out as proposed in the 2010 proposal. These include:

-In spring a hybridization plan was developed by the project leader (J.R. Clark) and was designed to combine complementary traits from a range of parents. A total of 11 crosses were performed yielding just over 2,700 seeds with 1,209 seedlings field planted in 2012. These seedlings will be evaluated in 2014 and 2015. A total of 928 seedlings were field-planted from 2010 crosses. See Figs. 1-6 later in this report for pictures of some part of the breeding process.

-The 2010 seedlings were first evaluated in 2013, and nine selections were made from these seedlings. These selections included both bronze and black skin colors, with a range of flavors and ripening dates along with variation for other traits.

- New selections from 2010 were established at the Fruit Research Station Clarksville (FRS) or the SW Research and Extension Center, Hope in 2011, total of 14 in addition to the 31 selections planted at these locations prior from 2008-2009 evaluated seedlings. Since this time, additional selections made in subsequent years have been established at both sites.

-Seedlings from 2008 and 2009 crosses were evaluated resulting in 21 new selections in 2011. Further selection in 2012-2013 has resulted in 117 selections made in the program thus far.

-Evaluations were done on existing selections in place at FRS for a range of traits including fruit size, sweetness, dry scar percentage, flavor, crop potential, texture/skin, flavor and overall quality.

- All field work involving planting, training, pruning, irrigation, weed control, irrigation and other practices were carried out as needed at both locations and as proposed.

-The 2011 work led to overall further progress in this long-term breeding program. Several elite selections have been moved to advanced testing from that year's and subsequent year's efforts.

- **Present the significant contributions and role of project partners in the project.**

The project leader (John R Clark) led this funded effort in his role as project leader and University Professor in the Division of Agriculture. He designed all crosses, did all field evaluations, made the selections in seedling populations, evaluated the data, and determined progress made. Others involved with this project were the support staffs at the UA Fruit Research Station, Clarksville, and the Southwest Research and Extension Center, Hope. The staff members carried out tasks such as making the controlled

hybridizations, propagating vines from seeds or cuttings, planting, training, trellising and other activities in establishing the plants in the field along with some data collection on the selections in the program.

3. GOALS AND OUTCOMES ACHIEVED

- **Include the activities that were completed in order to achieve the performance goals and measurable outcomes for the project.**

The hybridization plan is the key foundation to breeding progress and requires adequate genetic variation and breeding skills to make progress, The 2011 plan was developed by the project leader (J.R. Clark) and was designed to combine complementary traits from a range of parents. A total of 11 crosses were performed yielding just over 2,700 seeds with 1,209 seedlings field planted in 2012. These seedlings will be evaluated in 2014 and 2015. A total of 928 seedlings were field-planted from 2010 crosses.

As in any progressive and active breeding program, each year requires an annual additive but repetitive process of crossing, selecting, identification of the best selections to advance to further trial, use as subsequent parents, or discarding those seedlings or selections not worthy of keeping. The 2010 seedlings were first evaluated in 2013, and nine selections were made from these seedlings. These selections included both bronze and black skin colors, with a range of flavors and ripening dates along with variation for other traits. Those selections made in 2013 will be further evaluated, and any with outstanding characteristics will be considered for release in approximately 2018-2022.

The new selections from 2010 were established at the Fruit Research Station Clarksville (FRS) or the SW Research and Extension Center, Hope in 2011, total of 14 in addition to the 31 selections planted at these locations prior from 2008-2009 evaluated seedlings. Since this time, additional selections made in subsequent years have been established at both sites.

In 2011, seedlings from 2008 and 2009 crosses were evaluated resulting in 21 new selections in 2011. Further selection in 2012-2013 has resulted in 117 selections made in the program thus far. This is considered good progress in this or any breeding program of this size and crop type.

Further, evaluations were done on existing selections in place at FRS for a range of traits including fruit size, sweetness, dry scar percentage, flavor, crop potential, texture/skin, flavor and overall quality. The annual evaluations are critical to move selections either toward further evaluation toward release or removal due to one or more trait weaknesses.

A key part of this project activity is the work to conduct the annual breeding cycle. All field work involving planting, training, pruning, irrigation, weed control, irrigation and other practices were carried out as needed at both locations and as proposed.

- **If outcome measures were long term, summarize the progress that has been made towards achievement.**

The 2011 work led to overall further progress in this long-term breeding program. Several elite selections were identified for further close evaluation. This is a LONG TERM endeavor, and good progress as proposed was carried out and completed. The annual work however is only one of up to 20 years of annual effort to go from the crossing to public release and naming of a variety.

- **Provide a comparison of actual accomplishments with the goals established for the reporting period.**

All goals were accomplished as outlined in the proposal and reporting in the annual report.

- **Clearly convey progress toward achieving outcomes by illustrating baseline data that has been gathered to date and showing the progress toward achieving set targets.**

As described above all activities proposed were carried out. Documents at the end of this report reflect data collected, selections made, crosses completed for 2011. As this is a long-term project, each year's efforts build on the prior year, leading to cultivar improvement. Thus the 2011 efforts have yielded progress in subsequent years through 2013. Progress in the project for 2012 and 2013 have continued in a similar manner

6. BENEFICIARIES

- **Provide a description of the groups and other operations that benefited from the completion of this project's accomplishments.**

The intended beneficiaries were primarily twofold: growers and consumers. The initial beneficiary, the grower, will benefit from this project by from having a high-quality, adapted variety to produce fruit; this is coming along nicely tho is long term as described previously. Consumers will benefit due an enhanced eating experience, along with fresher fruit from local production. Due to the long-term nature of the breeding

effort, the measureable outputs cannot be reported until a variety is publicly released as discussed prior. Preliminary results were released at the 2013 field day during the presentation segment. They were disseminated through power point to the 40+ attendees.

- **Clearly state the quantitative data that concerns the beneficiaries affected by the project's accomplishments and/or the potential economic impact of the project.**

Data on production of fresh-market muscadines (the primary fruit type targeted by this project) is not well documented in Arkansas. This is due to no viable statistics being gathered on this crop by statistical entities. Thus, there is no quantitative data to reflect impact at this point. It is known by observation and grower inquiry that muscadines are produced over much of the state, and are often found in farmers markets, and this marketing could be expanded to retail grocery store markets if more substantial plantings could be made of adapted varieties.

7. LESSONS LEARNED

- **Offer insights into the lessons learned by the project staff as a result of completing this project. This section is meant to illustrate the positive and negative results and conclusions for the project.**

There were limited "lessons learned" due to the nature of this project as it was not a project on cause and effect or the result of some treatment or practice in a targeted crop or entity. Since the Division's fruit breeding program has been operating since 1964, and mechanics of the program have been experienced year after year, no new items of major substance were learned in the 2011 activities. However, since this is a newer breeding effort, initiated in the mid-2000s, each year continues to yield practice and completion of the breeding cycle which was achieved in 2011.

- **Provide unexpected outcomes or results that were an effect of implementing this project.**

There were no unexpected outcomes in the project activities for 2011.

- **If goals or outcome measures were not achieved, identify and share the lessons learned to help others expedite problem-solving.**

Outcomes were achieved as envisioned. Due to the long-term nature of the 2011 funded work, the commercial outcome is still several years from being realized. However, good progress is being made as determined any annual, additive progress in the breeding effort.

8. CONTACT PERSON

John R. Clark,
University Professor,
University of Arkansas Division of Agriculture
479-575-2810
jrclark@uark.edu

9. ADDITIONAL INFORMATION

Pictures of the breeding progress are provided to help envision the step by step annual procedures:



Fig. 1. Emasculation of a muscadine grape cluster preparing for hybridization.



Fig.2. The pollination process there the emasculated cluster is pollinated with the complementary male parent pollen to produce the hybrid seeds.



Fig. 3. The protected, pollinated cluster, developing the hybrid berries.



Fig. 4. Hybrid seedlings in the greenhouse prior to field planting at the Fruit Research Station.



