

# 2016 Tuskegee University and Auburn University and Alabama A&M University Combined Research and Extension Annual Report of Accomplishments and Results

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## I. Report Overview

### 1. Executive Summary

#### Overview

The annual report represents the combined efforts of the three land-grant institutions in the state of Alabama; Alabama A&M University (AAMU), Auburn University (AU), and Tuskegee University (TU). The Universities...

AAMU is an 1890 land-grant institution with a comprehensive university Carnegie classification, functioning in the areas of teaching, research, and Extension including public service. AAMU is a doctoral degree granting institution with strong graduate programs in the science, technology, engineering, and mathematics (STEM) disciplines. AU is an 1862 land-grant institution with high research activity; comprehensive doctoral programs with medical/veterinary Carnegie classification. AU's mission is defined by its land-grant traditions of service and access. The TU mission, historically and today, together with specific acts of the United States Congress and the state of Alabama defines Tuskegee as an 1890 land-grant university with a Master's degree Carnegie classification, including Ph.D. and DVM degrees. Through integrative teaching/learning, research/discovery, and Extension/engagement programs TU addresses contemporary societal challenges as opportunities to advance agriculture, science and communities.

#### Research and Cooperative Extension....

Research at each Alabama land-grant institution (LGI) has distinct programs based on clientele needs. Each component of the Alabama Agricultural Research Program works closely and cooperatively to enhance partnerships among the universities in all areas of Research and Extension; with other universities in the region, nationally, and internationally; and with state and federal laboratories and agencies. Alabama's three land-grant universities have played key roles in the development of agricultural enterprises in Alabama. The agricultural research programs of these universities have formed a partnership, the Alabama Agricultural Land-Grant Alliance (AALGA), to better address critical issues in food, agriculture, rural sustainability, environment, bioenergy, and natural resources in the state, region, and nation through multidisciplinary, multi-institutional, science-based teams that focus on the opportunities and the challenges facing farmers, consumers, and agribusinesses. AALGA also seeks to provide quality education that prepares professionals for career opportunities in food, agriculture, environment, and natural resources. Research programs at each of our institutions are closely linked to Extension programs, which seek the largest possible positive social, economic, and environmental impact. AAMU and AU provide Extension educational outreach as a unified Alabama Cooperative Extension System (ACES). The AAMU-funded portion of the System focuses its resources on serving urban and nontraditional clientele; the AU-funded portion of the System focuses its resources on serving rural and traditional clientele. However, given that the boundaries between rural and urban, and between nontraditional and traditional, are vague, the ACES employs a highly collaborative program development and delivery process that allows for the integrative and collaborative application of the resources from both AAMU and AU to serve and meet the needs of all Alabamians in all 67 counties within the state. Agents from the two institutions are jointly located in county Extension offices and function as a county Extension teams. Tuskegee University Cooperative Extension (TUCE) in partnership with the Evans Allen Research Program, Carver Integrative Sustainability Center (USDA 1890 Center of Excellence) and other research, teaching and outreach units, carries out a comprehensive Extension Plan of Work (POW). TUCE

continues to focus its major efforts in Alabama Black Belt and adjacent counties that include Native American and Hispanic populations. Many TUCE agents share the same facility as ACES agents assigned to that county and cooperate on Extension programs of mutual interest.

The world is facing major challenges with food, energy, environmental sustainability, natural resources, climate change, and economic development in all sectors, as well as, human health and well-being and related issues. In order to address issues related to these major local, national and international challenges, integrative and collaborative Research and Extension programs have been designed to address most of these challenges. The Alabama Land-Grant Institutions are cognizant of the necessity to continue to address the five National Institute of Food and Agriculture (NIFA) priorities. Indeed, those programs are priorities for Alabama residents as well. The Combined Alabama A&M University, Auburn University, and Tuskegee University Research and Extension POW is founded on the following planned programs: 1) Global Food Security and Hunger, 2) Food System and Food Safety, 3) Natural Resources Conservation and Management, 4) Environmental Sustainability and Climate Change, 5) Human Nutrition, Well-being, Health and Obesity, 6) Community Development, 7) Family, Home and 4-H and Youth Development, and 8) Sustainable Energy.

The annual report for FY 2016 is fully descriptive of the program activities from the state's Plan Of Work. The planned program areas are fully described in the remainder of this annual report. What follows is a brief summary of some of the program activities. The Global Food Security and Hunger program addressed issues related to sustainability of small-scale farmers and rural communities. More than 2300 contacts were made with beef and goat producers at field days, workshops, and seminars. Efforts have resulted in farmers improving beef cattle breeding stock, reducing annual beef cattle production cost, and significant decreases in goat production costs and successful loan applications were submitted by the targeted limited resource, minority, and underserved farmers that totaled over \$1.2 million, thus increasing access to USDA programs for those stakeholders. Further, footpad irritation posed economic and welfare problems for poultry farmers. Work with the farmers to improve housing conditions through improved litter quality resulted in a yearly payback of \$658, 500. In the area of Families and 4-H Youth Development financial literacy is a major issue. Ten thousand one hundred (10,100) young people between the ages of 13 through 20 were introduced to fundamental skills needed to manage in real life situations. Also, the 4-H Science, 4-H-NSDY provided interactive provided year round actives to introduce and provide advance activities in science and engineering. Over 5000 youth ages 8 through 16 participated in after school programs, workshops and summer camps. The Natural Resource Conservation and Management, Environmental Sustainability, and Climate program area sought to enhance the quality of drinking water in rural areas and small communities and increase the awareness of sustainable forest resource management, and assess climate change variability in the Alabama River Basin. This is a small sampling of program activities and impacts for this annual report. The full report details activities and impacts for each of the program areas.

**Total Actual Amount of professional FTEs/SYs for this State**

Year: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	371.0	65.5	85.0	68.0
Actual	385.0	65.0	345.0	48.6

**II. Merit Review Process**

**1. The Merit Review Process that was Employed for this year**

- External University Panel
- Combined External and Internal University Panel

## 2. Brief Explanation

The 5 phase merit review process developed and utilized by Alabama A&M University, Auburn University and Tuskegee University in Extension and Research has worked well. The process allows both clarity and feedback at each phase in the process. In 2016, Extension and Research continued to use the 5 phase process in Alabama.

**Phase I** of the review process will be conducted by extension and research program or project teams. Each team will be responsible for reviewing data to ensure information provided for the report appropriately represents critical needs identified by Alabama residents, stakeholders and partners.

**Phase II** of the process will be conducted by the Assistant/Associate Directors, Deans/Associate Deans representing extension and research. Data will be reviewed for: relevancy, competency within extension to address identified issues, opportunities for inclusion of multistate/integrated research and extension activities, and to ensure the existence of measurable impact and outcome indicators are aligned with established national standards.

**Phase III** of the review process will be conducted by the extension and research administrative teams. Consideration will be given to the following criteria:

- Consistency with University missions
- The inclusion of approved programs and projects
- The adequacy of fiscal / human resource allocations needed for successful implementation of Included programs and projects,
  - The capacity to offer educational services to a broad spectrum of Alabama residents, rural / urban, and across diverse demographic parameters,
  - The degree to which the plan-of-work adequately reflects the consideration and inclusion of stakeholder and advisory input.

**Phase IV** of the process will involve University Extension administrators, Deans and Department Heads. Many system specialists are housed in Academic Departments. Therefore, it is appropriate to include them in the review and to allow them an opportunity to comment and provide expectations of the educators and scientists within their respective departments.

**Phase V** of the review process, will solicit input from various state-wide advisory councils to ensure citizens needs are addressed, to be certain that extension program and research efforts and accomplishments are articulated, to expand collaboration and networking capabilities and to obtain statewide support for extension and research.

## III. Stakeholder Input

### 1. Actions taken to seek stakeholder input that encouraged their participation

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to non-traditional stakeholder individuals
- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals

### **Brief explanation.**

The Alabama Cooperative Extension System and the Tuskegee University Cooperative Extension (ACES/TUCE) utilize a comprehensive grass-tops and grassroots needs assessment process. State-level constituent or consensus building groups, non-governmental agencies, community-based organizations, and governmental agencies are encouraged to participate in grass-tops needs assessment activities by inviting both traditional and non-traditional stakeholder groups. Individuals representing diverse socio-economic and racial groups, new client groups, networks, youth groups, and potential community partners are encouraged to participate in grassroots needs assessment activities by inviting both traditional and non-traditional stakeholder individuals. Media are used to announce and encourage individuals to participate in various activities.

In addition, college-level research advisory committees and advisory boards were established for Alabama A&M University, Auburn University, and Tuskegee University within The Alabama Agricultural Land Grant Alliance (AALGA) to actively seek stakeholders' input and provide advice to Deans and Research Directors. Throughout the year, research and extension faculty interface with 17 commodity groups and their clientele. Primary interaction occurs during semi-annual conferences organized by the Alabama Farmers Federation (ALFA) where faculty and administrators meet with commodity groups that hold forums to discuss issues, needs, and concerns. In addition to the ALFA groups, college and experiment station leadership, the department heads, and extension and research faculty work closely with several major commodity-based organizations outside of ALFA. They are the Alabama Cattlemen's Association, Alabama Poultry and Egg Association, Alabama Nursery and Landscape Association, Alabama Turfgrass Association, and the Black Belt Small Farmers Cooperative.

AALGA and its partners hosted "listening sessions" at key locations across the state. These sessions were advertised in varying ways to reach as broad an audience as possible and were open to the general public. Participants identified several strategic areas in need of additional resources and effort (i.e., research and extension). These areas are noted in this plan of work. Regular input is also received from stakeholders through commodity group leaders, from advisory boards, formal and informal surveys, focus groups, field days, conferences and through discussions and feedback from state leaders on agricultural boards. Most Extension faculty have research appointments, and they work closely with the commodity groups and the public in general to bring back their concerns and feedback.

### **2(A). A brief statement of the process that was used by the recipient institution to identify individuals and groups stakeholders and to collect input from them**

#### **1. Method to identify individuals and groups**

- Use Advisory Committees
- Use Internal Focus Groups
- Use External Focus Groups
- Open Listening Sessions
- Needs Assessments
- Use Surveys

### **Brief explanation.**

ACES/TUCE program leaders lead respective program teams, consisting of Extension specialists, agents, resource specialists, and farm management specialists to identify state-level constituent or consensus building groups, non-governmental agencies, community-based organizations, and governmental agencies. Methods for identifying these groups included existing advisory committees and interagency directories.

Grassroots stakeholders are identified by Extension coordinators, agents, and resource specialists who lead community conversations in the state's 67 counties. Methods included existing advisory committees, 4-H youth councils, contacts with other agency partners, and staff knowledge of individuals representing diverse socio-economic and racial groups, new client groups, networks, youth groups, and potential community partners. A grassroots web-based survey is marketed in all 67 counties through the media and directly via ACES/TUCE webpages. Citizens are offered the opportunity to participate in the survey via public access computers at county Extension offices. For the hard-to-reach communities in the Black Belt and with new immigrant populations, special county and state advisory councils have been established for engagement to secure a diversity of stakeholder input. County 4-H youth councils are asked for direct input and feedback and are asked to solicit input and feedback from other peer youth groups.

Moreover, several groups such as advisory committees which encompass growers and consumer groups have been established. Surveys are conducted through various Alabama Agricultural Experiment Station (AAES) newsletters. Other means of seeking input from the general public are employed. Commodity groups are well organized through participation in the Alabama Farmers Federation and other such groups. Needs assessments are conducted through strategic planning, SWOT analysis, based on input from the agricultural industries and assessments from the faculty, their department heads, and college and experiment station leaderships.

**2(B). A brief statement of the process that was used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them**

**1. Methods for collecting Stakeholder Input**

- Meeting with traditional Stakeholder groups
- Survey of traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Survey of traditional Stakeholder individuals
- Meeting with the general public (open meeting advertised to all)
- Meeting specifically with non-traditional groups
- Meeting specifically with non-traditional individuals
- Survey of selected individuals from the general public

**Brief explanation.**

A comprehensive approach to needs identification is utilized given the complexity of issues facing the citizens of Alabama. For ACES/TUCE, the comprehensive needs assessment begins with engagement of key external 'grass-tops' stakeholders to determine priority needs affecting Alabamians.

Program leaders and their respective program teams conduct the grass-tops needs assessment by engaging groups through direct telephone contacts, focus groups, advisory committees, networking, or short surveys. Each stakeholder group is asked 1) what priority initiatives are included in their strategic plan or plan-of-work, 2) what issues do they envision affecting the economic and physical wellbeing of Alabamians across the state, 3) what priority needs of their clientele connect with ACES/TUCE's educational programming expertise, and 4) what linkages do they envision that would strengthen the working relationship with ACES/TUCE's educational programming. Results gleaned from the grass-tops needs assessment activities are summarized to determine what major themes emerge.

The second major component of the comprehensive needs assessment involves engagement of 'grassroots' stakeholders. Extension coordinators, agents, and resource specialists organize grassroots community conversations to confirm, prioritize, or regionalize the grass-tops needs assessment results. Objectives are to engage a cross section of citizens, including youth, to 1)

discuss and understand the facts regarding significant issues facing the state and the opportunities for positive change and 2) dialogue about significant issues and the potential for local programs that acknowledge and address the current changes in the way citizens think, live, and function in their daily lives, families, communities and businesses. A companion grassroots survey is administered via the ACES/TUCE homepage.

For limited-resource and low-asset communities, their representation on the special county and state advisory councils in the Black Belt and adjacent service areas are invited and given the opportunity to use regularly scheduled conferences in order to collect input and feedback. The conferences include: The Annual Farmers Conference, the Booker T. Washington Economic Summit, the Youth Empowerment Summit, and the Professional Agricultural Workers Conference. In addition, a number of stakeholder groups have previously been identified, and input is collected through regular meetings with discussions and feedback. For example, at Auburn, several commodity groups have committees to evaluate on-going research and new research proposals. Direct feedback to researchers and administration is through the projects that get funding and through discussion about new and emerging issues. At Tuskegee, input is also sought from workshops and special sessions during the Professional Agricultural Workers Conference and Farmers Conference that are organized annually. At Alabama Agricultural and Mechanical University, input is sought through workshops, 1890 Association of Research Directors, various departments, conferences and new research proposals. Influential industry leaders are consulted for their input and feedback.

### **3. A statement of how the input will be considered**

- To Identify Emerging Issues
- Redirect Extension Programs
- In the Staff Hiring Process
- In the Action Plans
- To Set Priorities

#### **Brief explanation.**

Strategic program initiatives are identified from the comprehensive grass-tops and grassroots needs assessment activities. Program leaders collaborate on the development of a logic model for each strategic program initiative focusing on specific objectives, outputs, and outcomes that allow for application across various program areas. Each logic model includes an evaluation plan.

Program leaders assist their respective program teams, consisting of Extension specialists, agents, resource specialists, and farm management specialists, prepare a plan-of-work. Steps include: 1) to determine which strategic program initiatives fit with the team's capabilities and resources and to develop a programmatic response consistent with the objectives, outputs, and outcomes of the respective strategic program initiative logic model and 2) to complete the program team plan-of-work to include ongoing programs or special funded projects. A quarterly staff conference is used to process stakeholder input from the special and state advisory councils as a special effort on behalf of limited-resource and low-asset communities in the Black Belt.

Team plans-of-work are shared with Extension coordinators, agents, and resource specialists to align program alternatives and to make mutual decisions regarding programs, staff involved, dates, locations. With respect to research, input from stakeholders is used to set program priorities and for identifying emerging issues relevant to agricultural activities. Their inputs are considered in the long term plan for hiring faculty members and staff members. Input concerning urgent and serious issues will be used to redirect research funds and used in the budget processes as well. Priorities identified from stakeholders' input are used as guides for solicitation of research grant applications. Annual Hatch and Evans Allen funded internal grants are selected competitively (awards are made based

on merit and relevance to the priority areas). Because of the small size of the funding, such research funding has to be considered as seed grants. Leveraging of additional funding is essential to carry the research priorities forward.