Fig 5. Seedlings in the field after planting and beginning the training process.



Fig 6. Seedlings at the early mature stage for fruit evaluation and selection.

Muscadine Grape Crossing Plan 2011 -

Updated on June 22, 2012

Progeny	Seeds	Plants	Objectives
1101	240	73	both parents PF; black x bronze; wanting to increase size in SH type vine and mix of colors(Crossed both ways)
1102	285	48	high quality black pistillate x different background bronze; hope to increase quality with some diversity(Male parent changed from AM-40)
1103	400	164	high quality PF black x SH lobed foliage bronze med-lg; first cross to bring in 1665 background in UA seln cross(Reversed Parents)
1104	110	83	lg PF black exc quality x bronze with good crop size and crop from cross; best of this cross and for diversity in muscadine background
1105	270	172	high quality PF bronze med lg x bronze largest of SH-derived selns with lobed leaves; anticipate improved texture; note is half sib cross of Supreme
1106	305	165	both large perfect flowered and large is target; black x bronze; scar will likely vary; don't know 33-2-1 so not sure of inbreeding degree; repeat of 2010 cross

with few seedlings(**Reversed Parents**)

1107 275 105

black PF x black PF; lg; good scar intended; hope to have good quality overall; some health concern from AM-10 with curled leaves(**Crossed both ways**)

1108 185 74

black PF high quality AR seln x new FL variety black and PF with excellent flavor; should be med large(**Crossed both ways**)

1109 305 128

bronze red x black GA adv seln; both perfect flowered(**Crossed both ways**)

1110 265 94

black lobed leaf med lg with exc flavor x large black but thick skin; both PF(**Crossed both ways**)

1111 95 53

Bronze PF cv x med lg, black exc flavor lobed leaf seln to expand on this type of plant with GV background(**Reversed Parents**)

**Total Approximate Seed Count =
2,700**

Total Plants in Field = 1,209

Muscadine Selection Data 2011 (Ascending)

Selection	Flower Type	LOC ^z	First Bloom	Full Bloom	Harvest Date	Crop Load	% SS	Wt G/25	Avg Wt/G	% Dry	Scar	Flavor	Attract	Skin	Texture	Vine Type ^y
AM-1	PF	O	10-Jun	14-Jun	1-Sep	2	23.4	128	5.1	76	4	2	3	2	P	
AM-2	PF	O	3-Jun	20-Jun	8-Sep	2	16.0	148	5.9	72	4	2	2	2	P	
AM-3	PF	O	6-Jun	20-Jun	8-Sep	3	18.0	122	4.9	96	3	2	2	2	P	
AM-4	PF	O	30-May	14-Jun	8-Sep	3	18.4	144	5.8	56	3	3	2	2	O	
AM-5	PF	O	6-Jun	20-Jun	8-Sep	3	20.4	198	7.9	100	4	3	3	2	O	
AM-6	PF	O	1-Jun	17-Jun	8-Sep	2	20.8	166	6.6	100	3	3	2	2	O	
AM-7	PF	O	1-Jun	17-Jun	8-Sep	3	17.4	258	10.3	76	4	4	2	3	O	
AM-8	PF	O	8-Jun	17-Jun	8-Sep	1	19.0	166	6.6	100	4	3	2	3	O	
AM-9	PF	O	3-Jun	17-Jun	8-Sep	3	19.8	260	10.4	100	4	4	2	3	O	
AM-10	PF	O	6-Jun	17-Jun	8-Sep	2	15.0	112	4.5	92	3	2	2	2	O	
AM-11	PF	O	1-Jun	17-Jun	8-Sep	2	19.2	220	8.8	48	5	4	3	3	O	
AM-12	PF	O	8-Jun	14-Jun	1-Sep	1	23.8	80	3.2	92	3	1	2	2	P	
AM-13	PF	O	1-Jun	14-Jun	8-Sep	2	19.4	146	5.8	44	4	2	2	2	O	
AM-14	PIST	O	6-Jun	14-Jun	26-Aug	1	20.2	176	7.0	100	3	3	3	2	O	
AM-15	PF	O	30-May	14-Jun	26-Aug	3	19.4	176	7.0	48	3	3	4	3	P	
AM-16	PF	O	6-Jun	17-Jun	8-Sep	1	26.2	106	4.2	72	3	2	3	2	P	
AM-17	PIST	O	6-Jun	14-Jun	8-Sep	1	18.6	174	7.0	92	4	2	2	2	O	
AM-18	PF	O	3-Jun	20-Jun	1-Sep	4	16.2	276	11.0	88	3	4	3	3	O	
AM-19	PIST	O	6-Jun	13-Jun	*	*	*	*	*	*	*	*	*	*	O	
AM-20	PF	O	1-Jun	23-Jun	8-Sep	2	20.2	144	5.8	76	3	3	3	2	O	
AM-21	PF	O	3-Jun	14-Jun	8-Sep	1	23.0	198	7.9	76	2	2	2	2	O	
AM-22	PIST	O	3-Jun	14-Jun	8-Sep	1	16.4	330	13.2	84	3	4	2	2	O	
AM-23	PIST	O	3-Jun	20-Jun	8-Sep	1	17.8	190	7.6	72	4	3	3	3	O	
AM-24	PF	O	3-Jun	10-Jun	8-Sep	2	18.4	194	7.8	28	4	3	2	2	O	
AM-25	PIST	O	3-Jun	10-Jun	*	*	*	*	*	*	*	*	*	*	O	
AM-26	PF	O	10-Jun	23-Jun	8-Sep	3	18.8	252	10.1	88	4	3	3	2	O	
AM-27	PF	O	6-Jun	27-Jun	8-Sep	3	18.6	188	7.5	88	4	3	2	2	O	
AM-28	PIST	O	6-Jun	14-Jun	14-Sep	2	19.2	296	11.8	92	4	3	2	2	O	
AM-29	PIST	O	3-Jun	14-Jun	*	*	*	*	*	*	*	*	*	*	O	
AM-30	PF	O	3-Jun	20-Jun	14-Sep	4	18.2	160	6.4	80	3	3	2	2	O	
AM-31	PF	O	6-Jun	20-Jun	8-Sep	1	22.2	148	5.9	80	3	3	2	2	O	
AM-32	PIST	O	6-Jun	14-Jun	8-Sep	*	*	*	*	*	*	*	*	*	O	
AM-33	PF	O	10-Jun	17-Jun	8-Sep	2	19.2	50	2.0	60	3	1	3	3	O	
AM-34	PIST	O	10-Jun	20-Jun	8-Sep	2	22.0	258	10.3	76	4	4	2	2	O	
AM-35	PIST	O	10-Jun	17-Jun	8-Sep	1	18.0	192	7.7	96	3	3	2	2	O	
AM-36	PF	O	6-Jun	17-Jun	8-Sep	3	19.0	156	6.2	72	3	3	2	2	O	
AM-37	PIST	O	6-Jun	14-Jun	8-Sep	1	23.2	140	5.6	96	3	3	2	2	O	
AM-38	PF	O	3-Jun	14-Jun	8-Sep	1	17.6	182	7.3	88	4	2	3	4	O	
AM-39	PF	O	6-Jun	20-Jun	8-Sep	2	16.6	250	10.0	84	4	3	3	2	O	
AM-40	PIST	O	10-Jun	14-Jun	*	*	*	*	*	*	*	*	*	*	O	
AM-41	PF	O	1-Jun	14-Jun	14-Sep	3	19.8	134	5.4	72	4	2	3	3	O	
AM-42	PIST	O	6-Jun	14-Jun	1-Sep	2	19.0	192	7.7	84	3	2	2	3	O	
AM-43	PF	O	8-Jun	17-Jun	8-Sep	*	*	*	*	*	*	*	*	*	O	
AM-44	PF	O	3-Jun	17-Jun	8-Sep	*	*	*	*	*	*	*	*	*	O	
AM-45	PF	O	3-Jun	14-Jun	14-Sep	3	24.8	114	4.6	56	3	2	2	2	O	
Black Beauty	PIST	P	6-Jun	23-Jun	14-Sep	3	18.2	270	10.8	60	4	3	3	3	P	
Black Fry	PIST	P	6-Jun	20-Jun	17-Sep	3	19.0	176	7.0	44	4	3	2	2	P	
Carlos	PF	P	6-Jun	17-Jun	9-Sep	4	17.4	116	4.6	92	3	2	2	2	P	
Cowart	PIST	P	10-Jun	23-Jun	14-Sep	3	22.0	110	4.4	32	3	2	2	2	P	
Darlene	PIST	P	10-Jun	20-Jun	14-Sep	2	18.8	270	10.8	64	2	3	2	2	P	
Delicious	PF	P	30-May	10-Jun	1-Sep	3	20.4	134	5.4	84	3	2	2	2	P	
Doreen	PF	P	6-Jun	23-Jun	14-Sep	4	21.4	84	3.4	100	3	2	3	2	P	
Eudora	PIST	P	10-Jun	17-Jun	*	*	*	*	*	*	*	*	*	*	*	
Fry	Pist	P	10-Jun	17-Jun	8-Sep	1	20.4	168	6.7	24	3	2	1	2	P	
GA 05-1-38	PF	P	1-Jun	14-Jun	14-Sep	3	15.0	216	8.6	68	4	3	3	3	P	
GA 33-2-1	PIST	P	6-Jun	20-Jun	9-Sep	1	21.6	256	10.2	84	4	3	3	3	P	
Granny Vale	PF	P	3-Jun	12-Jun	14-Sep	3	20.6	138	5.5	76	4	3	3	3	P	
Ison	PF	P	6-Jun	14-Jun	9-Sep	3	18.2	148	5.9	96	4	3	2	2	P	
NC 67A015-17	PF	P	30-May	14-Jun	9-Sep	2	17.8	80	3.2	96	3	2	2	2	P	
NC 67A015-26	PF	P	3-Jun	23-Jun	9-Sep	3	19.6	86	3.4	76	4	2	2	2	P	
Nesbitt	PF	P	3-Jun	20-Jun	14-Sep	4	17.0	176	7.0	32	4	4	3	2	P	
Noble	PF	P	3-Jun	10-Jun	8-Sep	2	18.4	68	2.7	40	3	1	2	2	P	
Southern Home	PF	P	10-Jun	20-Jun	9-Sep	3	18.0	114	4.6	40	3	2	3	3	P	
Southern Jewell	PF	P	6-Jun	10-Jun	1-Sep	2	19.2	146	5.8	68	3	2	3	2	P	
Sterling	PF	P	30-May	14-Jun	9-Sep	3	16.2	174	7.0	88	3	3	2	2	P	
SugerGate	PIST	P	6-Jun	14-Jun	1-Sep	2	20.8	250	10.0	44	4	4	2	2	P	
Summit	PIST	P	10-Jun	17-Jun	8-Sep	1	23.2	206	8.2	84	4	2	2	2	P	
Supreme	PIST	P	1-Jun	20-Jun	14-Sep	4	20.0	270	10.8	36	4	4	3	2	P	
Tara	PF	P	3-Jun	10-Jun	8-Sep	3	27.2	124	5.0	100	3	3	2	2	P	