**Brief Explanation of what you learned from your Stakeholders**

The following Planned Program Areas were established to focus educational programs and research projects:

- Global Food Security and Hunger
- Natural Resource Conservation and Management
- Environmental Sustainability and Climate
- Food Systems and Food Safety
- Human Nutrition, Well-being, Health and Obesity
- Sustainable Energy
- Community Development Family, Home, and 4-H and Youth Development

**IV. Expenditure Summary**

**Institution Name:** Alabama A&M University

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	2190284	0	2704651

**Institution Name:** Auburn University

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
7148951	0	5075059	0

**Institution Name:** Tuskegee University

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	2190284	0	2685575

**Institution Name:** Alabama A&M University

<b>2. Totalled Actual dollars from Planned Programs Inputs</b>				
	<b>Extension</b>		<b>Research</b>	
	<b>Smith-Lever 3b &amp; 3c</b>	<b>1890 Extension</b>	<b>Hatch</b>	<b>Evans-Allen</b>
<b>Actual Formula</b>	0	2024346	0	2093493
<b>Actual Matching</b>	0	2024346	0	1835634
<b>Actual All Other</b>	0	4350599	0	0
<b>Total Actual Expended</b>	0	8399291	0	3929127

**Institution Name:** Auburn University

<b>2. Totalled Actual dollars from Planned Programs Inputs</b>				
	<b>Extension</b>		<b>Research</b>	
	<b>Smith-Lever 3b &amp; 3c</b>	<b>1890 Extension</b>	<b>Hatch</b>	<b>Evans-Allen</b>
<b>Actual Formula</b>	7260606	0	5233314	0
<b>Actual Matching</b>	7260606	0	5258254	0
<b>Actual All Other</b>	41385318	0	26861058	0
<b>Total Actual Expended</b>	55906530	0	37352626	0

**Institution Name:** Tuskegee University

<b>2. Totalled Actual dollars from Planned Programs Inputs</b>				
	<b>Extension</b>		<b>Research</b>	
	<b>Smith-Lever 3b &amp; 3c</b>	<b>1890 Extension</b>	<b>Hatch</b>	<b>Evans-Allen</b>
<b>Actual Formula</b>	0	2190284	0	2685574
<b>Actual Matching</b>	0	1784788	0	2314462
<b>Actual All Other</b>	0	0	0	0
<b>Total Actual Expended</b>	0	3975072	0	5000036

<b>3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous</b>				
<b>Carryover</b>	7260606	193971	4698552	1903592



**V. Planned Program Table of Content**

<b>S. No.</b>	<b>PROGRAM NAME</b>
1	Global Food Security and Hunger
2	Natural resource conservation and management, environmental sustainability, and climate
3	Food Systems and Food Safety
4	Human nutrition, well-being, health and obesity
5	Sustainable Energy
6	Community Development
7	Family, Home, 4-H and Youth Development

**V(A). Planned Program (Summary)**

**Program # 1**

**1. Name of the Planned Program**

Global Food Security and Hunger

Reporting on this Program

**V(B). Program Knowledge Area(s)**

**1. Program Knowledge Areas and Percentage**

<b>KA Code</b>	<b>Knowledge Area</b>	<b>%1862 Extension</b>	<b>%1890 Extension</b>	<b>%1862 Research</b>	<b>%1890 Research</b>
101	Appraisal of Soil Resources	0%	0%	0%	5%
102	Soil, Plant, Water, Nutrient Relationships	4%	4%	3%	13%
111	Conservation and Efficient Use of Water	10%	10%	0%	5%
123	Management and Sustainability of Forest Resources	10%	10%	0%	5%
125	Agroforestry	5%	5%	0%	9%
132	Weather and Climate	5%	5%	0%	3%
201	Plant Genome, Genetics, and Genetic Mechanisms	0%	0%	6%	4%
202	Plant Genetic Resources	0%	0%	6%	8%
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%	0%	3%	2%
205	Plant Management Systems	10%	10%	10%	2%
206	Basic Plant Biology	2%	2%	0%	2%
211	Insects, Mites, and Other Arthropods Affecting Plants	5%	5%	12%	2%
212	Pathogens and Nematodes Affecting Plants	0%	0%	12%	3%
213	Weeds Affecting Plants	2%	2%	3%	1%
216	Integrated Pest Management Systems	10%	10%	6%	6%
302	Nutrient Utilization in Animals	5%	5%	3%	8%
311	Animal Diseases	10%	10%	18%	2%
402	Engineering Systems and Equipment	2%	2%	3%	0%
502	New and Improved Food Products	5%	5%	0%	10%
601	Economics of Agricultural Production and Farm Management	15%	15%	15%	10%
	<b>Total</b>	100%	100%	100%	100%

**V(C). Planned Program (Inputs)**

**1. Actual amount of FTE/SYs expended this Program**

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Year: 2016	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	26.1	9.3	22.0	29.0
<b>Actual Paid</b>	63.5	13.0	121.5	15.1
<b>Actual Volunteer</b>	0.0	0.0	0.0	0.0

**2. Institution Name:** Auburn University

**Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1263933	0	1550601	0
<b>1862 Matching</b>	<b>1890 Matching</b>	<b>1862 Matching</b>	<b>1890 Matching</b>
1409210	0	1559271	0
<b>1862 All Other</b>	<b>1890 All Other</b>	<b>1862 All Other</b>	<b>1890 All Other</b>
7353189	0	8857002	0

**2. Institution Name:** Alabama A&M University

**Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	200306	0	397849
<b>1862 Matching</b>	<b>1890 Matching</b>	<b>1862 Matching</b>	<b>1890 Matching</b>
0	200306	0	348770
<b>1862 All Other</b>	<b>1890 All Other</b>	<b>1862 All Other</b>	<b>1890 All Other</b>
0	269228	0	0

**2. Institution Name:** Tuskegee University

**Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	639301	0	1127941
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	520435	0	972074
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

## V(D). Planned Program (Activity)

### 1. Brief description of the Activity

**Sustainable agroforestry practices in the Southeastern Region-** A curricula-based training session and a field day were conducted. Two silvopasture research and demonstration sites developed earlier were improved and utilized for conducting research and extension education.

**Small Farm Cooperative Development Project-** CAENS faculty and staff to provide educational and technical assistance to participating Small Farm Cooperative members/produce growers pursuing commercial markets such as Walmart.

**AEFSN-** conducted and/or participated in seventeen workshops, two field days and one in Alabama, Tennessee, and Haiti. These outreach activities placed emphasis on meat goat and hair sheep production systems and focused on areas such as reproductive and genetic evaluations, feeding and nutrition, forage management, silvopasture systems, fence products and utilization, use of FAMACHA© chart, fecal-egg counts, integrated gastrointestinal parasite management, and biosecurity measures to enhance animal health. **Goat Production with Women-**A series of educational programs were conducted on sustainable small ruminant production.

**HRT-**Provide research-based information on a Holistic Real Time (HRT) basis to increase farm productivity in agronomy, agricultural engineering, climate, entomology, nematology, plant pathology, weed science, and related disciplines

**Integrated Pest and Disease Management:** Several researchers at Auburn are developing environmentally friendly and economically feasible methods to control and manage plant pests and disease infestation.

**Integrated Sustainable aquaculture production systems:** Researchers at Auburn are addressing economic inefficiencies and disease problems faced by fish farmers in Alabama including diagnostic lab that addresses all aspects of aquatic animal health.

**Animal and Crop Production Systems:** AU researchers are using breeding and nutritional approaches to improve production efficiencies of cattle, swine, poultry, peanut, fruits and vegetables.

**Capacity building for sustainable local food systems planning in North Alabama-**The main objectives were to identify and map characteristics and components of the local food system, identifying gaps and barriers to hunger and food security. The collected food security and socio-economic characteristics for all of the counties in Alabama and found high levels of poverty and food insecurity.

**Beef Cattle Production and Herd Health Management in Black Belt Counties-**TUCE and Tuskegee University School of Veterinary Medicine provide hands on small scale beef cattle herd health management.

**Agriplastics and Vegetable Production for Limited Resource Farmers-** This program used hands-on training, demonstrations, workshops and one-on-one technical assistance in utilization of agriplastics and access to USDA-related resources

**Enhancing Reproduction Performance in Goats-** evaluated relationships between Body Condition Score, Body Weight at Breeding and reproductive traits

**2. Brief description of the target audience**

**AEFSN**-The primary target audience was meat goat and sheep producers developing profitable, sustainable animal production systems. Secondary target audience was small-scale and limited-resource producers of all natural chickens and beef, and specialty vegetables interested in supplying quality food products. Tertiary target audience was consumers of meat and vegetable products concerned with dietary cholesterol and other health issues.

**Goat Production for Women**- female and minority small ruminant producers

**Holistic Real Time**- livestock producers in Alabama

**Capacity building for sustainable local food systems planning in North Alabama** The target audience was the general public, particularly in the academic circle, who were made aware, through presentations, of the importance of the food store environment and its relationship to food insecurity.

**Sustainable agroforestry practices in the Southeastern Region-agricultural stakeholders across Alabama**

**Small Farm Cooperative Development Project-limited resource farmers in Alabama's Black Belt Counties**

**Integrated Pest and Disease Management**- Alabama stakeholders interested in IPM, growers, producers, plant breeders.

**Integrated sustainable aquaculture production systems** - governmental agencies, catfish and aquatic animal farmers.

**Animal and Crop Production Systems** - poultry farmers and integrators, fruits and vegetable producers, Alabama Cattlemen's association, beef cattle farmers, peanut farmers.

**Capacity building for sustainable local food systems planning in North Alabama**- all of the counties in Alabama and found high levels of poverty and food insecurity.

**Beef Cattle Production and Herd Health Management in Black Belt Counties**- limited resource beef cattle producers in Alabama Black Belt counties

**Agriplastics and Vegetable Production for Limited Resource Farmers**- limited resource vegetable producers in Alabama Black Belt counties

**Enhancing Reproduction Performance in Goats**- limited resource goat producers in Alabama Black Belt counties

**3. How was eXtension used?**

N/A

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	54564	219840	29011	219494

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

Year: 2016

Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

<b>2016</b>	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Actual</b>	15	224	239

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Peer reviewed publications.  
Not reporting on this Output for this Annual Report

**Output #2**

**Output Measure**

- Patent applications and disclosures.  
Not reporting on this Output for this Annual Report

**Output #3**

**Output Measure**

- Products such as crop varieties, animal breeds, vaccines, methods developed and evaluated in Alabama best agricultural practices development and evaluations.  
Not reporting on this Output for this Annual Report

**Output #4**

**Output Measure**

- The output target will consist of training, technical assistance, and service in Horticulture, Plasticulture, Organic Farming, Food Processing, Cooperatives, Markets, Enterprise Budgeting and Economic Analysis, Forest Management, Animal Management and Marketing involving farmers, landowners, homeowners, senior citizens, youth farmer organizations, federal and state agencies and private industry. For socially disadvantaged and low asset communities: referred publications, fact sheets and brochures, graduate thesis, new varieties introduced, new information and technology, workshops and animal production.  
Not reporting on this Output for this Annual Report

**Output #5**

**Output Measure**

- Number of peer reviewed publications  
Not reporting on this Output for this Annual Report

**Output #6**

**Output Measure**

- Number of patents and disclosures  
Not reporting on this Output for this Annual Report

**Output #7**

**Output Measure**

- Number of plant varieties developed and improved.  
Not reporting on this Output for this Annual Report

**Output #8**

**Output Measure**

- Number of animal breeds developed and improved  
Not reporting on this Output for this Annual Report

**Output #9**

**Output Measure**

- Number of vaccines developed and/or tested  
Not reporting on this Output for this Annual Report

**Output #10**

**Output Measure**

- Number of graduate students completed  
Not reporting on this Output for this Annual Report

**Output #11**

**Output Measure**

- Number of methods and technologies developed/evaluated  
Not reporting on this Output for this Annual Report

**Output #12**

**Output Measure**

- Number of technical and poster presentations  
Not reporting on this Output for this Annual Report

**Output #13**

**Output Measure**

- Number of training events and conferences for target audience (includes: numbers of workshops, regional meetings, conferences, and webinars, as well as number of participants)  
Not reporting on this Output for this Annual Report

**Output #14**

**Output Measure**

- Number of on- and off-site demonstrations (number of participants)  
Not reporting on this Output for this Annual Report

**Output #15**

**Output Measure**

- Number of exhibitions and tradeshow (number of participants reached)  
Not reporting on this Output for this Annual Report

**Output #16**

**Output Measure**

- Number of participants (Measures: event registrations, direct adult and youth contacts, and indirect adult and youth contacts )  
Not reporting on this Output for this Annual Report

**Output #17**

**Output Measure**

- Number of educational publications developed or improved (includes: number of bulletins, handbooks, special products, newsletters/news releases, factsheets, eXtension factsheets, magazine, and newspaper articles)  
Not reporting on this Output for this Annual Report

**Output #18**

**Output Measure**

- Number of social media information sharing and interactions (including: Number of followers, virality of posts, and number of queries or feedback from audience)  
Not reporting on this Output for this Annual Report

**Output #19**

**Output Measure**

- Number of in-service training sessions for Extension and Research personnel (number of participants)  
Not reporting on this Output for this Annual Report

**Output #20**

**Output Measure**

- Number of training curricula or modules developed/improved (number of viewers or people trained)  
Not reporting on this Output for this Annual Report

**Output #21**

**Output Measure**

- Number of Sustainable Commercial Horticulture in-service training sessions for Extension and Research personnel (number of participants)



<b>Year</b>	<b>Actual</b>
2016	3

**Output #22**

**Output Measure**

- Number of Sustainable Commercial Horticulture workshops for socially disadvantaged and low asset communities

<b>Year</b>	<b>Actual</b>
2016	413

**Output #23**

**Output Measure**

- Number of participants at on- and off-site Sustainable Commercial Horticulture demonstrations

<b>Year</b>	<b>Actual</b>
2016	9

**Output #24**

**Output Measure**

- Number of Sustainable Commercial Horticulture participants (measures: event registrations, direct adult and youth contacts, and indirect adult and youth contacts)

<b>Year</b>	<b>Actual</b>
2016	10000

**Output #25**

**Output Measure**

- Number of Sustainable Commercial Horticulture participants at the AFVGA Annual Conference

<b>Year</b>	<b>Actual</b>
2016	210

**Output #26**

**Output Measure**

- Number of Sustainable Commercial Horticulture webinars

<b>Year</b>	<b>Actual</b>
2016	11

**Output #27**

**Output Measure**

- Number of Sustainable Commercial Horticulture webinar participants

<b>Year</b>	<b>Actual</b>
2016	750

**Output #28**

**Output Measure**

- Number of Sustainable Commercial Horticulture educational publications developed or improved (includes: number of bulletins, handbooks, special products, newsletters/news releases, factsheets, eXtension factsheets, magazine, and newspaper articles)

<b>Year</b>	<b>Actual</b>
2016	6

**Output #29**

**Output Measure**

- Number of Sustainable Commercial Horticulture training curricula or modules developed/improved (number of viewers or people trained)

<b>Year</b>	<b>Actual</b>
2016	9

**Output #30**

**Output Measure**

- Number of Sustainable Commercial Horticulture public service announcements

<b>Year</b>	<b>Actual</b>
2016	30

**Output #31**

**Output Measure**

- Number of Sustainable Commercial Horticulture TV appearances for public awareness of critical farming issues

<b>Year</b>	<b>Actual</b>
2016	10

**Output #32**

**Output Measure**

- Number of subscribers to the IPM newsletter

<b>Year</b>	<b>Actual</b>
2016	2534

**Output #33**

**Output Measure**

- Number of Sustainable Commercial Horticulture surveys completed

<b>Year</b>	<b>Actual</b>
2016	16

**Output #34**

**Output Measure**

- Number of Holistic Real Time(HRT) meetings

<b>Year</b>	<b>Actual</b>
2016	62

**Output #35**

**Output Measure**

- Number of Holistic Real Time (HRT) demonstrations

<b>Year</b>	<b>Actual</b>
2016	243

**Output #36**

**Output Measure**

- Number of Holistic Real Time (HRT)in-service training sessions

<b>Year</b>	<b>Actual</b>
2016	18

**Output #37**

**Output Measure**

- Number of Holistic Real Time (HRT) participants (measures: event registrations, direct adult and youth contacts, and indirect adult and youth contacts)

<b>Year</b>	<b>Actual</b>
2016	5381

**Output #38**

**Output Measure**

- Number of Holistic Real Time (HRT)educational publications developed or improved (includes: number of bulletins, handbooks, special products, newsletters/news releases, factsheets, eXtension factsheets, magazine, and newspaper articles)

<b>Year</b>	<b>Actual</b>
2016	85

**Output #39**

**Output Measure**

- Number of Holistic Real Time (HRT) exhibitions and tradeshow (number of participants reached)

<b>Year</b>	<b>Actual</b>
2016	6

**Output #40**

**Output Measure**

- Number of Holistic Real Time (HRT) electronic media (web-based materials including blog posts, twitter posts, video productions)

<b>Year</b>	<b>Actual</b>
2016	348

**Output #41**

**Output Measure**

- Number of Sustainable Horticultural Crops Reactive programs training events and conferences for target audience (includes: numbers of workshops, regional meetings, conferences, and webinars, as well as number of participants)

<b>Year</b>	<b>Actual</b>
2016	11

**Output #42**

**Output Measure**

- Number of Sustainable Horticultural Crops Reactive programs educational publications developed or improved (includes: number of bulletins, handbooks, special products, newsletters/news releases, factsheets, eXtension factsheets, magazine, and newspaper articles)

<b>Year</b>	<b>Actual</b>
2016	7

**Output #43**

**Output Measure**

- Number of samples processed through the Auburn Plant Diagnostic Lab, providing clients with diagnoses and IPM recommendations.

<b>Year</b>	<b>Actual</b>
2016	2417

**Output #44**

**Output Measure**

- Number of on-site visits to troubleshoot plant diseases/disorders.

<b>Year</b>	<b>Actual</b>
2016	9

**Output #45**

**Output Measure**

- Number of precision agriculture technologies and practices addressed during the Adv. Prec. Ag workshop.