2011 Muscadine Selections -

AM-46 9/7; black; med; nice texture; ok skin; v lg crop for population and year; nice flavor and vine.

AM-47 9/7; black; med; maple leaf shape; v nice texture and flavor; large and nicer than So Home; light crop; exc vine.

AM-48 9/7; black; med-lg and reason selected; v nice skin and texture; v light crop; standard muscadine leaf shape.

AM-49 9/7; black; med; v good skin and among the best seen in muscadines; poor crop; standard muscadine leaf shape. P for skin?

AM-50 9/7; bronze; v lg; v light crop; exc flavor; nice texture.

AM-51 9/7; bronze; lg; very nice flavor; good quality; v lt crop; likely best of population.

AM-52 9/7; bronze; med-lg; exc flavor; nice skin; nice crop.

AM-53 9/7; bronze; elongated oval shape and more elongated than most of this shape type in program and reason selected; fair crop and vine; maple leaf shape.

AM-54 9/7; bronze; elongated oval; exc vine; maple leaf shape; good crop; nice flavor and texture.

AM-55 9/7; bronze; oval; lg for this type of shape; maple leaf shape; v lt crop; nice quality; exc vine.

AM-56 9/7; bronze; maple leaf shape; clusters are larger than usual on muscadine and P for this; ok crop; exc vine.

AM-57 9/13; bronze to red; med-lg; crisp, nice skin; ok flavor and crop and vine; interesting grape.

AM-58 9/13; black; med-lg; exc crop; nice quality berry; v even ripe; good vine.

AM-59 9/13; black; med-lg; oval; one of larger So Home types seen; maple leaf shape; light crop.

AM-60 9/13; black; med-lg; crisp; oval; exc crop; standard muscadine leaf shape.

AM-61 9/13; black; med-lg; exc skin and texture; maybe largest So Home type in black; maple leaf shape; exc flavor; nice crop.

AM-62 9/13; bronze; med-lg; exc flavor; improved skin; exc crop; some berries reddish-black; PERFECT FLOWERED per Jennifer's evaluation; population 0716, vine 038.

AM-63 9/13; black; med-lg; ave skin; exc flavor; lg crop; v even ripe;
FEMALE/PISTILLATE FLOWER per Jennifer's evaluation; population 0717 vine 041.

AM-64 9/13; black; huge crop and reason selected; med; exc flavor; improved texture.

AM-65 9/13; black; med-lg; exc quality; improved skin; huge crop; exc vine.

AM-66 9/13; black; unique grape – oval to oblong; larger clusters than normal; crisp;
interesting flavor; standard muscadine leaf shape; exc crop and vine.

Project 5: “Becoming a Beekeeper to Raising your own Queens”, Honey, a Small Farmers Specialty Crop

Project Summary:

The decline of honeybees prompted the issue that many people were interested in beekeeping. The first purpose of this project was to provide training through a beginner's beekeeping course and workshops. For the beginners, they were able to use the beginners course as a stepping stone to continue in the enterprise of keeping bees and producing honey.

With increases of the skills and abilities of beekeeping, new and present beekeepers needed assistance on rearing their own queen bees. This would improve their ability to minimize their financial losses due to bee hive mortality. Beekeepers in the workshop were able to master the skill of raising their own queens. Their learning this skill had the potential of saving 18 to 25 dollars per queen bought in the open market as most of their queens were purchased from out of Arkansas.

Project Approach:

Course class—beginners beekeeping classes was held for present and new beekeepers in 2010, 2011, 2012, and 2013. Central Arkansas Beekeepers Association (CABA) and Lady Central Arkansas Beekeepers Association (LCABA) supported during each year sessions.

Workshop—After course classes in March each year, many new beekeepers participated in practical practices in April or May each year. CABA and LCABA also supported Arkansas Beekeepers Association workshop in Little Rock in 2011 and 2012.

Goals and Outcomes Achieved:

In 2010, 50 new beekeepers participated in a three day class (March 29, 30 and April 1), and 35 beekeepers learned beekeeping practice at a workshop in April. In 2011, 85 new beekeepers participated in a class (March 14, 15, and 17) and 32 people participated in a workshop (April 18 and 21). In 2012, 77 people participated in a class (March 19, 20, and 23) and 24 people participated in a workshop (May). In 2013, 65 new beekeepers were in the class (March 22 and 23) and 15 beekeepers participated in the workshop.

The weekend timing allowed folks to attend who could not in the past.

Our teachers included Jon Zawislak with the UA Cooperative Extension Service, Betty Scott and Aman Minick with the Arkansas Plant Board Apiary Section and Harvey Johnston our CABA program chair.

It is believed that over 50% of the attendees went on to become registered beekeepers by looking at registrations through the Arkansas State Plant Board, however in Arkansas not all beekeepers become registered even though state law requires them to. As for the queen rearing, it is believed that 70% of workshop attendees went on to become licensed, but the issue with licensing is the same as above.

Beneficiaries:

CABA and LCABA members were added experiences to communicate with local community. Workshop and beginners beekeeping classes increased community's interests in beekeeping and delivered valuable pollinator's roles and knowledge of pollinators. After the project started, the number of CABA and LCABA members increased 25 to 30% each year. Currently, both associations have more than 250 acting beekeepers in Central Arkansas region. It is believed that the more than 250 members of both groups benefited from not only a stronger industry and stronger groups, but also from a greater presence as the ASPB had to hire an additional employee do to the increase in the number of state beekeepers.

Lessons Learned:

Interests of the beekeeping were gradually increased in local and national wide community. The project helped those who interested in the beekeeping and bee information. Many beekeepers also learned and built more experiences and knowledge to improve healthier and stronger hives from pests and diseases.

Contact Person:

Dr. Yong Park

870-575-7245

parky@uapb.edu

Additional Information:

Since the project delayed an expected workshop for intermediate or advanced beekeepers, Dr. Park and CABA plans to introduce a microscopic workshop for pathogens of honey bee diseases and queen breeding.

Project 6: Produce Marketing Association Fresh Summit Show

Project Summary

This project was also covered in agreement 1054.

Five specialty crop companies participated in the Arkansas Agricultural Department's (AAD) booth at the 2011 Produce Marketing Association (PMA) Fresh Summit International Convention and Exposition in Atlanta, GA on October 14-17th, 2011. The companies are:

- Mathews Ridgeview Farms
- Clanton Farms
- Post Familie Winery
- Old Dominion Produce
- Delta Blues

The companies were surveyed and the results are given under the goals section.

Project Approach

In January 2011, participants were recruited by a letter and email to all Arkansas producers who were GAP/GHP inspected or that AAD had knowledge of and were of a size that could benefit from the event.

Five specialty crop companies participated in the Arkansas Agricultural Department's (AAD) booth at the 2011 Produce Marketing Association (PMA) Fresh Summit International Convention and Exposition in Atlanta, GA on October 14-17th, 2011. The companies are:

- Mathews Ridgeview Farms
- Clanton Farms
- Post Familie Winery
- Old Dominion Produce
- Delta Blues

Old Dominion and Delta Blues were new participants in the AAD booth at the PMA Fresh Summit.

A survey was sent to all participants after the event and response were due by January 9, 2012. A copy of the survey is below:

2011 PMA FRESH SUMMIT
Atlanta, GA

1. WAS THIS SHOW HELPFUL?

1 2 3 4 5 6 7 8 9 10
YES  No

2. WILL YOU RETURN NEXT YEAR?

1 2 3 4 5 6 7 8 9 10
YES  No

3. DID YOU THINK ATTENDING "DID OR WILL" INCREASE YOUR SALES?

1 2 3 4 5 6 7 8 9 10
YES  No

4. ARE YOU HAPPY WITH THE BOOTH SETUP?

YES NO: _____

5. HOW MANY SALES LEADS OR POTENTIAL SALES LEADS WERE MADE?

6. HOW MANY CONTACTS WERE MADE? -

7. HOW MANY LEADS OF:

NATIONAL: _____

REGIONAL: _____

LOCAL: _____

8. HOW ELSE WAS THIS SHOW HELPFUL?

9. SUGGESTIONS:

Goals and Outcomes Achieved

AAD achieved its goals and outcomes by constructing a booth at the 2011 PMA show and recording 15 potential sales leads as indicated in the survey results below.

Survey Results:

1. Average Score 2.5
2. Average Score 2.0
3. Average Score 2.25
4. All attendees responded with "Yes".
5. Average sales leads were 16.75
6. Average contacts were 30
7. Averages were: NATIONAL: 10 REGIONAL: 4 LOCAL: 2
8. One of the response that was commonly reported was, " This show puts me in touch with people who are outside of the buyers in Arkansas".

Verbal reports from participants and the notable increase in the number of buyers visiting the AAD booth indicate participation in the AAD booth was successful and beneficial for the companies. The increase in the traffic at the AAD booth is a direct result of the better booth location which AAD earned by being a five year participant at the PMA Fresh Summit. All participants have indicated to AAD they want to participate in the AAD booth at the 2012 PMA Fresh Summit.

Beneficiaries

Beneficiaries were the specialty crop producers of Arkansas and especially those that attended the show with AAD. When Arkansas has a presence at these national shows all of Arkansas can benefit.

Lessons Learned

AAD has been attending this show and constructing this booth for a number of years now and thus most of the problems have been worked out.

Contact Person

Zachary Taylor
Director of Marketing
Arkansas Agriculture Department
#1 Natural Resource Drive
Little Rock, Arkansas 72205
Phone: (501) 219-6324
Fax: (501) 312-7052
E-mail: Zachary.Taylor@aad.ar.gov



Project 7: Farmers' Market, U-Pick, and Farm Stand Promotion Cost Assistance

Project Summary-

Farmers' Markets, U-Pick Farms and Farm Stands lacked resources to properly promote their operations. This project continued the program set forth in the 2008 SCBGP-FB to provide matching funds to each for signage and promotion. Over 15 qualified applicants had their promotion costs reimbursed. Assistance was provided in the form of a reimbursement of 50 percent of the cost of approved advertising and promotion up to \$500

Project Approach-

Starting in march of 2011 AAD_disturbed a letter and application for the *Arkansas Farmers' Market, U-Pick and Farm-stand Promotion Cost-Share Assistance Program*. Information also went out via listserve and was repeatedly mentioned at workshops and meetings. This program allows Farmers' Markets; U-Pick Farms and Farm Stands to

ARKANSAS AGRICULTURE DEPARTMENT

MIKE BIEBE
GOVERNOR

RICHARD BILL
SECRETARY OF
AGRICULTURE



#1 NATIONAL HIGHWAY DRIVE
LITTLE ROCK, AR 72203

PHONE: (501) 683-4231
FAX: (501) 683-4252

E-MAIL: SECRETARY@AAD.AR.GOV

Farmers' Market, U-Pick and Farm-stand Promotion Cost-Share Assistance Program

The *Farmers' Market, U-Pick and Farm-stand Promotion Cost-Share Assistance Program* (PAP) was created by the Arkansas Agriculture Department (AAD) to aid in drawing attention to these wonderful places to find fresh Arkansas farm produce. PAP will refund 50%, up to \$500, of promotion expenses paid during the 2010 calendar year. Money for PAP was obtained through the USDA Specialty Crop Block Grant Program and is available on a first come, first serve basis until the grant is expended.

Definitions

For the purpose of this program:

a "Farmers' Market" is defined to be a location where:

- a farmer may offer for sale the produce of his or her farm at least weekly during the months of May, June, July and August; and
- the consent to act as a vendor is governed by an organizing body; and
- the manner by which business is to be conducted is published by the organizing body in freely obtainable bylaws or market guidelines; and
- on any given market day, at least 50% of the vendors present are farmers.

a "U-Pick" is defined to be a farm operated for the purpose of obtaining revenue from the sale of that farm's production gathered from the field by customers not in the employ of the farm operation.

a "Farm-stand" is defined to be an established location on a farm where direct to consumer sales of the farm's own produce are made on a regular basis.

"Promotion" may be, but is not limited to:

Signage listing name, seasons and times of operation, and/or location.