<b>Year</b>	<b>Actual</b>
2016	5

**Output #46**

**Output Measure**

- Number of people that received training during the Adv. Prec. Ag workshop

<b>Year</b>	<b>Actual</b>
2016	130

**Output #47**

**Output Measure**

- Number of people that received training on Precision Planting Tech during AL corn and Wheat short course

<b>Year</b>	<b>Actual</b>
2016	95

**Output #48**

**Output Measure**

- Number of total Alabama Row Crops Webinars per year

<b>Year</b>	<b>Actual</b>
2016	51

**Output #49**

**Output Measure**

- Number of people who viewed recorded Alabama Row Crops webinars

<b>Year</b>	<b>Actual</b>
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2016 931

**Output #50**

**Output Measure**

- Number of agents and specialists who participated in delivery of Alabama Row Crops webinars

<b>Year</b>	<b>Actual</b>
2016	20

**Output #51**

**Output Measure**

- Number of Alabama Ethnic Food Security Network training events and conferences for target audience (includes: numbers of workshops, regional meetings, conferences, and webinars, as well as number of participants)

<b>Year</b>	<b>Actual</b>
2016	20

**Output #52**

**Output Measure**

- Number of Nutrient Management training participants

<b>Year</b>	<b>Actual</b>
2016	1158

**Output #53**

**Output Measure**

- Number of Nutrient Management Training workshops

<b>Year</b>	<b>Actual</b>
2016	15

**Output #54**

**Output Measure**

- Number of hours of continuing education units (CEU's) earned by attendees of Nutrient Management Training

<b>Year</b>	<b>Actual</b>
2016	2316

**Output #55**

**Output Measure**

- Number of Sustainable Livestock Production peer-reviewed publications (Crop Science, Journal of the National County Agents Association, Forage and Grazinglands)

<b>Year</b>	<b>Actual</b>
2016	6

**Output #56**

**Output Measure**

- Number of Sustainable Livestock Production graduate student programs completed

<b>Year</b>	<b>Actual</b>
2016	2

**Output #57**

**Output Measure**

- Number of Sustainable Livestock Production training events, conferences, workshops, meetings, and webinars conducted on beef management systems

<b>Year</b>	<b>Actual</b>
2016	130

**Output #58**

**Output Measure**

- Number of Sustainable Livestock Production program participants (contacts reported at programs, followers on social media, visits to website and online coursework, subscribers to electronic newsletter)

<b>Year</b>	<b>Actual</b>
2016	8157

**Output #59**

**Output Measure**

- Number of Sustainable Livestock Production educational publications developed or improved (ANR publications, timely information sheets, popular press articles)

<b>Year</b>	<b>Actual</b>
2016	29

**Output #60**

**Output Measure**

- Number of Sustainable Livestock Production followers on online extension outlets (Facebook,

Twitter # of followers, # of subscribers to MailChimp electronic newsletter listserv)

<b>Year</b>	<b>Actual</b>
2016	1391

**Output #61**

**Output Measure**

- Number of Sustainable Livestock Production surveys completed

<b>Year</b>	<b>Actual</b>
2016	817

**Output #62**

**Output Measure**

- Number of Sustainable Livestock Production demonstration projects related to beef management systems conducted

<b>Year</b>	<b>Actual</b>
2016	6

**Output #63**

**Output Measure**

- Number of Sustainable Livestock Production social media information sharing and interactions (including: Number of followers, virality of posts, and number of queries or feedback from audience)

<b>Year</b>	<b>Actual</b>
2016	1391

**Output #64**

**Output Measure**

- Number of Sustainable Livestock Production educational modules and training curricula developed (PowerPoint presentations, online course video modules, YouTube videos, webinars)

<b>Year</b>	<b>Actual</b>
2016	22

**Output #65**

**Output Measure**

- Number of Sustainable Livestock production conference proceedings and technical poster presentations

<b>Year</b>	<b>Actual</b>
2016	7



**Output #66**

**Output Measure**

- Number of Promoting Meat Goat Production Among Minority and Women Farmers peer reviewed publications

<b>Year</b>	<b>Actual</b>
2016	7

**Output #67**

**Output Measure**

- Number of Promoting Meat Goat Production Among Minority and Women Farmers workshops

<b>Year</b>	<b>Actual</b>
2016	12

**Output #68**

**Output Measure**

- Number of Promoting Meat Goat Production Among Minority and Women Farmers technical assistance hours

<b>Year</b>	<b>Actual</b>
2016	80

**Output #69**

**Output Measure**

- Number of Promoting Meat Goat Production Among Minority and Women Farmers training events and conferences for target audience (includes: numbers of workshops, regional meetings, conferences, and webinars, as well as number of participants)

<b>Year</b>	<b>Actual</b>
2016	12

**Output #70**

**Output Measure**

- Number of Promoting Meat Goat Production Among Minority and Women Farmers workshops for socially disadvantaged and low asset communities

<b>Year</b>	<b>Actual</b>
2016	4

**Output #71**

**Output Measure**

- Number of Poultry Industry Training workshops

<b>Year</b>	<b>Actual</b>
2016	11

**Output #72**

**Output Measure**

- Number of National Poultry Technology Center technical and poster presentations

<b>Year</b>	<b>Actual</b>
2016	100

**Output #73**

**Output Measure**

- Number of National Poultry Technology Center workshops

<b>Year</b>	<b>Actual</b>
2016	2

**Output #74**

**Output Measure**

- Number of National Poultry Technology Center technical assistance hours

<b>Year</b>	<b>Actual</b>
2016	900

**Output #75**

**Output Measure**

- Number of Small Poultry Flock training events and conferences for target audience (includes: numbers of workshops, regional meetings, conferences, and webinars, as well as number of participants)

<b>Year</b>	<b>Actual</b>
2016	6

**Output #76**

**Output Measure**

- Number of Feed Milling Technology training events and conferences for target audience (includes: numbers of workshops, regional meetings, conferences, and webinars, as well as number of participants)

<b>Year</b>	<b>Actual</b>
2016	3

**Output #77**

**Output Measure**

- Number of Poultry Health and Management websites developed

<b>Year</b>	<b>Actual</b>
2016	1

**Output #78**

**Output Measure**

- Number of Poultry Health and Management technical assistance hours

<b>Year</b>	<b>Actual</b>
2016	36

**Output #79**

**Output Measure**

- Number of AU Global Food Security peer reviewed publications

<b>Year</b>	<b>Actual</b>
2016	61

**Output #80**

**Output Measure**

- Number of AU Global Food Security graduate students completed:

<b>Year</b>	<b>Actual</b>
2016	18

**Output #81**

**Output Measure**

- Number of AU Global Food Security technical and poster presentations:

<b>Year</b>	<b>Actual</b>
2016	120

**Output #82**

**Output Measure**

- Number of AU Global Food Security training events:

<b>Year</b>	<b>Actual</b>
2016	18

**Output #83**

**Output Measure**

- Number of AU Global Food Security demonstration

<b>Year</b>	<b>Actual</b>
2016	15

**Output #84**

**Output Measure**

- Number of AU Global Food Security participants:

<b>Year</b>	<b>Actual</b>
2016	169

**Output #85**

**Output Measure**

- The number of publications for socially disadvantaged and low asset communities

<b>Year</b>	<b>Actual</b>
2016	5

**Output #86**

**Output Measure**

- : Number of technical and poster presentations for socially disadvantaged and low asset communities

<b>Year</b>	<b>Actual</b>
2016	2

**Output #87**

**Output Measure**

- Number of training events and conferences for socially disadvantaged and low asset communities

<b>Year</b>	<b>Actual</b>
2016	4

**Output #88**

**Output Measure**

- Number of participants in workshops for socially disadvantaged and low asset communities

<b>Year</b>	<b>Actual</b>
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2016 61

**Output #89**

**Output Measure**

- Number of Integrative Post Harvest Training, Research, and Demonstration Program workshops

<b>Year</b>	<b>Actual</b>
2016	2

**Output #90**

**Output Measure**

- Number of Integrative Post Harvest Training, Research, and Demonstration Program field days

<b>Year</b>	<b>Actual</b>
2016	2

**Output #91**

**Output Measure**

- Number of Integrative Post Harvest Training, Research, and Demonstration Program University events

<b>Year</b>	<b>Actual</b>
2016	2

**Output #92**

**Output Measure**

- Number of established Integrative Post Harvest Training, Research, and Demonstration Program demonstration sites

<b>Year</b>	<b>Actual</b>
2016	1

**Output #93**

**Output Measure**

- Number of Integrative Post Harvest Training, Research, and Demonstration Program one-on-one consultations

<b>Year</b>	<b>Actual</b>
2016	15

**Output #94**

**Output Measure**

- Number of Integrative Post Harvest Training, Research, and Demonstration Program college-age students reached

<b>Year</b>	<b>Actual</b>
2016	10

**Output #95**

**Output Measure**

- Number of g Integrative Post Harvest Training, Research, and Demonstration Program raduate students trained

<b>Year</b>	<b>Actual</b>
2016	2

**Output #96**

**Output Measure**

- Number of Integrative Post Harvest Training, Research, and Demonstration Program poster presentations

<b>Year</b>	<b>Actual</b>
2016	2

**Output #97**

**Output Measure**

- Number of Integrative Post Harvest Training, Research, and Demonstration Program Black Belt students participating in IPM activities:

<b>Year</b>	<b>Actual</b>
2016	111

**Output #98**

**Output Measure**

- Number of Integrative Post Harvest Training, Research, and Demonstration Program gardeners and producers reached

<b>Year</b>	<b>Actual</b>
2016	176

**Output #99**

**Output Measure**

- Number of Integrative Post Harvest Training, Research workshops

<b>Year</b>	<b>Actual</b>
2016	2

**Output #100**

**Output Measure**

- Number of Integrative Post Harvest Training, Research field days

<b>Year</b>	<b>Actual</b>
2016	2

**Output #101**

**Output Measure**

- Number of Integrative Post Harvest Training, Research University events

<b>Year</b>	<b>Actual</b>
2016	2

**Output #102**

**Output Measure**

- Number of established Integrative Post Harvest Training, Research demonstration sites

<b>Year</b>	<b>Actual</b>
2016	1

**Output #103**

**Output Measure**

- Number of Integrative Post Harvest Training, Research one-on-one consultations

<b>Year</b>	<b>Actual</b>
2016	15

**Output #104**

**Output Measure**

- Number of Integrative Post Harvest Training, Research college-age students reached

<b>Year</b>	<b>Actual</b>
2016	10

**Output #105**

**Output Measure**

- Number of Integrative Post Harvest Training, Research graduate students trained:

<b>Year</b>	<b>Actual</b>
2016	2

**Output #106**

**Output Measure**

- Number of Integrative Post Harvest Training, Research poster presentations

<b>Year</b>	<b>Actual</b>
2016	2

**Output #107**

**Output Measure**

- Number of Integrative Post Harvest Training, Research Black Belt students participating in postharvest activities

<b>Year</b>	<b>Actual</b>
2016	111

**Output #108**

**Output Measure**

- Number of Small Farmer Resource and Technology program Middle and High Schools

<b>Year</b>	<b>Actual</b>
2016	5

**Output #109**

**Output Measure**

- Number of Small Farmer Resource and Technology program workshops

<b>Year</b>	<b>Actual</b>
2016	21

**Output #110**

**Output Measure**

- Number of Small Farmer Resource and Technology program University Students trained

<b>Year</b>	<b>Actual</b>
2016	1

**Output #111**

**Output Measure**

- Number of Small Farmer Resource and Technology program Houses Constructed



<b>Year</b>	<b>Actual</b>
2016	6

**Output #112**

**Output Measure**

- Number of Small Farmer Resource and Technology program bulletins

<b>Year</b>	<b>Actual</b>
2016	2

**Output #113**

**Output Measure**

- Number of Small Farmer Resource and Technology program Veteran Farmers reached

<b>Year</b>	<b>Actual</b>
2016	6

**Output #114**

**Output Measure**

- Number of Small Farmer Resource and Technology program crop varieties evaluated for production

<b>Year</b>	<b>Actual</b>
2016	7

**Output #115**

**Output Measure**

- Number of Small Farmer Resource and Technology program poster presentations

<b>Year</b>	<b>Actual</b>
2016	2

**Output #116**

**Output Measure**

- Number of Small Farmer Resource and Technology program participants in off-site demonstrations:

<b>Year</b>	<b>Actual</b>
2016	245

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	The long term target is to increase or to sustain agricultural production as measured by market value of agricultural products (2008 = \$4.67 billion). Program success will be indicated if market value of AL agricultural products stays level or increase. The short term outcome target will be the number of producers who are informed of the method developed, the varieties developed, or the best practices developed; The mid-term measure will be the number of farmers and producers adopting the methods, varieties, improved genetic stocks, or adopting the best agricultural practices.
2	Development of new variety of crops, new breeds of animals and stocks of poultry or aquaculture species
3	Development of technologies for control and management of plant diseases, pests, and animal diseases
4	Development and/or application of technologies, farming approaches, or organizational strategies that ensure the sustainability of rural communities and agricultural and forestry production systems.
5	Increase broiler producer awareness of methods to reduce waste management issues on farms; Increase poultry producer confidence in litter management techniques; and Train poultry industry personnel in poultry house technology and management
6	Increase knowledge of horticultural production methods and marketing
7	Adoption of row crop production practices that are sustainable and profitable
8	Integrated pest management adoption
9	Increase in active, viable forestry and wildlife county committees
10	Increase the knowledge of catfish producers in more efficient practices; Expand the use of hybrid catfish in production; and Incorporate management that optimizes quality and profitability at all stages of production to marketing
11	Increase understanding of pond function and management by owners; Reduce improper management by consultants; and Increase satisfaction and enjoyment of ponds by owners
12	Increase public understanding of water conservation; Improve angler education to increase understanding of fisheries management; and Increase enjoyment of angling
13	Increase appreciation of aquaculture and aquatic natural resources by students and teachers
14	Increase public awareness of costal environmental issues
15	Increase knowledge and awareness of methodologies and practices used in establishing and sustaining a viable forage base on Alabama livestock and equine farms

16	Increase producer knowledge through comprehensive programming for livestock and equine owners on sustainability of production, proper care and appropriate marketing options
17	Increase training in Integrated Pest Management, Plasticulture, Organic Farming, Forest Management, Animal Management and Marketing involving farmers, landowners, homeowners, senior citizens, youth farmer organizations, federal and state agencies and private industry.
18	Increase knowledge and awareness of food security and the role of the food environment in North Alabama
19	Increase in knowledge related to economic inefficiencies and disease problems faced by fish farmers
20	The increase in knowledge related to impact of climate variability on catfish
21	Increase in knowledge of AU Researchers related to intergrated pest management
22	The number of TU Global Food Security participants who gained knowledge enterprise budgets and farm economics
23	The number of Black Belt livestock producers who apdopted farm managment best practices
24	The number of Black Belt livestock producers who adopted financial managment recommnedations
25	The number of limite resource livestock producers who increased knowledge of livestock and equine best management practices
26	The percentage increase of limited resource farmers ability to identify veg pests
27	Percent increase of limited resource farmers knowledge of IPM best practices in home food gardens
28	The percent increase of Black Belt participants knowledge of timely pesticide application in home food gardens
29	The percent increase of Black Belt residents knowledge of economic thresholds for major pests of vegetables in home gardens
30	An increase in the number of limited resource producers utilizing prebreeding flushing.
31	The number of Integrative Post Harvest Training, Research, and Demonstration Program with increased knowledge of water conservation best practices
32	Percent increase in profits for postharvests recommnedations adopted
33	The number of farmers selling first season of tunnel house grown produce in three local grocery stores
34	Percent of Small Farmer Resource and Technology program participants who improved production through drip irrigation

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35	The number of acres increased with agriplactic production
36	Number of small-scale and limited-resource farmers that gained knowledge of key production management practices for sheep and goats
37	Number of small-scale and limited-resource farmers that observed improved sheep and goat production efficiency
38	Number of small-scale and limited-resource farmers raising sheep and goats that observed improved herd health and well-being
39	Number of small-scale and limited-resource farmers raising sheep and goats that reported increased profitability rates ranging from 5 to 20%
40	The number of participants who adopted disease management best practices
41	Percent decrease of money spent on dewormers
42	Percent adoption rate of horticultural recommendations among experienced farmers
43	Percent increase in knowledge of horticultural producers
44	Percent adoption rate of horticultural recommendations among new and beginning farmers
45	Percent yield improvement of the Alabama IPM Communicator Newsletter
46	Dollar value attributed to the increase in farm gate income attributed to extension recommendations.
47	Percentage of farmer stakeholders that plant to adopt control strategies for target spot following extension recommendations.
48	percent of clientel that adopted recommended IPM practices.
49	Percent increase in understanding of nutrient management by certified animal waste vendors
50	Percent knowledge gained by participants
51	Percent increase in knowledge gained by participants
52	Percent increase in feed milling knowledge by feed mill employees
53	Percent of farmers showing improvements in farm biosecurity
54	Economic value of poultry producer training

## **Outcome #1**

### **1. Outcome Measures**

The long term target is to increase or to sustain agricultural production as measured by market value of agricultural products (2008 = \$4.67 billion). Program success will be indicated if market value of AL agricultural products stays level or increase. The short term outcome target will be the number of producers who are informed of the method developed, the varieties developed, or the best practices developed; The mid-term measure will be the number of farmers and producers adopting the methods, varieties, improved genetic stocks, or adopting the best agricultural practices.