Local advertising including print, radio, and television. **However, advertising must promote specialty crops (fruit, vegetable, nut, floriculture, or horticulture plants)! IT MAY NOT promote or mention Livestock, Dairy, Arts & Crafts, Eggs, Cheese or anything that is not a specialty crop.**

Application Procedures

Farmers' Markets, U-Picks, or Farm-stands wishing to apply to AAD for PAP re-imbursement assistance should complete the application **on the reverse** and submit along with a copy of the promotion as it ran or a photograph of signage in place, a copy of an itemized invoice showing the cost of the promotion; proof of payment; and a completed federal form W-9. All documents must be in the name of the entity for which the promotion was conducted.

apply for a reimbursement of 50 percent of the cost of AAD approved advertising and promotion up to \$500. A copy of the letter and application is below.

Farmers' Market, U-Pick and Farm-stand Promotion Cost-Share Assistance Program Application

Please Print

Business Name: _____
(Must Match W-9)

Business Address: _____
(street address, city, zip)

Contact Name: _____ Phone Number _____

Mailing Address: _____
(address, city, state, zip)

Email Address: _____

Date Promotion Began: _____ Date Promotion Ended: _____
(If signage, date construction began) (If signage, date construction ended)

Total Cost of Promotion(s) Conducted in 2012: \$ _____
(Program will provide cost-share assistance for 50% up to \$500 for approved promotions conducted in calendar year 2012)

Signature: _____ Date: _____

Attach the following to this completed application:

1. Copy of promotion as it ran or a photograph of signage in place.
2. An itemized invoice showing cost(s) of promotion(s).
3. Proof of payment.
4. A signed and completed federal form W-9.

Mail this application and all other required documents to:

Promotion Cost- Share Assistance Program
Arkansas Agriculture Department
1 Natural Resources Drive
Little Rock, AR 72205

For more information contact Zachary Taylor, Director of Marketing, Arkansas Agriculture Department at zachary.taylor@aad.ar.gov or 501-225-1598.

As of 12/28/2013, 16 U-Pick/Farm Stand's and Farmers' Markets have applied for reimbursement from ADD and 15 were granted reimbursement . Only 12 entities have received the max reimbursement of \$500.00. Organizations that applied and received funds in 2011 were allowed to reapply for 2012 and 2013.

Some of the entities that have received reimbursement are:

East AR RC&D for ASU Regional Farmers Market

Rural Mountain Producers Exchange - Fayetteville Farmers Market

Rural Mountain Producers Exchange - Mill District Market

Springdale Farmers' Market Inc. (Jim McGuire)
BarnHill Orchards
North Pulaski Farms
Downtown Bentonville
Hillcrest Farmers Market/Pulaski Heights Baptist Church
Conway Farmers' Market
Piney Fork Farms
Main Street Siloam
Suprasistence Farm
Sevier County Farmers
Springdale Farmers' Market Inc
Gresham Farm

Goals and Outcomes Achieved:

Financial assistance was made available for signage and other forms of promotion to 15 Farmers' Markets, U-Pick, and Farm Stands.

A survey was conducted and the results are as follows:

Farmers' Market, U-pick, Farm Stand Promotion Cost Assistance

SURVEY

On a scale of 1 to 10 (10 being highly likely, 1 being highly unlikely) please rank how likely you are to use this info.

1. Did this program help to promote your sales?



Avg Reply was 8.5

2. How likely are to recommend a continuance of this program?



Avg Reply was 9.25

3. If offered again would you use this program?



Avg Reply was 9.75

Beneficiaries:

This project benefited the specialty crop farmers of Arkansas who rely on direct to consumer sales by allowing them an avenue to promote the sales of their products. It is hard to pinpoint the number of specialty crop farmers that benefited from this as some of the reimbursements went to farmer groups instead of just an individual farmer. Arkansas does not actually have a registry of all farmers for the state and even the state director of USDA's NASS for Arkansas has stated that their records are not complete. However, it is believed that at least 100 Specialty Crop farmers directly and indirectly benefited from this.

Lessons Learned:

The main lesson learned is that it is hard to get farmers to take part in this promotion.

Contact Person:

Zachary Taylor, Director of Marketing
Arkansas Agriculture Department
501-219-6324
Zachary.taylor@aad.ar.gov

Project 9: Specialty Crop Educational Conference Fund Program

PROJECT SUMMARY

In past SCBGP-FB proposals producers groups had requested funding to host educational conferences and to attend educational workshops for their respective area of production. However, one disadvantage was that a group would need to know almost a year in advance when a workshop was to be held so that they could submit a proposal to request funding. This proposal allowed more than one specific group to be able to request funding for educational workshops without a yearlong wait for funding.

Four Functions were funded through this project.

PROJECT APPROACH

Starting in the spring of 2011, AAD started informing eligible organizations of the available of the funding. Three groups exercised the offer of the funding. Those groups were:

- Conway County Extension Service in partnership with the Conway Farmers' Market
- The Arkansas Farmers Market Association
- Certified Arkansas Farmers Market Association.'

The Conway County group hosted a workshop for the specialty crop growers in the county and used the funds granted by AAD to provided manuals for growers attending the workshop. This workshop covered modern and developing production practices, along with disease/ Pest control, and how to better market specialty crops. Over 20 producers attended, and all farmers reported that they felt their knowledge level was increased.

The AFMA used their funds to hold meetings and workshops during the Arkansas Flower and Garden show. They brought in a specialty crop farmer to talk about the development of new markets for specialty crops along with officials to talk about food safety and the use of cottage food products to add

value to specialty crops. They had over 35 specialty crop farmers attend. 18 of those SC farmers commented that they were going to use the new cottage food rule to add value to their specialty crops.

The CAFM also used their funds to hold meetings and workshops during the Arkansas Flower and Garden Show. They brought in an organic farmer from New York State that produces specialty crops and provides his product to high end customers in New York City. He talked about hurdles that have to be overcome while also talking about planning and investment.

GOALS AND OUTCOMES ACHIEVED

Groups who used the funds were surveyed and the results are below:

SPECIALTY CROP EDUCATIONAL CONFERENCE FUND PROGRAM SURVEY

On a scale of 1 to 10 (10 being highly likely, 1 being highly unlikely) please rank how likely you are to use this info.

1. Did this program help to promote your sales?



Avg Reply was 9.5

2. How likely are to recommend a continuance of this program?



Avg Reply was 10.00

3. If offered again would you use this program?



Avg Reply was 10.00

BENEFICIARIES

The beneficiaries of this project are the groups and their members who used this project to fund continuing education of its members.

LESSONS LEARNED

The main lesson learned by this project is to make sure that those wanting to utilize the project understand the requirements. In addition, when a group asks to use the funds a representative of AAD needs to attend the event to verify that they are following the rules of the project.

CONTACT PERSON

Zachary Taylor, Director of Marketing
Arkansas Agriculture Department
501-219-6324
Zachary.taylor@aad.ar.gov

Project 10: Plant Something Arkansas Awareness Campaign Final Report

PROJECT SUMMARY –

The Arkansas Green Industry Association (AGIA) used Arkansas Agriculture Department grant funds to promote and encourage the production, sale and use of state-grown and regionally-adapted landscape plant materials. Our campaign employed the tag line “Plant Something,” a simple, catchy imperative aimed at the consumer to encourage buying and using horticultural products. The same program was successfully marketed by the Arizona Nursery Association’s “Plant Something” program, which also used Specialty Crop Grant Funds.

As the premier professional trade association for growers, retailers, and contractors in the industry since 1965, AGIA is uniquely positioned to efficiently promote and encourage the use of Arkansas-grown specialty crop horticultural products. Employing our contracts in the industry and with green industry consumers, we feel the AGIA successfully used AAD’s funds to promote horticultural products and encourage the green industry market.

SPECIFIC ISSUES, PROBLEMS OR NEEDS

Ornamental horticultural crops, in general, are marketed less than other agricultural crops such as rice, soybeans, fruits and vegetables. A campaign to promote the planting and purchase of ornamental crops was needed to aid growers and garden centers. It needed to promote the benefits to the community of a nonfood horticultural product.