Not Reporting on this Outcome Measure

## **Outcome #2**

### **1. Outcome Measures**

Development of new variety of crops, new breeds of animals and stocks of poultry or aquaculture species

### **2. Associated Institution Types**

- 1862 Research

### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	3

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

There is need to develop new crop varieties and rootstocks that are drought-tolerant and resistant to pests and diseases.

#### **What has been done**

One hundred eighteen genotypes of the U.S. peanut mini-core germplasm collection were used for screening for TSWV resistance by mechanical inoculation and ELISA assay. In another project, apple and pear selections were evaluated for resistance to fire blight.

#### **Results**

Of the 118 peanut genotypes screened, four genotypes, PI356004, PI493880, PI355271, and

PI496401, were identified as resistant to TSWV. These highly resistant genotypes along with their associated markers could be used for development of TSWV-resistant cultivars in a peanut breeding program. Several disease-resistant rootstock selections were identified.

#### 4. Associated Knowledge Areas

<b>KA Code</b>	<b>Knowledge Area</b>
201	Plant Genome, Genetics, and Genetic Mechanisms
202	Plant Genetic Resources
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
302	Nutrient Utilization in Animals
311	Animal Diseases
402	Engineering Systems and Equipment
502	New and Improved Food Products
601	Economics of Agricultural Production and Farm Management

#### Outcome #3

##### 1. Outcome Measures

Development of technologies for control and management of plant diseases, pests, and animal diseases

##### 2. Associated Institution Types

- 1862 Research

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

<b>Year</b>	<b>Actual</b>
2016	3

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

In Alabama and other parts of the humid Southern U.S, crop production is severely limited by a myriad of insect pests and plant pathogens. Similarly, there are many new and emerging

diseases that affect livestock and aquaculture production. Development of effective control and management practices for pests and diseases is critical to ensuring profitability of Alabama's agriculture enterprise.

#### **What has been done**

Several studies were conducted to develop and evaluate novel management tactics against key pests and diseases of agriculture in Alabama. One project evaluated novel polymeric substances to control *Xylella fastidiosa*, a bacterial plant pathogen of grapes and blueberries. Another project studied the epidemiology of some plant diseases and evaluated management strategies for aflatoxin in corn and peanut. Other projects focused on management of insect pests in field and specialty crops, as well as urban and invasive insect pests. Additionally, several studies were conducted to develop or evaluate control strategies against pathogens of poultry (with special focus on avian influenza) and parasites of fish.

#### **Results**

The projects highlighted above have identified promising pest and disease control tactics for key commodities in Alabama. The results of the *Xylella* project indicate the possibility of rapid evolution leading to adaptation to different hosts by *Xylella fastidiosa*. Effective fungicide treatments were identified for managing Fusarium Head Blight management on wheat. Trap cropping was identified as an effective management tactic against some insect pests of specialty crops. The results of a poultry disease project have implicated darkling beetles, present in many poultry houses, as a potential source for spread of avian influenza. The results of another study provides the first transcriptome sequencing of Florida pompano and key insights into the acute pathogenesis of *Amyloodinium ocellatum*, an important parasite of marine fish.

### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
202	Plant Genetic Resources
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
205	Plant Management Systems
206	Basic Plant Biology
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
216	Integrated Pest Management Systems
311	Animal Diseases

### **Outcome #4**

#### **1. Outcome Measures**

Development and/or application of technologies, farming approaches, or organizational strategies that ensure the sustainability of rural communities and agricultural and forestry production systems.

Not Reporting on this Outcome Measure

**Outcome #5**

**1. Outcome Measures**

Increase broiler producer awareness of methods to reduce waste management issues on farms; Increase poultry producer confidence in litter management techniques; and Train poultry industry personnel in poultry house technology and management

Not Reporting on this Outcome Measure

**Outcome #6**

**1. Outcome Measures**

Increase knowledge of horticultural production methods and marketing

Not Reporting on this Outcome Measure

**Outcome #7**

**1. Outcome Measures**

Adoption of row crop production practices that are sustainable and profitable

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	5

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Precision agricultural management practices can make agricultural production more efficient and profitable. There is need for increased knowledge and adoption of precision agriculture technologies and other modern farming practices by Alabama producers and stakeholders, through applied research and extension activities.

**What has been done**



Several research projects were conducted to evaluate precision agriculture technologies (including UAV technology and remote sensing) as tools for improving efficiency of agricultural production, specifically irrigation and plant disease management. In addition, several groups of stakeholders were trained on different aspects of precision agriculture, specifically UAV technology, variable rate irrigation, and adoption of precision agriculture technologies. The 2016 Advanced Precision Agriculture workshop was conducted to highlight and train participants in the use of five different precision agriculture strategies: precision planting, precision spraying, data management, variable rate nutrient management, and variable rate irrigation. There were 130 participants including producers, crop consultants, industry representatives, extension agents, extension faculty, USDA-ARS scientists, NRCS employees.

**Results**

The research and extension activities resulted in increased knowledge of precision agriculture technologies among Alabama producers and stakeholders.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
111	Conservation and Efficient Use of Water
205	Plant Management Systems
216	Integrated Pest Management Systems
601	Economics of Agricultural Production and Farm Management

**Outcome #8**

**1. Outcome Measures**

Integrated pest management adoption

Not Reporting on this Outcome Measure

**Outcome #9**

**1. Outcome Measures**

Increase in active, viable forestry and wildlife county committees

Not Reporting on this Outcome Measure

**Outcome #10**

**1. Outcome Measures**

Increase the knowledge of catfish producers in more efficient practices; Expand the use of hybrid catfish in production; and Incorporate management that optimizes quality and profitability at all stages of production to marketing

Not Reporting on this Outcome Measure

**Outcome #11**

**1. Outcome Measures**

Increase understanding of pond function and management by owners; Reduce improper management by consultants; and Increase satisfaction and enjoyment of ponds by owners

Not Reporting on this Outcome Measure

**Outcome #12**

**1. Outcome Measures**

Increase public understanding of water conservation; Improve angler education to increase understanding of fisheries management; and Increase enjoyment of angling

Not Reporting on this Outcome Measure

**Outcome #13**

**1. Outcome Measures**

Increase appreciation of aquaculture and aquatic natural resources by students and teachers

Not Reporting on this Outcome Measure

**Outcome #14**

**1. Outcome Measures**

Increase public awareness of costal environmental issues

Not Reporting on this Outcome Measure

**Outcome #15**

**1. Outcome Measures**

Increase knowledge and awareness of methodologies and practices used in establishing and sustaining a viable forage base on Alabama livestock and equine farms

Not Reporting on this Outcome Measure

**Outcome #16**

**1. Outcome Measures**

Increase producer knowledge through comprehensive programming for livestock and equine owners on sustainability of production, proper care and appropriate marketing options

Not Reporting on this Outcome Measure

**Outcome #17**

**1. Outcome Measures**

Increase training in Integrated Pest Management, Plasticulture, Organic Farming, Forest Management, Animal Management and Marketing involving farmers, landowners, homeowners, senior citizens, youth farmer organizations, federal and state agencies and private industry.

Not Reporting on this Outcome Measure

**Outcome #18**

**1. Outcome Measures**

Increase knowledge and awareness of food security and the role of the food environment in North Alabama

**2. Associated Institution Types**

- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	1

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The main objectives were to identify and map characteristics and components of the local food system, identifying gaps and barriers to hunger and food security. The collected food security and socio-economic characteristics for all of the counties in Alabama and found high levels of poverty and food insecurity.

**What has been done**

Workshops and seminars have provided stakeholders with information on the connectivity between the food environment, including access and availability of healthy foods and the importance to food security for current and future generations. Two publications are pending by (Herbert, et al.,) on Food Security as a Function of the Food Store Environment in the Southern United States? A Case Study of Alabama?s Sixty-Seven Counties? and ?Assessing Food Security and Local Food Systems for Healthy, Livable and Sustainable Communities in North Alabama?

**Results**

AAMU Research- Food security is a difficult concept to grasp particularly as there are many definitions. The project increased the level of awareness about the connections between food security, food production and processing, health, nutrition, education, poverty and sustainable livelihoods for key stakeholders in Northern Alabama. The project also resulted in increased knowledge and awareness of methodologies and practices used in establishing and sustaining a viable forage base in Northern Alabama.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
601	Economics of Agricultural Production and Farm Management

**Outcome #19**

**1. Outcome Measures**

Increase in knowledge related to economic inefficiencies and disease problems faced by fish farmers

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	1

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Sustainable aquaculture production systems

**What has been done**

Research studies

**Results**

Auburn University Researchers are addressing economic inefficiencies and disease problems faced by fish farmers in Alabama including diagnostic lab that addresses all aspects of aquatic animal health and fish kills.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
102	Soil, Plant, Water, Nutrient Relationships
311	Animal Diseases

**Outcome #20**

**1. Outcome Measures**

The increase in knowledge related to impact of climate variability on catfish

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	1

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Catfish are an important resource in Alabama. Climate variability impacts catfish production.

**What has been done**

Conducted research on impact of climate variability on catfish

**Results**

Work is also carried out to develop the next generation of catfish that can tolerate high water temperatures due to impact of climate variability on summer water temperatures, determining the optimum pond environment for fish production, and to sustainable coupling of high density fish production with algae and vegetable production systems

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
102	Soil, Plant, Water, Nutrient Relationships
212	Pathogens and Nematodes Affecting Plants
216	Integrated Pest Management Systems
311	Animal Diseases

**Outcome #21**

**1. Outcome Measures**

Increase in knowledge of AU Researchers related to intergrated pest management

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	5

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Development of effective control and management practices for pests and diseases is critical to ensuring profitability of Alabama?s agriculture enterprise.

**What has been done**

Several researchers at Auburn are developing environmentally friendly and economically feasible methods to control and manage plant pests and disease. Examples include use of crop rotation, trap crops, developing resistant cultivar breeding and selection for important crops in Alabama (e.g., kiwi, cotton, sweet potatoes, cucurbit, soybean, wheat, corn, peanut, blueberry and pear).

**Results**

These studies have identified effective pest management strategies and resulted in increased knowledge of researchers and other IPM stakeholders.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
216	Integrated Pest Management Systems

**Outcome #22**

**1. Outcome Measures**

The number of TU Global Food Security participants who gained knowledge enterprise budgets and farm economics

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	58

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Interest in locally and regionally grown food is increasing, and encouraging growth of local and regional producers will help revitalize rural economies. Many consumers believe such foods are safer and of better quality, yet recent recalls of products from small producers prove otherwise. Specifically, the project assesses current practices related to food production and safety among local and regional food producers; identifies best practices; and educates local and regional stakeholders through workshops and other means. In addition, the project assesses consumer perceptions on local and regional livestock and products.

**What has been done**

Fifty-eight (58) contacts, including 8 contacts (beef cattle and meat goat producers) who participated in best practices interviews; 48 contacts (beef cattle and meat goat producers) who participated in workshops, and 2 contacts (meat goat producers) given technical assistance in the form of developing enterprise budgets. Also, there were data collection, analysis and presentations made, with 3 students participating in these efforts.

**Results**

TU Research and Extension -Fifty-eight (58 contacts) gained knowledge in practices, developing enterprise budgets, and farm economics/record keeping

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management

**Outcome #23**

**1. Outcome Measures**

The number of Black Belt livestock producers who adopted farm management best practices

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	8

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Interest in locally and regionally grown food is increasing, and encouraging growth of local and regional producers will help revitalize rural economies. Many consumers believe such foods are safer and of better quality, yet recent recalls of products from small producers prove otherwise. Specifically, the project assesses current practices related to food production and safety among local and regional food producers; identifies best practices; and educates local and regional stakeholders through workshops and other means. In addition, the project assesses consumer perceptions on local and regional livestock and products.

**What has been done**

Fifty-eight (58) contacts, including 8 contacts (beef cattle and meat goat producers) who participated in best practices interviews; 48 contacts (beef cattle and meat goat producers) who participated in workshops, and 2 contacts (meat goat producers) given technical assistance in the form of developing enterprise budgets. Also, there were data collection, analysis and presentations made, with 3 students participating in these efforts.

**Results**

TU Research and Extension- 8 of 58 participants adopted farm management best practices

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management



## **Outcome #24**

### **1. Outcome Measures**

The number of Black Belt livestock producers who adopted financial management recommendations

### **2. Associated Institution Types**

- 1890 Extension
- 1890 Research

### **3a. Outcome Type:**

Change in Action Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	50

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

Interest in locally and regionally grown food is increasing, and encouraging growth of local and regional producers will help revitalize rural economies. Many consumers believe such foods are safer and of better quality, yet recent recalls of products from small producers prove otherwise. Specifically, the project assesses current practices related to food production and safety among local and regional food producers; identifies best practices; and educates local and regional stakeholders through workshops and other means. In addition, the project assesses consumer perceptions on local and regional livestock and products.

#### **What has been done**

Fifty-eight (58) contacts, including 8 contacts (beef cattle and meat goat producers) who participated in best practices interviews; 48 contacts (beef cattle and meat goat producers) who participated in workshops, and 2 contacts (meat goat producers) given technical assistance in the form of developing enterprise budgets. Also, there were data collection, analysis and presentations made, with 3 students participating in these efforts.

#### **Results**

TU Research and Extension 50 Black Belt livestock producers adopted recommendation in enterprise budgets and farm economics/record keeping

### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
601	Economics of Agricultural Production and Farm Management

**Outcome #25**

**1. Outcome Measures**

The number of limited resource livestock producers who increased knowledge of livestock and equine best management practices

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	352

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Most small-scale Cow Calf beef producers in Sumter, Marengo, Greene, Hale, Dallas, Perry and surrounding counties are having difficult times producing quality beef cattle for market. Beef cattle production in the southeastern United States differs in size, practice, and production type from other U.S. regions. These differences are explained in part by climate, primary land use for crops, and forage availability. As a result, consumers pay higher prices at the grocery store, international beef imports demands grow and locally grown beef supply becomes limited.

**What has been done**

TUCE and Tuskegee University School of Veterinary Medicine provide hands on small scale beef cattle herd health management (Oct.-Dec) and (Mar.-June). County Ag. Agent assisted two hundred fifteen (215) participants in hands on experiences in one on one hands on herd health management demonstration. Seventy-six (76) farm visits with technical assistance by TU School of Veterinary Medicine on individual farms. Assistance and direction were given regarding forage and forage grass improvement, nutrition, marketing strategies, catch pen design, cross fencing, beef cattle genetics, year-round pasture management, USDA financial programs and technical assistance, farm enterprise budget, and general herding cattle discussion were disseminated by phone, brochures, news articles, local stockyards, technical assistance, workshops, conferences, and one on one contacts. Several thousand livestock animals are seen during a year, with services of deworming, dehorning, vaccinations, pregnancy testing, aging, ear tagging, implants, and provide a basic record keeping tool for future use.

**Results**

Tuskegee Research and Extension The quality of herds has increase; resulting from making better genetic choices. Out of the 352 producers that were engaged: 9 producers have started selecting brood cows and replacement heifers for more uniform calves born; 22 producers

adopted improved herd health practices; 27 producers improved forage management; 110 producers constructed better cattle working facilities/infrastructure improvements; 12 producers increased knowledge in regards to using beef cattle expected progeny differences when selecting herd breeding sires.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
601	Economics of Agricultural Production and Farm Management

**Outcome #26**

**1. Outcome Measures**

The percentage increase of limited resource farmers ability to identify veg pests

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	70

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Small and historically disadvantaged farmers, including women, military veterans, and new and beginning farmers in Alabama Black and other surrounding Counties have been excluded from agricultural programs, denied access to farm programs, underfunded in accessible programs, and have had little to no access to viable marketing opportunities for sale of their vegetables and produce necessary for sustainability and profitability. In addition, lack of IPM knowledge results in major economic losses either from crop losses or application cost associated with excessive pesticide application and over-reliance on pesticides in the quest to manage pests.

**What has been done**

There were over 20 IPM presentations, as well as training workshops and farmer's field days at various locations in Alabama. IPM assistance to farmers has also been in the form of regular field visits, pest surveys, and pest management recommendations. Recommended preventive application of fungicides was very successful in managing fungal diseases such as anthracnose; Farmers have been provided with pesticide compatibility charts to determine compatibility of

specific pesticides with bees which are needed to pollinate some of the crops cultivated by participating farmers. Participation in the Farm Foundation for Veterans program made it possible to expose over 125 veterans to basic concepts in Integrated Pest Management.

**Results**

TU Research and Extension Ability to correctly identify vegetable pests of major economic importance increased by an average of 70%

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
216	Integrated Pest Management Systems

**Outcome #27**

**1. Outcome Measures**

Percent increase of limited resource farmers knowledge of IPM best practices in home food gardens

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	60

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Small and historically disadvantaged farmers, including women, military veterans, and new and beginning farmers in Alabama Black and other surrounding Counties have been excluded from agricultural programs, denied access to farm programs, underfunded in accessible programs, and have had little to no access to viable marketing opportunities for sale of their vegetables and produce necessary for sustainability and profitability. In addition, lack of IPM knowledge results in major economic losses either from crop losses or application cost associated with excessive pesticide application and over-reliance on pesticides in the quest to manage pests.

**What has been done**

There were over 20 IPM presentations, as well as training workshops and farmer's field days at various locations in Alabama. IPM assistance to farmers has also been in the form of regular field

visits, pest surveys, and pest management recommendations. Recommended preventive application of fungicides was very successful in managing fungal diseases such as anthracnose; Farmers have been provided with pesticide compatibility charts to determine compatibility of specific pesticides with bees which are needed to pollinate some of the crops cultivated by participating farmers. Participation in the Farm Foundation for Veterans program made it possible to expose over 125 veterans to basic concepts in Integrated Pest Management.

### Results

Tuskegee Research and Extension -Knowledge on the various tactics (apart from use of pesticides) increased by about 60%

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants
216	Integrated Pest Management Systems

### Outcome #28

#### 1. Outcome Measures

The percent increase of Black Belt participants knowledge of timely pesticide application in home food gardens

#### 2. Associated Institution Types

- 1890 Extension
- 1890 Research

#### 3a. Outcome Type:

Change in Action Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2016	50

#### 3c. Qualitative Outcome or Impact Statement

##### Issue (Who cares and Why)

Small and historically disadvantaged farmers, including women, military veterans, and new and beginning farmers in Alabama Black and other surrounding Counties have been excluded from agricultural programs, denied access to farm programs, underfunded in accessible programs, and have had little to no access to viable marketing opportunities for sale of their vegetables and produce necessary for sustainability and profitability. In addition, lack of IPM knowledge results in major economic losses either from crop losses or application cost associated with excessive pesticide application and over-reliance on pesticides in the quest to manage pests.

**What has been done**

There were over 20 IPM presentations, as well as training workshops and farmer's field days at various locations in Alabama. IPM assistance to farmers has also been in the form of regular field visits, pest surveys, and pest management recommendations. Recommended preventive application of fungicides was very successful in managing fungal diseases such as anthracnose; Farmers have been provided with pesticide compatibility charts to determine compatibility of specific pesticides with bees which are needed to pollinate some of the crops cultivated by participating farmers. Participation in the Farm Foundation for Veterans program made it possible to expose over 125 veterans to basic concepts in Integrated Pest Management.

**Results**

Tuskegee Research and Extension -Knowledge on timely application of pesticides increased by about 50%

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
216	Integrated Pest Management Systems

**Outcome #29**

**1. Outcome Measures**

The percent increase of Black Belt residents knowledge of economic thresholds for major pests of vegetables in home gardens

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	65

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Small and historically disadvantaged farmers, including women, military veterans, and new and beginning farmers in Alabama Black and other surrounding Counties have been excluded from agricultural programs, denied access to farm programs, underfunded in accessible programs, and have had little to no access to viable marketing opportunities for sale of their vegetables and produce necessary for sustainability and profitability. In addition, lack of IPM knowledge results in major economic losses either from crop losses or application cost associated with excessive

pesticide application and over-reliance on pesticides in the quest to manage pests.

**What has been done**

There were over 20 IPM presentations, as well as training workshops and farmer’s field days at various locations in Alabama. IPM assistance to farmers has also been in the form of regular field visits, pest surveys, and pest management recommendations. Recommended preventive application of fungicides was very successful in managing fungal diseases such as anthracnose; Farmers have been provided with pesticide compatibility charts to determine compatibility of specific pesticides with bees which are needed to pollinate some of the crops cultivated by participating farmers. Participation in the Farm Foundation for Veterans program made it possible to expose over 125 veterans to basic concepts in Integrated Pest Management.

**Results**

Tuskegee Research and Extension -Knowledge on the use of relevant economic thresholds for major pests of vegetables increased by about 65%

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
216	Integrated Pest Management Systems
601	Economics of Agricultural Production and Farm Management

**Outcome #30**

**1. Outcome Measures**

An increase in the number of limited resource producers utilizing prebreeding flushing.

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	25

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Despite the wide use of phenotypic evaluation in goats, little is known about the association between body conformation and some reproductive traits in this species. Overall reproductive efficiency in meat goat is measured and expressed as the kidding rate, weaning rate, kidding

interval, and live weight of kids born or weaned. Results of recent studies suggest that goats with low pre-breeding BCS (1.5) and/or BWT (39.0 kg) have higher incidence of prenatal and neonatal mortality rates.]

#### **What has been done**

This study was designed to evaluate relationships between BCS, BWT and reproductive traits (number born alive and weaned, litter size, birth and weaning weights) in Kiko meat goats raised in a pasture management system.]] [[What happened: BWT was recorded using a scale and palpable BCS scale of 1 to 5 (1= emaciated to 5= obese) was subjectively determined at breeding and weaning. Maybe add here outreach/extension activity to share knowledge/findings from this research: pre-breeding flushing for lower BWT dams]]]

#### **Results**

TU Research and Extension A moderate correlation was observed between BWT at breeding and number born alive suggesting that pre-partum BWT is the key body conformation measurement linked to reproductive performance of dams. Dams with BCS of 2.01-3.5 tend to have the highest fecundity and litter size at birth and at weaning. In conclusion, the results of present study showed that, both BWT and BCS had significant effects on kidding rate, and kids born per joined dams. Although, BCS is a better predictor of the variation in body fat reserves between the same breed of animals than BWT, we recommend pre-breeding flushing for lower BWT dams as a management tools to enhance reproductive competency in pasture managed meat goat herds. Twenty five meat goat producers who participated in 2016 Master Goat Producers Certification Program have adopted this technology, for a projected reduction in pre-natal mortality.

#### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
601	Economics of Agricultural Production and Farm Management

#### **Outcome #31**

##### **1. Outcome Measures**

The number of Integrative Post Harvest Training, Research, and Demonstration Program with increased knowledge of water conservation best practices

##### **2. Associated Institution Types**

- 1890 Extension
- 1890 Research

##### **3a. Outcome Type:**

Change in Knowledge Outcome Measure



### 3b. Quantitative Outcome

Year	Actual
2016	12

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Limited resource farmers in the Southeastern United States are challenged in both acres and in sales (in the US, 60% of farms earn less than \$10,000 annually; in Alabama, the number rises to 69%). This significant skewing is even more pronounced among limited resource, minority and socially disadvantaged farmers, many of whom rely on fruit and vegetable production where they can get more per unit income on their limited land area. However, these farmers face severe constraints leading to post-harvest food loss on par with developing country producers.

#### What has been done

The program consisted of 8 assignments, covering general information/resources, postharvest loss assessment (using the Commodity Systems Assessment Methodology of CSAM), postharvest demonstration design, cost/benefit determinations, and postharvest/food processing training program design. Four of the assignments were readings and four required submission of a written report. Each participant chose a fruit or vegetable crop produced in the Alabama/Georgia region to focus on for their assignments.

#### Results

TU Research and Extension A formal evaluation of the e-learning program was performed via a written questionnaire and self-training needs assessment (TNA) form. The TNA was given as a pre-test in November and again as a post-test during closing workshop/seminar. In general the 12 participants averaged a gain of a 87% increased their knowledge and skills. The most highly rated items included ?identifying sources of postharvest technology information? and ?determining costs and benefits of various postharvest technologies?.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
123	Management and Sustainability of Forest Resources
132	Weather and Climate

### Outcome #32

#### 1. Outcome Measures

Percent increase in profits for postharvests recommendations adopted

#### 2. Associated Institution Types

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	91

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Limited resource farmers in the Southeastern United States are challenged in both acres and in sales (in the US, 60% of farms earn less than \$10,000 annually; in Alabama, the number rises to 69%). This significant skewing is even more pronounced among limited resource, minority and socially disadvantaged farmers, many of whom rely on fruit and vegetable production where they can get more per unit income on their limited land area. However, these farmers face severe constraints leading to post-harvest food loss on par with developing country producers.

**What has been done**

The program consisted of 8 assignments, covering general information/resources, postharvest loss assessment (using the Commodity Systems Assessment Methodology of CSAM), postharvest demonstration design, cost/benefit determinations, and postharvest/food processing training program design. Four of the assignments were readings and four required submission of a written report. Each participant chose a fruit or vegetable crop produced in the Alabama/Georgia region to focus on for their assignments.

**Results**

TU Research and Extension- A cost-benefit analysis was conducted with an average of 91% projected increase in profits if postharvest tech was used.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water

**Outcome #33**

**1. Outcome Measures**

The number of farmers selling first season of tunnel house grown produce in three local grocery stores

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	1

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Growing fresh produce abundantly and economically, during the Fall/Winter/Spring seasons of the year has always proven to be a challenge in Alabama. Early plasticulture research conducted at Tuskegee University, aided in the development of the concept of building a simple wooden structure covered with clear plastic, and determine how effective it would be in growing fresh vegetables during the harsh wintry season, with only the "Greenhouse Effect" as a heat source. Because of the relatively small size (but intense management), this technology proves not only its utility to the small farmer, but to communities ravaged by food deserts, new and beginning farmers needing to develop management skills, and schools looking for a living context within to teach STEM.

**What has been done**

Tunnel Houses were constructed in the following locations: Elmore, Coffee, Tallapoosa, Russell, and Chambers counties. In addition to these houses, veterans, small farmers, youth (middle and high school students, teens with legal problems and mental problems), and community organizations were instructed in the overall management of their units, and this is continued through follow up visits.

**Results**

TU Research and Extension Of those receiving tunnel houses, one farmer has improved his situation, by selling his first season of tunnel house grown produce (collards, okra) in three local grocery stores. Additionally, some of the benefits reported by teachers of youth in schools participating were: better cogitative abilities, individual concentration shows improvement, attention span increased, and their memory is stimulated.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management

**Outcome #34**

**1. Outcome Measures**

Percent of Small Farmer Resource and Technology program participants who improved production through drip irrigation

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	75

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Growing fresh produce abundantly and economically, during the Fall/Winter/Spring seasons of the year has always proven to be a challenge in Alabama. Early plasticulture research conducted at Tuskegee University, aided in the development of the concept of building a simple wooden structure covered with clear plastic, and determine how effective it would be in growing fresh vegetables during the harsh wintry season, with only the "Greenhouse Effect" as a heat source. Because of the relatively small size (but intense management), this technology proves not only its utility to the small farmer, but to communities ravaged by food deserts, new and beginning farmers needing to develop management skills, and schools looking for a living context within to teach STEM.

**What has been done**

For new and beginning farmers, monthly workshops were held at S&B farms for training in tunnel house and plasticulture programs and management. Participants were also educated and introduced to the multiple resources available to landowners and growers through FSA, NRCS, Cooperative Extension, and University partners.

**Results**

TU Research and Extension here were 35 participants of the monthly workshops, with 12 participants receiving a graduation certificate verifying their participation in 75% or more of the workshops. One third of these participants have received EQIP assistance with high tunnels and/or wells and drip irrigation.

**4. Associated Knowledge Areas**

**KA Code    Knowledge Area**

### **Outcome #35**

#### **1. Outcome Measures**

The number of acres increased with agriplastic production

#### **2. Associated Institution Types**

- 1890 Extension
- 1890 Research

#### **3a. Outcome Type:**

Change in Condition Outcome Measure

#### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	300

#### **3c. Qualitative Outcome or Impact Statement**

##### **Issue (Who cares and Why)**

Growing fresh produce abundantly and economically, during the Fall/Winter/Spring seasons of the year has always proven to be a challenge in Alabama. Early plasticulture research conducted at Tuskegee University, aided in the development of the concept of building a simple wooden structure covered with clear plastic, and determine how effective it would be in growing fresh vegetables during the harsh wintry season, with only the "Greenhouse Effect" as a heat source. Because of the relatively small size (but intense management), this technology proves not only its utility to the small farmer, but to communities ravaged by food deserts, new and beginning farmers needing to develop management skills, and schools looking for a living context within to teach STEM.

##### **What has been done**

For new and beginning farmers, monthly workshops were held at S&B farms for training in tunnel house and plasticulture programs and management. Participants were also educated and introduced to the multiple resources available to landowners and growers through FSA, NRCS, Cooperative Extension, and University partners.

##### **Results**

TU Research and Extension 300 acres of additional production acres of production with agriplastic grown

#### **4. Associated Knowledge Areas**

**KA Code**    **Knowledge Area**  
601            Economics of Agricultural Production and Farm Management

**Outcome #36**

**1. Outcome Measures**

Number of small-scale and limited-resource farmers that gained knowledge of key production management practices for sheep and goats

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	337

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The dynamic population change that has taken place in Alabama represents new opportunities for food producers and marketers. Because consumer demand for ethnic foods is rising, farmers in Alabama, particularly small-scale and limited-resource farmers have tremendous opportunities to diversify, expand, and supply the growing demand for a number of multicultural foods such as goat and lamb. Therefore, to ensure that farmers improve goat and sheep production in Alabama, comprehensive educational products regarding small ruminant management and technological advances were needed.

**What has been done**

In an effort to help Alabama farmers increase production of goat and lamb meat, Animal Science specialists and agents from the Urban Affairs and New Nontraditional Program (UANNP) Unit of ACES carried out an array of outreach activities and provided broadly-based and objective information in areas such as feeds and feeding, animal genetics, reproductive management, and health of small ruminants.

**Results**

AAMU Extension Small-scale and limited-resource farmers raising sheep and goats in Alabama and neighboring states became more knowledgeable and stayed open to new and different management practices. Three-hundred fifty-nine (359) post surveys indicated that 94% (337) of the respondents gained knowledge about goat and sheep nutrition, genetics, reproduction, and health management practices as a result of the educational activities and the information provided.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
311	Animal Diseases

#### Outcome #37

##### 1. Outcome Measures

Number of small-scale and limited-resource farmers that observed improved sheep and goat production efficiency

##### 2. Associated Institution Types

- 1890 Extension

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	170

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

The dynamic population change that has taken place in Alabama represents new opportunities for food producers and marketers. Because consumer demand for ethnic foods is rising, farmers in Alabama, particularly small-scale and limited-resource farmers have tremendous opportunities to diversify, expand, and supply the growing demand for a number of multicultural foods such as goat and lamb. Therefore, to ensure that farmers own and operate efficient goat and sheep production enterprises, comprehensive educational products regarding forage resource management, identification of appropriate breeds, parasite control, record keeping, and performance evaluation and genetic improvement were needed.

###### **What has been done**

In an effort to help Alabama farmers to successfully own, operate and support goat and sheep farms and associated businesses, Animal Science specialists and agents from the UANNP Unit of ACES carried out an array of outreach activities and provided broadly-based and objective information that emphasized basic goat and sheep management, forage-based feeding system for year-round grazing, breed types best suited for the environmental and management conditions in Alabama, keeping records of individual performance of animals to rank animals with superior genetics, and parasite control strategies.

### Results

Small-scale and limited-resource farmers raising sheep and goats in AAMU Extension Alabama and neighboring states owned and operated successful farms by improving their efficiency of goat and lamb production. Three-hundred fifty-nine (359) post surveys indicated that 47.3% (170) of the respondents reported increases in production efficiency as a result of the educational activities and the information provided.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
311	Animal Diseases

#### Outcome #38

##### 1. Outcome Measures

Number of small-scale and limited-resource farmers raising sheep and goats that observed improved herd health and well-being

##### 2. Associated Institution Types

- 1890 Extension

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	128

##### 3c. Qualitative Outcome or Impact Statement

###### Issue (Who cares and Why)

Because consumer demand for ethnic foods is rising, farmers in Alabama, particularly small-scale and limited-resource farmers have tremendous opportunities to diversify, expand, and supply the growing demand for a number of multicultural foods such as goat and lamb. However, since goat and sheep are more susceptible to internal parasites than other livestock, and are the #1 health problem affecting small ruminants, integrated parasite control methods that decrease reliance on chemical dewormers have to be an important educational focus in Alabama. Therefore, to ensure that farmers use selective deworming to decrease reliance on chemical dewormers, comprehensive educational products that focus on the use of FAMACHA, fecal egg counts, and other integrated parasite control strategies were needed.

###### What has been done

In an effort to help Alabama farmers to combat the prevalence of gastrointestinal nematodes while decreasing reliance on chemical dewormers, Animal Science specialists and agents from



the UANNP Unit of ACES carried out an array of outreach activities and provided broadly-based and objective information that emphasized the use of FAMACHA charts, fecal egg counts, other integrated parasite control strategies, and goat and sheep breed types and crosses that are resistant or resilient to gastrointestinal nematodes.

### Results

Small-scale and limited-resource farmers raising sheep and goats in Alabama and neighboring states fought internal parasites in their animals by using several tools that mitigated the effects of these parasites and enabled farmers to maintain the productivity and health of their livestock.