With the current consumer interest in green living and local grown products, the *Plant Something* campaign sought to capitalize on the benefits and use of ornamental horticultural products to everyone from millennials to retirees. Exercise, beautification, supporting local producers, home and lawn improvements, etc., were important and timely aspects of the ad campaign.

PROJECT APPROACH –

Our campaign was launched using the marketing materials developed in Arizona as a jump-off point. Our broad-based marketing effort placed a dual emphasis on educating our members about the program and creating consumer demand with Plant Something marketing.

ACTIVITIES PERFORMED –

For our launch, we published a run of “Plant Something” brochures, posters, banners, buttons, and window clings which were distributed to consumers at the 2013 AGIA PLANTS industry trade show in January and the 2013 Arkansas Flower and Garden Show. Marketing materials were available to order at the trade shows and throughout the 2013 growing season.

These brochures dovetailed with our social media campaign. “Plant Something Arkansas” was launched in April 2013 on Facebook, Twitter, and other social media platforms. The campaign encouraged consumer interaction by posting Plant Something followers’ photos of their personal greenhouses, gardens, and other examples of ornamental horticulture. We developed a solid fan base and successfully encouraged user interaction, culminating in a contest for the best use of horticultural products in the garden. The association continues to send out messages about plants and their uses to our social media base.

We invested heavily in newspaper advertising, negotiating contracts through the Arkansas Press Association (APA) which used the grant funds resourcefully and frugally. A cooperative advertising agreement between the 1,400 newspapers in Arkansas offered us an opportunity to place print advertisements in unsold advertisement space at a deep discount, approximately fifty cents on the dollar. Our coverage was state-wide and the APA agreement allowed us a deep integration in the print market and steady presence in both major print presences to even the smallest community newspapers.

We are following up on the program through reports and meetings with AGIA members, as well as stories in the AGIA Plant Arkansas Bulletin (a supplement to our trade publication), which assists members in following the progress of the program and facilitates their own social media campaign development using tag lines and materials already established by Plant Something.

GOALS AND OUTCOMES ACHIEVED –

We successfully tailored and administered a campaign which integrated emerging, “hot” social media strategies with traditional, “cold” print strategies. This duality in media outreach integrated a multi-generational element to the Plant Arkansas campaign, with both media, social and print, reaching a broad spread of age demographics.

Our clients are adopting the Plant Arkansas campaign material, as well. Garden of Eden in Hot Springs is one example of a garden center making extensive use of the images and promotions in its advertising material. Arkansas Nursery in Sherwood reports that they have seen and felt an impact from the campaign as well. Social Media photo contests sent winners into local garden centers to select plant material.

We believe this type of interaction, participation, and reinvestment is a textbook example of what attitudes the Plant Something campaign seeks to stimulate and an example, we hope, of the types of consumer response yet to come throughout this planting season.

An estimated increase in ornamental purchases of 1 to 2% was noted in the central Arkansas areas thanks to the cross marketing done at local garden shows and to local professionals. To achieve sales increases across the state, future campaigns need to include gaining the participation of horticulture professionals in non-central Arkansas areas and to the consumers in those areas with more outreach.

BENEFICIARIES -

The beneficiaries of the campaign were:

1. **Local producers** of ornamental horticultural crops such as greenhouse growers and nurseries were the first group that benefited with the marketing of their products. There are about 100 producers in the state.
2. The second group to benefit were the **garden centers**, etc., that sell horticultural products and the services industry such as landscape contractors and maintenance firms. This includes local businesses as well as the box stores. There are about 300 of these in the state. In addition the publication of an industry magazine with the campaign information had about 500 readers.
3. The third group to benefit was the **consumer** who received information to encourage planting, aid them in their purchases and to provide resources for proper selection of plant material. Numbers of beneficiaries in this category are based on readership in newspapers with ad placement, social media likes, attendance at the Arkansas Flower and Garden Shows as well as traffic through the Hall of Industry at the Arkansas State Fair.

Print Ads - The Plant Something Arkansas ads were viewed by a readership of 2.2 million per week on 5 runs for a total of 11 million views.

Calendar of Events ad in the media directory was viewed about 10,000 times.

Arkansas Flower and Garden Show - 11,000 attendees in 2013 and 11,000 attendees in 2014.

Arkansas State Fair Booths - The gate entrance attendance at the Fair was 447,000 people of which it is estimated 15% go through the Hall of Industry, placing this estimate at 67,050 people.

Professionals benefited by having a state wide marketing campaign to promote the use of horticultural products; a campaign that small businesses owners could not have afforded on their own. The consumer benefited with information and encouragement about the benefits of and the use of horticultural products. Children were among the reaches in this group at the State Fair and Garden Shows.

LESSONS LEARNED –

A mix of campaigns is a challenge on a small budget but creates the best result. Through the campaign, we learned that spending money on print—even at the deep-discount which we secured—is costly and doesn't provide measurable economic impact, merely data as to the number of readers for the papers.

Social media campaigns provide almost instant feedback and insight concerning advertising reach and consumer engagement. The use of, and management of social media is an ever changing task and employing staff who can utilize it effectively requires training.

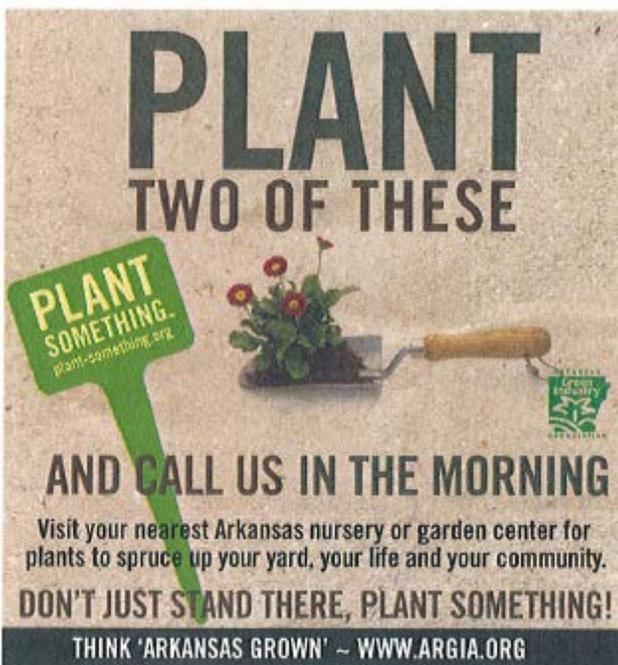
We've found that other states employ video content about planting techniques and regional-friendly horticulture that allows for more in-depth interaction between the campaign, association members, and the consumer. As such, we intend to produce and post similar videos from AGIA members in order to increase consumer interest.

Involvement in the garden show in Little Rock was very beneficial and provided a huge amount of exposure. Having a booth at more garden shows and agricultural shows outside of central Arkansas would promote better participation from horticulture professionals and consumer in those areas.

We want to reiterate that no grant funds were spent on prizes. The prizes were gift certificates in local participating garden centers and no funds from the grant were used for this.