Three-hundred fifty-nine (359) post surveys indicated that 35.6% (128) of the respondents reported improvements in sheep and goat health and well-being as a result of the educational activities and the information provided.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
311	Animal Diseases

### Outcome #39

#### 1. Outcome Measures

Number of small-scale and limited-resource farmers raising sheep and goats that reported increased profitability rates ranging from 5 to 20%

#### 2. Associated Institution Types

- 1890 Extension

#### 3a. Outcome Type:

Change in Condition Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2016	129

#### 3c. Qualitative Outcome or Impact Statement

##### Issue (Who cares and Why)

The dynamic population change that has taken place in Alabama represents new opportunities for food producers and marketers. Because consumer demand for ethnic foods is rising, farmers in Alabama, particularly small-scale and limited-resource farmers have tremendous opportunities to diversify, expand, and supply the growing demand for a number of multicultural foods such as goat and lamb. Therefore, to ensure that farmers own and operate profitable goat and sheep production enterprises, comprehensive educational products regarding forage resource management, identification of appropriate breeds, parasite control, record keeping, and performance evaluation and genetic improvement were needed.

**What has been done**

In an effort to help Alabama farmers to enhance their profitability and successfully support their goat and sheep farms and associated businesses, Animal Science specialists and agents from the UANNP Unit of ACES carried out an array of outreach activities and provided broadly-based and objective information that emphasized basic goat and sheep management, forage-based feeding system for year-round grazing, breed types best suited for the environmental and management conditions in Alabama, keeping records of individual performance of animals to rank animals with superior genetics, and parasite control strategies.

**Results**

Small-scale and limited-resource farmers raising sheep and goats in Alabama and neighboring states owned and operated profitable farms by improving efficiency of production and herd health management. Three-hundred fifty-nine (359) post surveys indicated that 36% (129) of the respondents reported increases in profitability ranging from 5 to 20% as a result of the educational activities and the information provided.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
302	Nutrient Utilization in Animals
311	Animal Diseases

**Outcome #40**

**1. Outcome Measures**

The number of participants who adopted disease management best practices

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	525

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The US meat goats totaled 2.3 million head in 2012, and it is an emerging industry among small-scale and limited resource producers. This project aims in Alabama, Mississippi and Tennessee. This project aims to attract new minorities and women farmers, to be able to join the increasing number of limited-resource farms that define the immature meat goat industry seeking to satisfy

the growing domestic consumer demand largely satisfied by imports. A series of education programs were conducted FY-2016 to educate farmers on sustainable small ruminant production

**What has been done**

Educational programs (twelve) were conducted throughout Alabama, Mississippi and Tennessee to educate farmers on sustainable production. These programs were focused on: selection of breeding stock, how to identify and treat sick animals and apply proper health care, breeding and kidding season managements, animals selection for resilience to gastro-intestinal parasites through the FAMACHA system, nematode fecal eggs ID counting, deworming strategy, managing Caseous lymphadenitis (CL), facility setup, apply biosecurity measures, different breeds of goats and advantage and disadvantages of the different breeds, body scoring, and marketing strategies

**Results**

AAMU Extension A survey was applied to 995 participants 525 were recovered. A. Began raising goats as influenced by ACES 168(32%) Yes, 289(55%) No, 68(13%) no responded. B. Herd production efficiency increased: 13(2.4%) of 0% ,37(7%) increasing by 5%, 121(23%) an increase by 10%, 37(7%),15%,42(8%) an increase in 20 %, and 158 (30%) showed a greater increase. C. Herd Health based on animal illness and death has declined by 20(8%) producers did not responded, 5 (2%) showed no record of health improvement, 105(20%) mortality decreased by 10%, 53 (10%) by 15%, 68(13%) by 20% and 137(26%) a greater herd health improvement translated by the decline in mortalities, respectively. D. Records of increase in Profitability: 137(26%) producers did not answered this question, 89(17%) indicated herd profitability increased by 10%, 58 (11%) an increase of 15%, 68(13%) an increase of 20% and 121 (23%) of producers indicated a greater increase in herd profitability, respectively. E. Record of Genetic Management has Influence on herd: 126(24%) did not answered this question, 284 (54%) indicated that breed selection affected or changed, 252 (48%) started or modified performance recording and 263 (50%) Modified within-herd selection/culling procedures.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
311	Animal Diseases

**Outcome #41**

**1. Outcome Measures**

Percent decrease of money spent on dewormers

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	75

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The US meat goats totaled 2.3 million head in 2012, and it is an emerging industry among small-scale and limited resource producers. This project aims in Alabama, Mississippi and Tennessee. This project aims to attract new minorities and women farmers, to be able to join the increasing number of limited-resource farms that define the immature meat goat industry seeking to satisfy the growing domestic consumer demand largely satisfied by imports. A series of education programs were conducted FY-2016 to educate farmers on sustainable small ruminant production

**What has been done**

A survey of 995 program participants 525 were recovered indicated that: Herd Health based on animal illness and death has declined by 20(8%) producers did not responded, 5 (2%) showed no record of health improvement, 105(20%) mortality decreased by 10%, 53 (10%) by 15%, 68(13%) by 20% and 137(26%) a greater herd health improvement translated by the decline in mortalities, respectively.

**Results**

Gastrointestinal (GI) nematodes, commonly known as worms, present the greatest danger to the goat industry in the Southeastern region of the United States. Therefore, several programs on GI management were conducted in 2016. From Mrs. Lee & Mr. Ruhemah Caudill: "Listed below are 10 years of purchasing dewormers while learning at Dr. Maria Browning's workshops how to do Famacha, develop a deworming program and to do your own McMasters fecal egg counts. We reduced the amount of money spent on dewormers by 75%. 2005 \$727.40 2006 \$577.19 2007 \$516.53 2008 \$411.41 2009 \$427.99 2010 \$354.78 2011 \$258.75 2012 \$233.15 2013 \$313.05 2014 \$140.67 2015 \$180.55 Additionally, The last year I had my veterinarian do my fecal egg counts was 2011 and my cost for that year \$725. In 2012 I had my veterinarian do two fecal egg counts as a check on my counts for \$16. That was a 98% reduction in my cost. I hope this answers your question about the savings we have made with using your deworming programs

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
311	Animal Diseases

**Outcome #42**

**1. Outcome Measures**

Percent adoption rate of horticultural recommendations among experienced farmers

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	70

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Experienced producers are always looking for expanding to new crops and markets with increasing efficiency of production. Demand for organic crops is rising steadily (15 certified farms) that needs Extension-led research and educational infrastructure for growth and prosperity of small producers. Crop damage can be over 50% if vegetable IPM practices are not implemented appropriately.

**What has been done**

?REAs, CECs, and Specialists have organized 7 grassroots Farming 101 and Beginning Farmer educational series that has trained over 150 aspiring farmers from many communities across Alabama. Adoption rate for crop production and pest management information exceeds 90% since the information is of immediate use.

?The Commercial Horticulture webinar series was started in 2016 and had great success with multi-team participation (5 hours in archive, 750 views).

?With 2500 plus subscribers, the Alabama IPM Communicator newsletter has become the primary vehicle for rapidly disseminating research-based crop production and pest management information.

**Results**

Adoption rate for information after diagnoses of plant health and pest problem is 70% or more since entire crop can be at risk of failure and/or contamination. Pesticide savings and yield improvements are also immediate for producers that use Extension personnel as consultants and call regularly in urgent situations. Alabama Vegetable IPM project survey also found that producers estimated crop loss without IM to be 50% which will be a disaster for the industry.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
205	Plant Management Systems

**Outcome #43**

**1. Outcome Measures**

Percent increase in knowledge of horticultural producers

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	44

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Producers indicate 50% or more crop loss if IPM plan is not designed and implemented carefully.

**What has been done**

The direct impact of IPM workshops (based on event surveys and case studies) suggests \$1.6 million impact on specialty crop industry. The IPM program developed IPM plans for four major small farms (large organic producers) that produce over \$1 million of crops utilizing extension resources (active consultation and handbooks). In 2015, return on investment (ROI) calculations from 2015 indicated an average return of \$59 for every dollar invested by the state. Many project impact videos are available at the Alabama Vegetable IPM website listed under the "Evaluation Toolkit" webpage.

**Results**

The Alabama IPM Communicator survey (2016) indicated 47% subscribers read the newsletter carefully while 18% select articles based on their need. About 71% use the information immediately after reading, and that includes information about training events. Knowledge gain was greatest for row crops, fruit and vegetable IPM, weed control, and gardening tips.

Horticultural education events for producers result in 44% improvement in knowledge and producers utilize the information immediately. Producers are also getting updated research information through the monthly webinar series that has good support based on viewership.

**4. Associated Knowledge Areas**

**KA Code**    **Knowledge Area**  
216            Integrated Pest Management Systems

**Outcome #44**

**1. Outcome Measures**

Percent adoption rate of horticultural recommendations among new and beginning farmers

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	90

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Specialty crop production is increasing at roughly 14% per year and many new producers are growing high value crops for the local market. New producers are attending commercial horticultural training events and seeking on-farm assistance in large numbers due to the need to establish and develop new farms. Many new farmers are also seeking organic and food safety certifications that also leads them to contact ACES.

**What has been done**

?REAs, CECs, and Specialists have organized 7 grassroots Farming 101 and Beginning Farmer educational series that has trained over 150 aspiring farmers from many communities across Alabama. Adoption rate for crop production and pest management information exceeds 90% since the information is of immediate use.

?The Commercial Horticulture webinar series was started in 2016 and had great success with multi-team participation (5 hours in archive, 750 views).

?With 2500 plus subscribers, the Alabama IPM Communicator newsletter has become the primary vehicle for rapidly disseminating research-based crop production and pest management information.

**Results**

We are reaching a new audience of new and beginning farmers through the organic/small farm and beginning farmer projects; these producers have high adoption rates (~90%) for crop production information since we are the only reliable source of agricultural information.

Partnership with other extension teams, nonprofit organizations, and state agencies (NRCS/FSA) for information delivery and on farm assistance has also significantly improved the team

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

#### Outcome #45

##### 1. Outcome Measures

Percent yield improvement of the Alabama IPM Communicator Newsletter

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	27

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

Producers need research based information during the production season to improve their crop and prevent pest damage that can be catastrophic.

###### **What has been done**

Since 2010, the Alabama IPM Communicator Newsletter has been the major source of information for new and experienced producers of various kinds, including row crops, specialty crops, turf and forage crops. Currently there are 2,583 subscribers to the newsletter and all issues are available in the form of electronic blog and PDF in order to satisfy the needs of a broad range of producers.

###### **Results**

Newsletter quality and impacts survey completed in February 2017 indicates an average yield improvement of 27 percent in various crops with a direct benefit of \$17,231 from 10 reported cases of impacts. Collectively, all respondents in the survey grew 19,115 acres of row, fruit and vegetables crops (n=175). 95% respondents support the continuation of the IPM newsletter.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
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**Outcome #46**

**1. Outcome Measures**

Dollar value attributed to the increase in farm gate income attributed to extension recommendations.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	2594301

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Farmer and Agri-business personnel along with REA's and Extension Specialists often lack the knowledge concerning the application of electronic and seed technology to their farming operations, changing fertility and pesticide recommendations and regulations, the impact of weed resistance to agriculture, as well as the magnitude of pest-related yield losses, and applicable control procedures needed to manage emerging and existing weeds, insects, and diseases in corn, cotton, peanut, soybean, wheat and other cereal crops along with production and pest issues of newly introduced crops such as grain sorghum, sesame, and carinata in at time of declining farm revenues and increasingly costly and complex cropping systems.

**What has been done**

Conducted crop (carinata, corn, cotton, peanut, sesame, wheat) county, area, and statewide grower meetings (38) and pod blasting workshops (11); herbicide resistant weed and field crop production tours (15); crop and weed tours (12); AAES Research Field Days (3); IPM Crop Scout Training (3); stored grain workshops (2); private pesticide applicator training (21) and pesticide dealer meetings (3); AL Crop Advisory Training; Corn and Wheat Short Course. Used electronic media to distribute recommendations (6), newsletters (32) and blog posts (39), Timely Information publications (20), YouTube videos (48) with 931 views, and Twitter (278) to facilitate the immediate dissemination of information to clientele. Also conducted on-farm demonstrations (92) and research trials (152) on various crop production topics.

**Results**

Dollar value attributed to the increase in farm gate income or reduction in input costs such as fertilizer, seed, pesticides from following extension production or pest management recommendations as well as income gains realized from timely pest alerts generated by scouting activity of extension personnel and cooperators in the Alabama farm community.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
212	Pathogens and Nematodes Affecting Plants

**Outcome #47**

**1. Outcome Measures**

Percentage of farmer stakeholders that plant to adopt control strategies for target spot following extension recommendations.

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	12000000

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Target spot is an emerging disease of cotton that has the potential, particularly in the southern tier of Alabama counties to reduce lint yield in intensively managed cotton by 20%, particularly on selected cotton varieties. While the knowledge base concerning the onset and development of this disease in cotton is incomplete, preliminary results for research trials as well as observations in stakeholder fields provide preliminary guidelines for greatly limiting disease-related losses. Stakeholders often lack up to date information concerning fungicides and production procedures for managing target spot in cotton.

**What has been done**

After the appearance of target spot in cotton in Alabama in 2011, variety, fungicide, and production management trials have been established statewide at outlying AAES outlying units.

Projects have emphasized establishing registered and experimental fungicide efficacy along with the optimum number and timing of recommended fungicides for slowing target spot development along with impact or rotation, seeding rate, tillage, and planting date on disease severity. Information has been disseminated through presentations at local, regional, and national cotton meetings to producer, consultant, and other stakeholders along print and web-based Timely Information reports, AAES Bulletins, Cotton Beltwide proceedings, and Cotton Inc. publications, as well as digital media such as Twitter and YouTube.

**Results**

Percentage of farmer stakeholders that plan to adopt control strategies for target spot from information presented at a series of cotton production meetings concerning the management of target spot in cotton. Specific chances would likely be planting target spot tolerant cotton varieties and scouting for target spot before triggering fungicide application, optimum application timing, varying the number of fungicide applications based on weather patterns, and using a more cost effective fungicide.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

**Outcome #48**

**1. Outcome Measures**

percent of clientel that adopted recommended IPM practices.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	78

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Commercial growers in the Horticulture industry are faced with biotic diseases, insects, and abiotic disorders every day. They do not have the proper knowledge or equipment to identify their plant diseases/disorders/insects. The Commercial Horticulture REAs and other Specialists are familiar with some disease, but not all. The AU Plant Diagnostic Lab is equipped to accurately identify the causal agent of diseases/disorders and provide IPM recommendations on a case-by-case basis.

**What has been done**

In addition to specific cases outlined below, the AU Diagnostic lab processed 1,086 routine plant samples for diagnosis/identification and 1,331 nematode samples, not including survey sample. All samples were followed up with control (or prevention) recommendation on a case-by-case basis through face-to-face, written, or electronic communications. 7 presentations on diseases of concern in AL were provided to educate growers, homeowners, extension personnel, and regulatory officials (first responders). In addition 5 pest alerts were provided to first responders through electronic communications, newsletters, and fact sheets.

**Results**

1% of Auburn Plant Diagnostic Lab clients are surveyed annually to determine if changes occurred in their IPM practices as a result of the diagnosis and recommendations provided by lab personnel.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
216	Integrated Pest Management Systems

**Outcome #49**

**1. Outcome Measures**

Percent increase in understanding of nutrient management by certified animal waste vendors

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	25

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama has experienced significant growth in the poultry industry over the last several years. Currently, there are 805 large concentrated animal feeding operations (CAFO's). These 805

farms alone may produce over 1.2 million tons of poultry litter that must be land applied correctly, utilizing the most current best management practices. These practices will ensure that water quality is protected, to the extent possible, through the proper use of litter as a source of nutrients.

**What has been done**

A training and certification was held in 2016 for Certified Animal Waste Vendors (CAWV's).

**Results**

Evaluation of certified animal waste vendor knowledge indicates a 25% increase in their understanding of nutrient management after attending the training

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships

**Outcome #50**

**1. Outcome Measures**

Percent knowledge gained by participants

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	14

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Technical training for poultry industry professionals and poultry farmers is frequently completed through local, regional and national seminars.

**What has been done**

Representatives from the NPTC are invited speakers at poultry industry seminars to add to current knowledge regarding poultry housing trends and the economics of new house technologies.

**Results**

Technical presentations were delivered to poultry industry groups on a range of poultry house

technologies and efficiencies. in 2016, 100 presentations were completed at poultry industry meetings. Program participants increased their knowledge of poultry housing management by 14%.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
402	Engineering Systems and Equipment
601	Economics of Agricultural Production and Farm Management

**Outcome #51**

**1. Outcome Measures**

Percent increase in knowledge gained by participants

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	15

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Many owners of small poultry flocks know little about poultry husbandry.

**What has been done**

Six local seminars were conducted to train small poultry flock owners regarding poultry husbandry, disease and marketing.