EXAMPLES OF MARKETING MATERIALS-

Color Ad That Ran In Local Papers



Handout at Shows.

plant-something.org
PLANT SOMETHING.
STANDTHERE
DON'T JUST

501.225.0029
P.O. BOX 21715
LITTLE ROCK, AR 72221
PLANT-SOMETHING.ORG | ARGAO.ORG

PLANT TWO OF THESE

AND CALL US IN THE MORNING

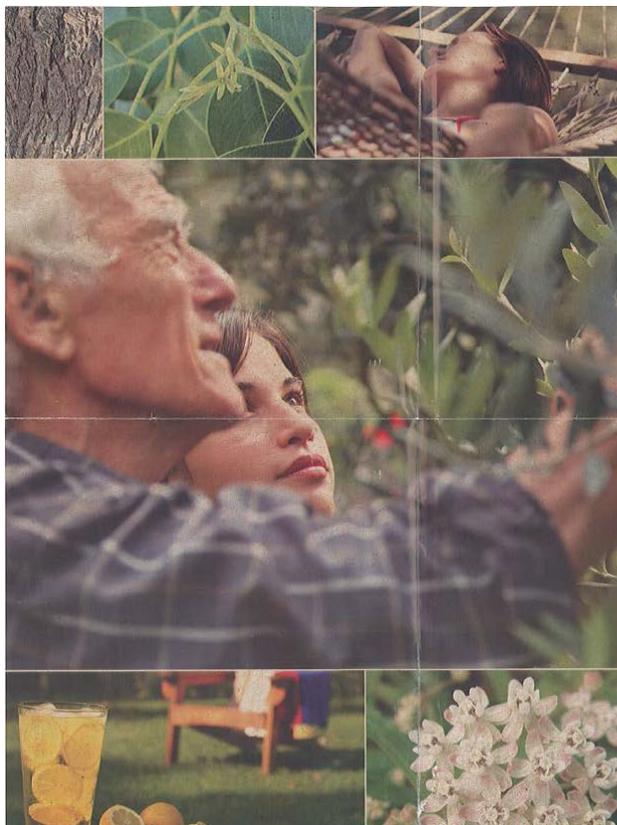
**Want to improve your quality of life?
PLANT SOMETHING.
Seriously.**

How's a plant or tree possibly going to make my life better, you ask?
By lowering your heart rate, providing beauty and shade, improving your property value, lowering your energy costs, cleaning the air and water, and creating a more inviting yard and community.

TRY NAMING SOMETHING AS EASY AND INEXPENSIVE THAT CAN PULL ALL THAT OFF.

**So why not
GET OUTSIDE,
GRAB A SHOVEL**
and start figuring out where to put that tree?

**ARE YOU READY
to get your hands dirty?**



PLANTS ARE GREEN. MONEY'S GREEN.
Adding a beautiful landscape to a home can increase its value by up to 15% and can accelerate its sale by five to six weeks.
American Nursery and Landscape Association

A great way to put more green in your pocket is to start putting more of it in the ground. A beautiful landscape increases the value of any home or property. And it sure beats painting. Ever compare the price of houses on a tree-lined street versus comparable places on a barren boulevard? The difference will make anyone an instant plant lover.

CHILL OUT. PLANTS ARE COOL.
Just three properly placed trees can save an average household between \$100 and \$250 in annual heating and cooling costs.
U.S. Department of Energy

Planting greenery and enjoying its beauty have been proven to lower your blood pressure and heart rate. What's more, they can substantially lower your home's temperature and energy bill. By carefully positioning trees and shrubs to shelter your house from the sun and wind, you can reduce your heating and cooling energy consumption by as much as 25%, which should lower your blood pressure even more.

BREAKING DOWN FENCES.
The better the landscaping in common areas of a neighborhood, the more those spaces are used by residents, hence the more opportunities there are for social interaction between neighbors.
University of Illinois

Public spaces are like backyards we all own together. So why not make them better places for all of us to play? Shady green spaces are like magnets. We've all seen the story of the rundown urban-neighborhood that plants a community garden on an old vacant lot. The place comes alive. People suddenly come out of the woodwork and the neighborhood is socially transformed. Such is the power of plants to attract people—both to public spaces and to each other.

CLEANS, FRESHENS & DEODORIZES.
One tree can remove up to 26 pounds of carbon dioxide from the atmosphere annually. That's equal to 11,000 miles of car emissions.
Virginia Cooperative Extension

When you plant a penstemon or palo verde, you get plenty more than just pretty flowers and leaves. While standing there looking gorgeous, flowers, trees and grasses are also busy doing janitorial service on the environment. In urban and suburban settings, vegetation helps reduce storm water runoff, decreases pollutants and suspended solids in surface water runoff, and reduces sulfur dioxide, nitrogen dioxide, ozone, carbon monoxide and particulate matter from the air.

ADMIT IT, YOU'RE FEELING BETTER ALREADY.
Put some new life in the ground and experience what a little green can do. Hop in the car and head to your nearest Arkansas nursery or garden center for plants to spruce up your yard, your life and your community. Don't just stand there, visit
PLANT-SOMETHING.ORG



PLANT ARKANSAS

THE BULLETIN OF THE ARKANSAS GREEN INDUSTRY

Summer 2013

Serving Landscape and Horticultural Professionals Since 1965

IN THIS ISSUE

President's Message



Plant Something Arkansas
Facebook Contest



New ACNLPs



Plant Something Arkansas
Campaign - Roadtrip



Fall
Landscape Day
Info & Registration
Form



P.L.A.N.T.S.
2013 Highlights



AGIA LAUNCHES CONSUMER CAMPAIGN



Save the Dates: 2014 P.L.A.N.T.S.

January 22-23, 2014

Hot Springs, Arkansas

Hot Springs Convention Center



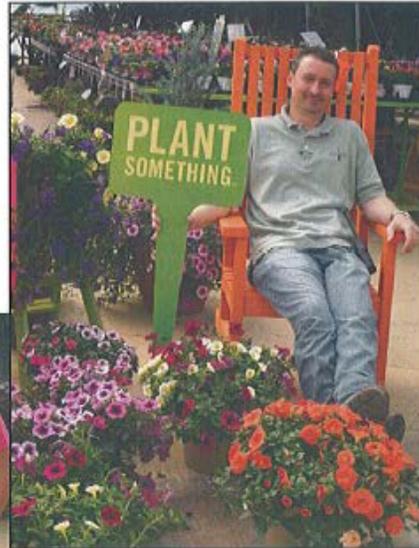
PLANT SOMETHING ARKANSAS CAMPAIGN - ROADTRIP

As a few of you know, since you were our willing participants, we took the “Don’t Just Stand There, Plant Something” plant stake, on a road trip earlier this year. Our adventure brings to mind both the “Flat Stanley” books and Craig O’Neill’s “Travelin Arkansas” features from way back in the day.

The plant stake is part of the AGIA “Plant Something Arkansas” marketing campaign. The campaign stems from a grant received by AGIA



Above: Julinda Mann, Carla Freeman, Jason Parks, and Shelby Reed of Parks Brothers Farm.



Jason Parks

to promote the use and purchase of horticultural products and services. In addition to the plant stake, we have some beautiful brochures and fun silicone bracelets we debuted at the Arkansas Flower & Garden Show in February. Those of you who attended the show were able to pick up some of the materials there, but we decided a road trip was an opportunity to make sure others received some of these great materials as well.

The first stop on our road trip was in Van Buren where we visited with Jason Parks of Parks Brothers Greenhouses. We were blown away by the sheer size of their operation and would have needed wheels to see it all, and hours! Jason was a gracious host taking us on a brief tour of some of the greenhouses which were full of many different flowers and plants. We couldn't stop taking pictures and wanted one of everything to take back home. As you can see, we had a little fun with the 'Plant Something' stake too.

Our next stop was in Rogers at Bradford Nursery where we met with Tom, an employee of Russell Ellis. Tom was



Right: Spring blooms abound at Parks Brothers.

Far right: Tom with Bradford Nursery holds up the Plant Something stake.



CONTACT PERSON

Anne Fuller

Executive Director

Arkansas Green Industry Association

501-225-0029

Project 11: Bismarck School Garden

PROJECT SUMMARY – The Bismarck School District set out to increase the size of its school garden to address the fruit and vegetable intake of its High School Students. The problem addressed was that high school children need to consume more fruits and vegetables in their school meals. This project was important and timely because USDA/FNS changed the school lunch requirements requiring more fruits and vegetables in school lunches, while at the same time the state of Arkansas starting allowing local and school produced food in the lunches. It used \$2,500.00 from the SCBGP-FB to increase the size of its garden, along with the sweat equity of its high schools students. They added deer fencing and irrigation as a way to increase and protect production. The school was able to replace at least two lunches a week with produce grown in the garden when in season and home economics students' knowledge increased by 25%. The garden continues to operate and is in a 2nd year of operation since the enhancements.

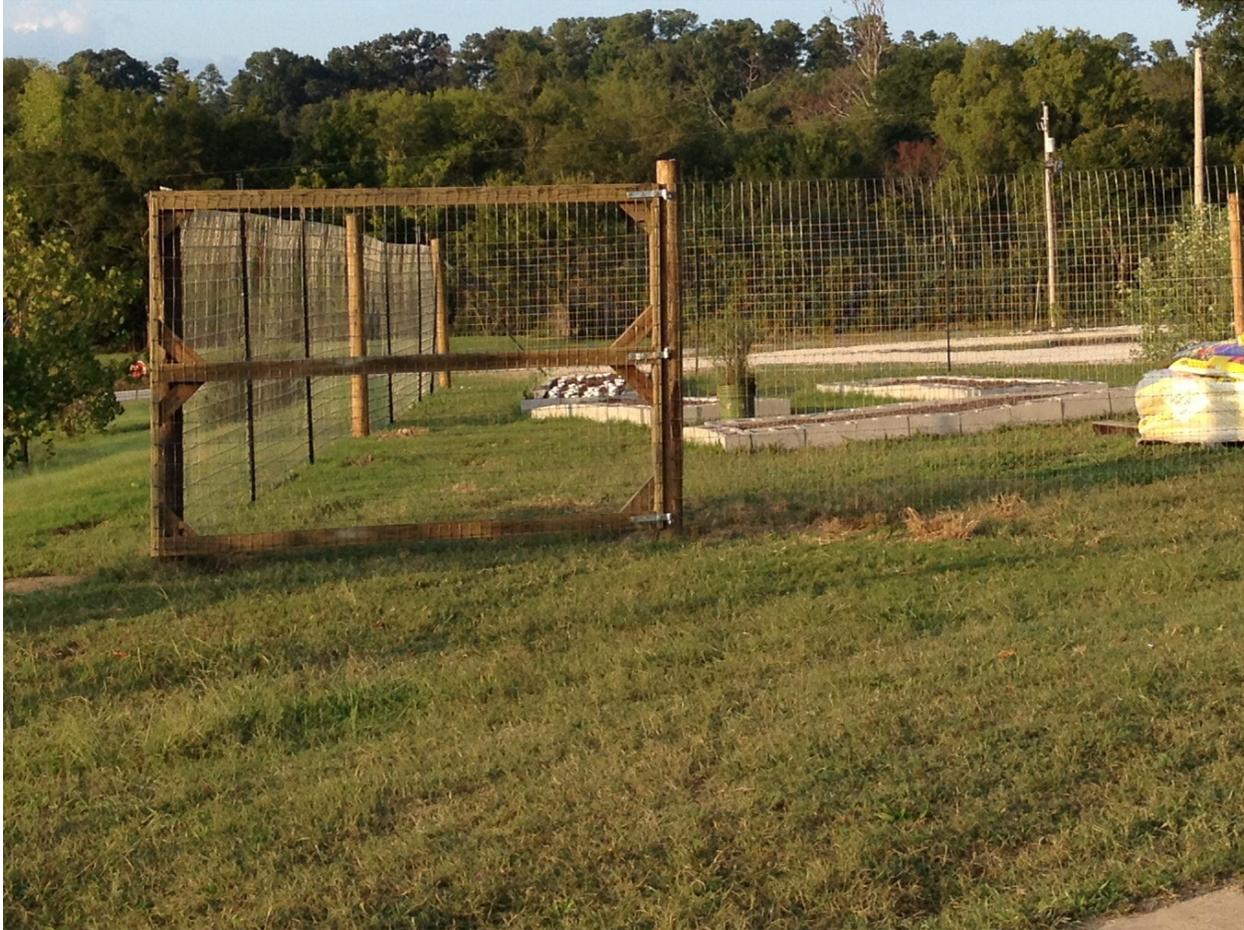
PROJECT APPROACH – As somewhat of a garden was built in the past, this project was to build upon the old structure and added much needed improvements of irrigation and deer fencing. The Bismarck school district is located in a pretty rural part of Arkansas, and thus deer and a very dry summer of 2012 had taken its toll on the garden. Vikie Hill the nutrition Director of the School District approached AAD and asked if there were funds available for their Garden. AAD awarded them \$2,500 for the project.

ACTIVITIES PERFORMED –

The gardens beds where rebuilt as irrigation was added and a deer fence was constructed. Seedlings along with fruit trees were added, to the enclosed area. All construction was done by the home economics students. Spring and summer garden products were planted, so that could be harvested before school went to summer recess were used in the school cafeteria. During the summer students and teachers both took turns watering and harvesting the garden.

When school resumed in the fall, cooler weather crops such as lettuce was planted and then harvested for school lunch consumption along with Bell peppers and a few other items. The home economics class lesson plan was developed around the school garden with topics such as gardening, recipes, healthy eating and food processing.

During the fall of 2013, Cole crops were harvested and used to replace items on the school lunch menu. Students started plans of what to plant during the upcoming spring along with winter cleanup of the garden. Seedlings were also started for the upcoming spring. Home economics students continue to maintain the garden.



GOALS AND OUTCOMES ACHIEVED –

Produce from the garden was used to replace at least 1 serving per 2 meals a week when the garden was in peak production. Considering that most meals contain at least two servings of fruit and vegetable per meal, replacing one serving with product grown from the garden twice a week calculates out to at least 20% of procured fruit and vegetables being replaced with products from the garden.

With Bismarck being a rural school district some Home Economics students already had somewhat of knowledge of specialty crop production due to either being raised on a farm or from the family's garden. Student knowledge was surveyed through a series of in class discussions along with in field work. Also, student's willingness to work in the garden after school and during study periods was also noted. Participation in garden activities increased by almost 100% over the preceding year as students learned how to properly water and care for the garden. The first year over 25 students participated, with 50+ helping out in the 2nd year. Almost half of the students in the 2nd year were new to the garden program. There were 52 surveys completed as

some students from the first year also took part in the second year, but was not surveyed as to keep the survey pool clean.

BISMARCK STUDENT GARDEN KNOWLEDGE

On a scale of 1 to 10 (10 being highly likely, 1 being highly unlikely) please rank according to the question..

1. Do you believe your knowledge of the garden and the crops produced in it has increased?



Avg Reply was 8.25

2. Do you believe you could now plant and tend to your own garden?



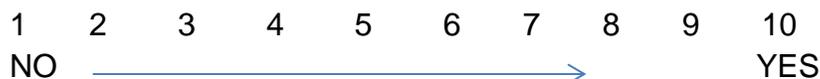
Avg Reply was 9.0

3. Has tending to and studying about the school garden lead to a change in your eating habits at School?



Avg Reply was 8.0

4. How likely are you to eat fruits or veggies on the school lunch menu when you know they were grown in the school garden?



Avg Reply was 6.75

5. **Has tending to and studying about the school garden led to a change in your eating habits at Home ?**



6. **Has working on and studying about the school garden helped to improve your interest in the sciences?**



The garden was featured in a news report located at this link:
<http://archive.thv11.com/video/default.aspx?bctid=2766313719001>

BENEFICIARIES

The beneficiaries of this project were not only the students who took care of the garden and gained valuable gardening knowledge, but the school district benefited from lower produce costs while the students eating the cafeteria received healthy local produce. It is estimated that over 100 plus students benefited.

LESSONS LEARNED –

The biggest lesson learned in this project came as near the end of the project as the school district restructured and AAD lost its contacts in the district. This made contact for AAD with the school district harder as we had only one contact person, in the future we will require more than one contact. This report had to be completed by AAD.

CONTACT PERSON

Zachary Taylor
Director of Marketing
Arkansas Agriculture Department
#1 Natural Resource Drive

Little Rock, Arkansas 72205

Phone: (501) 219-6324

Fax: (501) 312-7052

E-mail: Zachary.Taylor@aad.ar.gov