**Results**

90 small flock owners increased their knowledge of poultry husbandry, disease and marketing at Extension regional seminars. Small flock owners showed a 15% increase in knowledge regarding poultry husbandry following small flock training.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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## **Outcome #52**

### **1. Outcome Measures**

Percent increase in feed milling knowledge by feed mill employees

### **2. Associated Institution Types**

- 1862 Extension
- 1862 Research

### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	10

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

Ongoing training for feed milling personnel is limited and available from only a few organizations.

#### **What has been done**

These programs provided practical training on aspects of feed milling for feed mill personnel (other than the feed mill manager) that don't normally receive ongoing training. Programs in 2016 focused on grinding, batching and mixing, while future programs will explore the management of other portions of the feed milling process.

#### **Results**

Dr. Pacheco worked in conjunction with the American Feed Industry Association to organize FSPCA Preventative Controls for Animal Food Training and 50 preventative controls qualified individuals (PCQI) were certified. Conservatively, the participants in our training influence 20-30% of the feed industry in the U.S. Wilmer Pacheco assisted quail producers to test feed uniformity and helped a feed mill to reduce steam pressure in two pelleting lines from 100 psi to 30 psi, which improved pellet mill efficiency and reduced energy costs. Participants increased their knowledge of feed mill mechanics by 10%.

### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
601	Economics of Agricultural Production and Farm Management

**Outcome #53**

**1. Outcome Measures**

Percent of farmers showing improvements in farm biosecurity

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	3

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Farm biosecurity is an important factor in the spread of disease. Improved farm biosecurity can reduce on-farm disease issues, improve animal welfare conditions and increase profits for poultry companies and farmers.

**What has been done**

Ken Macklin and his group surveyed poultry farmers associated with this integrator regarding biosecurity practices; visited a selection of farms to swab for specific bacterial and viral pathogens plaguing the broiler industry during this time period; then worked with company management to explain the results of the survey and discuss where lapses in biosecurity might make the company's growers vulnerable to disease spread.

**Results**

Only three percent of participants showed an increased application of biosecurity practices after training.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
311	Animal Diseases



**Outcome #54**

**1. Outcome Measures**

Economic value of poultry producer training

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	192228

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama has experienced significant growth in the poultry industry over the last several years. Currently, there are 805 large concentrated animal feeding operations (CAFO's). These 805 farms alone may produce over 1.2 million tons of poultry litter that must be land applied correctly, utilizing the most current best management practices. These practices will ensure that water quality is protected, to the extent possible, through the proper use of litter as a source of nutrients. Owners and operators of CAFO's are required to obtain 6 hours of continuing education units annually. In lieu of those hours, a grower can pay a \$500 Greenfield Fee, thus making an hour of training worth \$83.

**What has been done**

A total of 15 workshops/trainings were conducted in 2016.

**Results**

A total of 2,316 hours of continuing education units (CEU's) was earned by growers attending workshops/trainings in 2016. The value of the CEU's was \$192,228.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
101	Appraisal of Soil Resources

## V(H). Planned Program (External Factors)

### External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

### Brief Explanation

{No Data Entered}

## V(I). Planned Program (Evaluation Studies)

### Evaluation Results

**AEFSN-** 170 small-scale and limited-resource farmers observed improved sheep and goat production efficiency•128 small-scale and limited-resource farmers raising sheep and goats observed improved herd health and well-being•129 small-scale and limited-resource farmers raising sheep and goats reported increased profitability rates ranging from 5 to 20%. **Goat Production Women-**•Herd Production efficiency improvement varied from 5% to great than 20% •Herd health improvement based on reduced animal illness and death ranged from no change to greater that 20% an increase in 29%. •Enterprise profitability increased in 21%• Breed selection was affected or changed for 43% of past contacts. . **HRT-**overwhelming adopting of target spot tolerant as compared with the susceptible variety PhytoGen 499 that has occurred since this disease was first diagnosed in Alabama. The value to the grower from the adoption of tolerance varieties is an additional 300 to 400 lb per acre higher lint cotton yields, which have a farm gate value of \$210 to \$290 per acre. **Sustainable aquaculture production systems:** Auburn researchers are addressing economic inefficiencies and disease problems faced by fish farmers in Alabama including a diagnostic lab that addresses all aspects of aquatic animal health and fish kills. Work is also carried out to develop the next generation of catfish that can tolerate high water temperatures due to impact of climate variability on summer water temperatures, to determine the optimum pond environment for fish production, and to evaluate integrated aquaculture-crop production systems (i.e., aquaponics). **Integrated Pest and Disease Management:** Researchers at Auburn are working to evaluate and demonstrate integrated pest and disease management practices in various agroecosystems. **Capacity building for sustainable local foods:** Increase knowledge of food security and the role of the food environment and increased the level of awareness about the connections between food security, food production and processing, health, nutrition, education, poverty and sustainable livelihoods. The project also resulted in increased knowledge and awareness of methodologies and practices used in establishing and sustaining a viable forage base in Northern Alabama. **Agriplastics and Vegetable Production for Limited Resource Farmers:** 35 participants of the monthly workshops; one third of these participants have received EQIP assistance with high tunnels and/or wells and drip irrigation. Additionally,

300 acres of additional production acres of production with agriplastic grown, and a trained farmer with produce in 3 grocery stores. **Beef Cattle Production in Black Belt Counties** Out of the 352 producers that were engaged: 9 producers have started selecting brood cows and replacement heifers for more uniform calves born; 22 producers adopted improved herd health practices; 27 producers improved forage management; 110 producers constructed better cattle working facilities/infrastructure improvements; 12 producers increased knowledge in regards to using beef cattle expected progeny differences when selecting herd breeding sires. On an average, weaning weight increased by 90+ pounds.

## Key Items of Evaluation

**AEFSN-** 170 small-scale and limited-resource farmers observed improved sheep and goat production efficiency•128 small-scale and limited-resource farmers raising sheep and goats observed improved herd health and well-being•129 small-scale and limited-resource farmers raising sheep and goats reported increased profitability rates ranging from 5 to 20%. **Goat Production Women-**•Herd Production efficiency improvement varied from 5% to great than 20% •Herd health improvement based on reduced animal illness and death ranged from no change to greater that 20% an increase in 29%. •Enterprise profitability increased in 21%• Breed selection was affected or changed for 43% of past contacts. . **HRT-**overwhelming adopting of target spot tolerant as compared with the susceptible variety PhytoGen 499 that has occurred since this disease was first diagnosed in Alabama. The value to the grower from the adoption of tolerance varieties is an additional 300 to 400 lb per acre higher lint cotton yields, which have a farm gate value of \$210 to \$290 per acre. **Sustainable aquaculture production systems:** Auburn researchers are addressing economic inefficiencies and disease problems faced by fish farmers in Alabama including a diagnostic lab that addresses all aspects of aquatic animal health and fish kills. Work is also carried out to develop the next generation of catfish that can tolerate high water temperatures due to impact of climate variability on summer water temperatures, to determine the optimum pond environment for fish production, and to evaluate integrated aquaculture-crop production systems (i.e., aquaponics). **Integrated Pest and Disease Management:** Researchers at Auburn are working to evaluate and demonstrate integrated pest and disease management practices in various agroecosystems. **Capacity building for sustainable local foods:** Increase knowledge of food security and the role of the food environment and increased the level of awareness about the connections between food security, food production and processing, health, nutrition, education, poverty and sustainable livelihoods. The project also resulted in increased knowledge and awareness of methodologies and practices used in establishing and sustaining a viable forage base in Northern Alabama. **Agriplastics and Vegetable Production for Limited Resource Farmers:** 35 participants of the monthly workshops; one third of these participants have received EQIP assistance with high tunnels and/or wells and drip irrigation. Additionally, 300 acres of additional production acres of production with agriplastic grown, and a trained farmer with produce in 3 grocery stores. **Beef Cattle Production in Black Belt Counties** Out of the 352 producers that were engaged: 9 producers have started selecting brood cows and replacement heifers for more uniform calves born; 22 producers adopted improved herd health practices; 27 producers improved forage management; 110 producers constructed better cattle working facilities/infrastructure improvements; 12 producers increased knowledge in regards to using beef cattle expected progeny differences when selecting herd breeding sires. On an average, weaning weight increased by 90+ pounds.

**V(A). Planned Program (Summary)**

**Program # 2**

**1. Name of the Planned Program**

Natural resource conservation and management, environmental sustainability, and climate change

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	0%	0%	5%	8%
111	Conservation and Efficient Use of Water	0%	25%	5%	5%
112	Watershed Protection and Management	5%	0%	5%	5%
122	Management and Control of Forest and Range Fires	5%	0%	5%	3%
123	Management and Sustainability of Forest Resources	5%	0%	5%	5%
125	Agroforestry	5%	25%	5%	10%
131	Alternative Uses of Land	5%	0%	5%	3%
132	Weather and Climate	5%	25%	5%	7%
133	Pollution Prevention and Mitigation	5%	0%	5%	5%
134	Outdoor Recreation	5%	0%	5%	5%
135	Aquatic and Terrestrial Wildlife	5%	0%	5%	5%
136	Conservation of Biological Diversity	5%	0%	5%	2%
201	Plant Genome, Genetics, and Genetic Mechanisms	5%	0%	5%	5%
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	5%	0%	5%	5%
304	Animal Genome	5%	0%	5%	2%
402	Engineering Systems and Equipment	5%	0%	5%	5%
403	Waste Disposal, Recycling, and Reuse	10%	0%	5%	3%
601	Economics of Agricultural Production and Farm Management	5%	10%	5%	7%
610	Domestic Policy Analysis	10%	0%	5%	5%
903	Communication, Education, and Information Delivery	5%	15%	5%	5%
	<b>Total</b>	100%	100%	100%	100%

**V(C). Planned Program (Inputs)**

**1. Actual amount of FTE/SYs expended this Program**

2016 Tuskegee University and Auburn University and Alabama A&M University Combined Research and Extension Annual Report of Accomplishments and Results

Year: 2016	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	106.9	14.4	20.0	12.0
<b>Actual Paid</b>	40.6	8.4	91.0	8.1
<b>Actual Volunteer</b>	0.0	0.0	0.0	0.0

**2. Institution Name:** Auburn University

**Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1173109	0	1461620	0
<b>1862 Matching</b>	<b>1890 Matching</b>	<b>1862 Matching</b>	<b>1890 Matching</b>
908466	0	1468087	0
<b>1862 All Other</b>	<b>1890 All Other</b>	<b>1862 All Other</b>	<b>1890 All Other</b>
4707886	0	4936511	0

**2. Institution Name:** Alabama A&M University

**Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	219446	0	523236
<b>1862 Matching</b>	<b>1890 Matching</b>	<b>1862 Matching</b>	<b>1890 Matching</b>
0	219446	0	458909
<b>1862 All Other</b>	<b>1890 All Other</b>	<b>1862 All Other</b>	<b>1890 All Other</b>
0	456169	0	0

**2. Institution Name:** Tuskegee University

**Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	321283	0	483403
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	262314	0	416603
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

## V(D). Planned Program (Activity)

### 1. Brief description of the Activity

#### **Natural Resource Conservation and Management, Environmental Sustainability, and Climate**

**Research** studies were on the effects of tillage and residue managements on soil microbial community, carbon dioxide effluxes and soil physical properties in a biofuel sorghum feedstock, coupling heat and water transfer in biochar amended soils, evaluating the impact of land management and climate on instream health of Limestone Bay Watershed, AL; soil climate and morphology of temporarily-saturated soils in North Alabama and Tennessee; bacterial community structure and biochemical transformation of phosphorus in poultry litter biochar-amended highly weathered soils;

**AU Research Forestry Program's** goal is to determine the effects of changes in air quality and climate on the growth and productivity of forested and associated ecosystems including susceptibility to diseases, how climate change may make **habitats** in Alabama more suitable for invasive species from adjacent states, and how the economics, ecology and social information about invasive species will affect policy related to and management of forest, wildlife and natural resources.

**Sustainable Agricultural Systems:** Research was conducted on conservation practices that improve soil organic carbon, reduce soil and water loss, and enhance the effectiveness of fertilizers, and on new fertilizer technologies and management practices for crop production, turf grasses and ornamentals.

**Alabama Urban Home\*A\*Syst** helps homeowners identify risks in and around the home and encourages them to take action.

**The Urban Environmental Science Education Program** utilizes in-school enrichment programs and other activities to improve environmental stewardship.

**Alabama Forestry Camp, Education and Career Awareness-** During three weeks in the summer, Alabama Forestry Camp was held for students from various locations in Alabama. A final field day, Classroom in the forest was held for fourth and fifth graders from six west Alabama Counties.

**Alabama Water Watch** workshops were conducted to teach stakeholders about watersheds and get them involved as volunteer water monitors. Quality assured chemical, bacteriological and bio-assessment workshops were conducted to increase knowledge and encourage changes in behavior that will improve the quality of local water resources.

**Rural Well and Water Quality Assistance and Education-** This project sought to educate families about well use and maintenance, rural water use and conservation, and environmental justice in order to better protect and enhance water resources within rural Alabama counties. Delivery methods included water testing and follow up technical assistance, field days workshops, classroom sessions, County Water Festivals, Coastal Cleanups, and one-on-one site visits for site suitability, system designs and evaluations.

**Global Climate Change Impact-** The Global Climate Change Impact Program (1) assessed projected magnitude of climate change on crop yields in Alabama and on water resources within the Alabaman River Basin for the years 2045 and 2075, and (2) analyzed the climate extremes indices already derived from

**2. Brief description of the target audience**

**Natural Resource Conservation and Management, Environmental Sustainability, and Climate Research** results are shared with extension personnel for further dissemination, particularly to county agents, producers, industry leaders, policy-makers, citizens, and related federal agency personnel.  
**Alabama Urban Home A Syst-** includes volunteers, homeowners, stakeholders and the general public.  
**Alabama Forestry Camp, Education and Career Awareness- K-12** youth from West Alabama counties  
**Urban SerPie-** includes youth, educators, volunteers, and the general public.  
**Alabama Water Watch-** local decision makers, (farmers, foresters), contractors, engineers, landscape architects) K-12, undergraduate, and graduate students, Extension professionals, general public  
**Rural Well and Water Quality Assistance and Education** - stakeholders in the Alabama Black Belt  
**Global Climate Change Impact-** small farmers and producers across Alabama Black Belt

**3. How was eXtension used?**

N/A

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	141841	217126	146893	217146

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

Year: 2016  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2016	Extension	Research	Total
<b>Actual</b>	10	224	234

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Publications  
Not reporting on this Output for this Annual Report

**Output #2**

**Output Measure**

- Publications of peer-reviewed papers, workshops, and conference proceedings  
Not reporting on this Output for this Annual Report

**Output #3**

**Output Measure**

- Dissertations and thesis by graduate students on the research.  
Not reporting on this Output for this Annual Report

**Output #4**

**Output Measure**

- A number of graduate students trained.  
Not reporting on this Output for this Annual Report

**Output #5**

**Output Measure**

- Enhanced curricula development for graduate and undergraduate studies in the areas of environmental and climate change, modeling, geospatial information systems  
Not reporting on this Output for this Annual Report

**Output #6**

**Output Measure**

- Established environmental and climate base line conditions for assessing climate change impacts for various environmental and agricultural variables  
Not reporting on this Output for this Annual Report

**Output #7**

**Output Measure**

- Calibrated integrated hydrologic model running simulations from 1950 to 2050, to predict climate change impact on water resource (quantity and quality), vulnerability assessment and adaptation options  
Not reporting on this Output for this Annual Report

**Output #8**

**Output Measure**

- Calibrated Decision Support System for Agrotechnology Transfer (DSSAT) Crop model running simulations to help identify resilience of different crops to climate change and pest management.  
Not reporting on this Output for this Annual Report



**Output #9**

**Output Measure**

- Development of climate database which will be used for by students, faculty and scientific community.  
Not reporting on this Output for this Annual Report

**Output #10**

**Output Measure**

- Documents on Climate change adaptation strategies, awareness and education materials, tailored for local communities, landowners, HDFC and stakeholders within the ABBCS  
Not reporting on this Output for this Annual Report

**Output #11**

**Output Measure**

- Graded facilities and computing cluster at the Geospatial and Climate Change Center  
Not reporting on this Output for this Annual Report

**Output #12**

**Output Measure**

- Workshops on climate variability and change and natural resources management  
Not reporting on this Output for this Annual Report

**Output #13**

**Output Measure**

- Website with research findings, for continued research and resource for climate change education and awareness delivery.  
Not reporting on this Output for this Annual Report

**Output #14**

**Output Measure**

- Selected Climate Change Modules in K-12, fourth grades and high school, eighth grade, in science, environmental science, and social science curricula on the scientific exploration of global climate change with some of the best available teaching material.  
Not reporting on this Output for this Annual Report

**Output #15**

**Output Measure**

- Rural well owners and homeowners will be exposed to a set of activities intended to improve the quality of their private water wells, and the use of energy in their homes, farms and other businesses.  
Not reporting on this Output for this Annual Report

**Output #16**

**Output Measure**

- Underserved Black Belt area grade school students will be exposed to specific age appropriate educational activities designed to reinforce current classroom instructional curriculums on natural resource management. While targeting the youth, parents, volunteers and community leaders will also be provided necessary instructions in responsible environmental stewardship practices and principles, including information on climate change and sustainable energy. Not reporting on this Output for this Annual Report

**Output #17**

**Output Measure**

- Number of Wildlife Management: Enhancement and Damage publications

<b>Year</b>	<b>Actual</b>
2016	8

**Output #18**

**Output Measure**

- Number of Wildlife Management: Enhancement and Damage magazine/newspaper articles

<b>Year</b>	<b>Actual</b>
2016	32

**Output #19**

**Output Measure**

- Number of Wildlife Management: Enhancement and Damage readers reached

<b>Year</b>	<b>Actual</b>
2016	2000000

**Output #20**

**Output Measure**

- Number of Wildlife Management: Enhancement and Damage workshops held

<b>Year</b>	<b>Actual</b>
2016	82

**Output #21**

**Output Measure**

- Number of Wildlife Management: Enhancement and Damage workshop attendees

<b>Year</b>	<b>Actual</b>
-------------	---------------

2016 5250

**Output #22**

**Output Measure**

- Number of "Likes" to the Wildlife Management: Enhancement and Damage Facebook page

<b>Year</b>	<b>Actual</b>
2016	637

**Output #23**

**Output Measure**

- Number of Wildlife Management: Enhancement and Damage one-on-one contacts

<b>Year</b>	<b>Actual</b>
2016	4000

**Output #24**

**Output Measure**

- Number of Community forestry workshops related to chainsaw safety, inventories, arborist certification, CEUs and management

<b>Year</b>	<b>Actual</b>
2016	32

**Output #25**

**Output Measure**

- Number of attendees participating in chainsaw safety, inventory, arborist certification, CEU and management workshops

<b>Year</b>	<b>Actual</b>
2016	1258

**Output #26**

**Output Measure**

- Number of individuals participating in Alabama Urban Home\*A\*Syst face-to-face programs.

<b>Year</b>	<b>Actual</b>
2016	421

**Output #27**

**Output Measure**

- Number of Urban Environmental Science Education face-to-face programs and activities

<b>Year</b>	<b>Actual</b>
2016	111

**Output #28**

**Output Measure**

- Number of participants attending the the 2016 SerPIE-One Health Conference.

<b>Year</b>	<b>Actual</b>
2016	125

**Output #29**

**Output Measure**

- Number of permanent pharmaceutical drop-off locations established in partnership with ACES.

<b>Year</b>	<b>Actual</b>
2016	1

**Output #30**

**Output Measure**

- Number of national conferences held on pharamaceutical and personal care products.

<b>Year</b>	<b>Actual</b>
2016	1

**Output #31**

**Output Measure**

- Number of Synergistic Efforts to Reduce Pharmaceuticals in the Environment Activities

<b>Year</b>	<b>Actual</b>
2016	50

**Output #32**

**Output Measure**

- Number of Nursery and Greenhouse BMP's Publications of peer-reviewed papers, workshops, and conference proceedings

<b>Year</b>	<b>Actual</b>
2016	2

**Output #33**

**Output Measure**

- Number of participants in E-waste Institute face-to-face programs and activities

<b>Year</b>	<b>Actual</b>
2016	360

**Output #34**

**Output Measure**

- Number of electronic recycling drives conducted

<b>Year</b>	<b>Actual</b>
2016	5

**Output #35**

**Output Measure**

- Number of high school coaches trained to manage fields in BMPs for Sports Fields

<b>Year</b>	<b>Actual</b>
2016	28

**Output #36**

**Output Measure**

- Number of pond management product and service supplier lists

<b>Year</b>	<b>Actual</b>
2016	5

**Output #37**

**Output Measure**

- Number of videos and other digital products for Recreational Fish Pond Management

<b>Year</b>	<b>Actual</b>
2016	59

**Output #38**

**Output Measure**

- Number of Recreational Fish Pond Management workshops and other events

<b>Year</b>	<b>Actual</b>
2016	27

**Output #39**

**Output Measure**

- Number of attendees at Recreational Fish Pond Management workshops, presentations, and events

<b>Year</b>	<b>Actual</b>
2016	1111

**Output #40**

**Output Measure**

- Number of Angler Education social media posts

<b>Year</b>	<b>Actual</b>
2016	64

**Output #41**

**Output Measure**

- Number of youth attending angler education events

<b>Year</b>	<b>Actual</b>
2016	1100

**Output #42**

**Output Measure**

- Number of Angler education events

<b>Year</b>	<b>Actual</b>
2016	9

**Output #43**

**Output Measure**

- Number of attendees at Invasive Plants educational events

<b>Year</b>	<b>Actual</b>
2016	1380

**Output #44**

**Output Measure**

- Number of views of online Invasive Plants material

<b>Year</b>	<b>Actual</b>
2016	485735

**Output #45**

**Output Measure**

- Number of acres owned and/or managed by attendees of annual Invasive Plants conference

<b>Year</b>	<b>Actual</b>
2016	3000000

**Output #46**

**Output Measure**

- Number of Publications of peer-reviewed papers, popular press articles and conference proceedings on ACES Forage Focus Program

<b>Year</b>	<b>Actual</b>
2016	10

**Output #47**

**Output Measure**

- Number of activities of educational workshops, trainings, demonstrations and stakeholder meetings on ACES Forage Focus Program

<b>Year</b>	<b>Actual</b>
2016	90

**Output #48**

**Output Measure**

- Number of contacts from 154 contact reports on ACES Forage Focus Program

<b>Year</b>	<b>Actual</b>
2016	6698

**Output #49**

**Output Measure**

- Number of social media contacts from Facebook and Twitter on ACES Forage Focus Program

<b>Year</b>	<b>Actual</b>
2016	1343

**Output #50**

**Output Measure**

- Number of contacts from Alabama Forages website

<b>Year</b>	<b>Actual</b>
2016	5064

**Output #51**

**Output Measure**

- Number of Alabama Water Watch Workshops Conducted

<b>Year</b>	<b>Actual</b>
2016	101

**Output #52**

**Output Measure**

- Number of Community Resilience to Natural Hazards Workshops and webinars held

<b>Year</b>	<b>Actual</b>
2016	3

**Output #53**

**Output Measure**

- Number of Community Resilience to Natural Hazards Community of Practice regional meetings

<b>Year</b>	<b>Actual</b>
2016	1

**Output #54**

**Output Measure**

- Number of Alabama Working Waterfront surveys developed

<b>Year</b>	<b>Actual</b>
2016	1

**Output #55**

**Output Measure**

- Number of Virtual Extension webinars produced

<b>Year</b>	<b>Actual</b>
2016	9

**Output #56**

**Output Measure**

- Number of participants who watched the live Virtual Extension webinar

<b>Year</b>	<b>Actual</b>
2016	790

**Output #57**

**Output Measure**

- Number of people who viewed recorded Virtual Extension webinar



<b>Year</b>	<b>Actual</b>
2016	4407

**Output #58**

**Output Measure**

- Number of agents and specialists who participated in delivery of Virtual Extension

<b>Year</b>	<b>Actual</b>
2016	14

**Output #59**

**Output Measure**

- Number of fliers, eXtension postings used to advertise Virtual Extension webinar

<b>Year</b>	<b>Actual</b>
2016	10

**Output #60**

**Output Measure**

- Number of Oyster Gardening in Alabama publications

<b>Year</b>	<b>Actual</b>
2016	12

**Output #61**

**Output Measure**

- Number of oysters produced in Oyster Gardening in Alabama

<b>Year</b>	<b>Actual</b>
2016	58500

**Output #62**

**Output Measure**

- Number of Alabama Smart Yards workshops, demonstrations, and webinars

<b>Year</b>	<b>Actual</b>
2016	176

**Output #63**

**Output Measure**

- Number of volunteers trained to teach Alabama Smart Yards principles for community outreach

<b>Year</b>	<b>Actual</b>
2016	417

**Output #64**

**Output Measure**

- Number of Alabama Smart Yards face-to-face contacts at civic event outreach booths (B'ham Home & Gdn Show, County Fairs, and similar)

<b>Year</b>	<b>Actual</b>
2016	15401

**Output #65**

**Output Measure**

- Number of community food gardens managed by Master Gardener volunteers - vegetables donated to various local charities

<b>Year</b>	<b>Actual</b>
2016	20

**Output #66**

**Output Measure**

- Number of Master Gardener volunteers reporting volunteer hours

<b>Year</b>	<b>Actual</b>
2016	1729

**Output #67**

**Output Measure**

- Number of Master Gardener volunteer hours in educational activities and outreach

<b>Year</b>	<b>Actual</b>
2016	125591

**Output #68**

**Output Measure**

- Number of Master Gardener public contacts in community education activities and outreach

<b>Year</b>	<b>Actual</b>
2016	361421

**Output #69**

**Output Measure**

- Number of Helpline calls answered by Master Gardener volunteers

<b>Year</b>	<b>Actual</b>
2016	4750

**Output #70**

**Output Measure**

- Number of schools reached by Water Wheels

<b>Year</b>	<b>Actual</b>
2016	15

**Output #71**

**Output Measure**

- Number of workshops to encourage adoption of rainwater harvesting systems in Urban Gardens and Sustainable Landscapes

<b>Year</b>	<b>Actual</b>
2016	47

**Output #72**

**Output Measure**

- Number of workshops to enhance environmental knowledge among urban, nontraditional, and underrepresented audiences in the areas Green Space development and Sustainable Landscaping practices

<b>Year</b>	<b>Actual</b>
2016	181

**Output #73**

**Output Measure**

- Number of AU Research peer-reviewed papers

<b>Year</b>	<b>Actual</b>
2016	41

**Output #74**

**Output Measure**

- Number of AU research natural resource dissertations and thesis

<b>Year</b>	<b>Actual</b>
2016	6

**Output #75**

**Output Measure**

- Number of AU natural resources curricula developed

<b>Year</b>	<b>Actual</b>
2016	4

**Output #76**

**Output Measure**

- Number of Sustainable Management of Forest and Range Land within Black Belt Counties workshops:

<b>Year</b>	<b>Actual</b>
2016	12

**Output #77**

**Output Measure**

- Number of Sustainable Management of Forest and Range Land within Black Belt Counties Forest camps:

<b>Year</b>	<b>Actual</b>
2016	4

**Output #78**

**Output Measure**

- Number of Sustainable Management of Forest and Range Land within Black Belt Counties Conferences:

<b>Year</b>	<b>Actual</b>
2016	2

**Output #79**

**Output Measure**

- Number of Sustainable Management of Forest and Range Land within Black Belt Counties onsite advice

<b>Year</b>	<b>Actual</b>
2016	20

**Output #80**

**Output Measure**

- Number of Sustainable Management of Forest and Range Land within Black Belt Counties students:

<b>Year</b>	<b>Actual</b>
2016	268

**Output #81**

**Output Measure**

- Number of Sustainable Management of Forest and Range Land within Black Belt Counties graduate students trained:

<b>Year</b>	<b>Actual</b>
2016	1

**Output #82**

**Output Measure**

- Number of Sustainable Management of Forest and Range Land within Black Belt Counties landowners reached:

<b>Year</b>	<b>Actual</b>
2016	368

**Output #83**

**Output Measure**

- Number of Assessment of Global Climate Change Impacts on Water Resources and Crop Productivity publications:

<b>Year</b>	<b>Actual</b>
2016	3

**Output #84**

**Output Measure**

- Number of Assessment of Global Climate Change Impacts on Water Resources and Crop Productivity Graduate student thesis

<b>Year</b>	<b>Actual</b>
2016	2

**Output #85**

**Output Measure**

- Number of Assessment of Global Climate Change Impacts on Water Resources and Crop Productivity enhanced curricula development for graduate and undergraduate studies

<b>Year</b>	<b>Actual</b>
2016	6

**Output #86**

**Output Measure**

- Number of Assessment of Global Climate Change Impacts on Water Resources and Crop Productivity upgraded facilities at the Geospatial and Climate Change Center:

<b>Year</b>	<b>Actual</b>
2016	4

**Output #87**

**Output Measure**

- Number of Assessment of Global Climate Change Impacts on Water Resources and Crop Productivity farmers included in climate change knowledge survey:

<b>Year</b>	<b>Actual</b>
2016	75

**Output #88**

**Output Measure**

- Number of calibrated DSSAT Crop models for years 1981-2010

<b>Year</b>	<b>Actual</b>
2016	4

**Output #89**

**Output Measure**

- Number of projected DSSAT Crop models for years 2045 and 2075: 4

<b>Year</b>	<b>Actual</b>
2016	4

**Output #90**

**Output Measure**

- Number of calibrated hydrologic (SWAT) model running simulations

<b>Year</b>	<b>Actual</b>
2016	2

**Output #91**

**Output Measure**

- Number of climate databases developed for use by students, faculty and scientific community

<b>Year</b>	<b>Actual</b>
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2016 4

**Output #92**

**Output Measure**

- Number of extreme climate indices as computed from the observed data:

<b>Year</b>	<b>Actual</b>
2016	27

**Output #93**

**Output Measure**

- Number of Water Quality Education Program within Rural Black Belt Counties workshops

<b>Year</b>	<b>Actual</b>
2016	3

**Output #94**

**Output Measure**

- Number of Water Quality Education Program within Rural Black Belt Counties field days

<b>Year</b>	<b>Actual</b>
2016	2

**Output #95**

**Output Measure**

- Number of Water Quality Education Program within Rural Black Belt Counties University events

<b>Year</b>	<b>Actual</b>
2016	4

**Output #96**

**Output Measure**

- Number of Water Quality Education Program within Rural Black Belt Counties established demonstration sites

<b>Year</b>	<b>Actual</b>
2016	8

**Output #97**

**Output Measure**

- Number of Water Quality Education Program within Rural Black Belt Counties one-on-one consultations

<b>Year</b>	<b>Actual</b>
2016	15

**Output #98**

**Output Measure**

- Number of Water Quality Education Program within Rural Black Belt Counties peer reviewed publications:

<b>Year</b>	<b>Actual</b>
2016	1

**Output #99**

**Output Measure**

- Number of Water Quality Education Program within Rural Black Belt Counties rural well owner and water resource participants

<b>Year</b>	<b>Actual</b>
2016	24

**Output #100**

**Output Measure**

- Number of Water Quality Education Program within Rural Black Belt Counties college-age students reached

<b>Year</b>	<b>Actual</b>
2016	120

**Output #101**

**Output Measure**

- Number of college-age students trained in water quality testing

<b>Year</b>	<b>Actual</b>
2016	8

**Output #102**

**Output Measure**

- Number of Water Quality Education Program within Rural Black Belt Counties poster presentations

<b>Year</b>	<b>Actual</b>
2016	1



**Output #103**

**Output Measure**

- Number of Water Quality Education Program within Rural Black Belt Counties enhanced curricula development for graduate and undergraduate studies in the areas of environmental and climate change, modeling, geospatial information systems:

<b>Year</b>	<b>Actual</b>
2016	3

**Output #104**

**Output Measure**

- Number of r Water Quality Education Program within Rural Black Belt Counties esponsible environmental stewardship activities conducted in the Black Belt

<b>Year</b>	<b>Actual</b>
2016	28

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Reduced carbon footprint by adopting improved agricultural practices
2	Increased carbon sequestration by adoption of technologies and improved agricultural practices.
3	Identification of crop varieties and animal stocks that can adapt to a changing environment.
4	Increase profitability of pay-to-fish operations
5	Increase knowledge and awareness of cogongrass ecology and control
6	Increase knowledge and adoption of organic/naturally grown fruit and vegetable production practices
7	Increase poultry farmer knowledge of new housing and equipment changes and techniques
8	Increase awareness of spread of soybean rust and control measures
9	Increase knowledge of ways to successfully provide for farm succession methods
10	Increase knowledge of importance of forages in animal production systems and adoption of profitable forage production systems
11	Increase knowledge of horticultural practices for Master Gardener Interns
12	Sustain volunteer support from Master Gardeners
13	Adoption of rainwater collection systems for urban noncommercial garden
14	Increase awareness of water conservation
15	Increase number of acres of rainwater irrigated fruits and vegetables
16	Increase knowledge and understanding of environmental issues related to electronic waste management, storage and disposal
17	Enhance environmental awareness among urban, nontraditional, and underrepresented audiences in the areas of forestry, wildlife, and natural resource management

18	-knowledge increase local and state environment -how one's action affect the environment - increased knowledge of environmental sustainability -understand value of local involvement - increased knowledge of career choices related to environmental stewardship
19	Increased respect for citizenry, community, and environment; -increased frequency of sustainability behaviors; -increased community service related to environmental stewardship; -inform the policy process as it relates to environmental stewardship; -increased implementation of environmental stewardship management practices
20	Increased perception of self-empowerment - ability to make a difference; -increased capacity for planning organizing, problem solving, decision-making, and teamwork to address problems; -Increased leadership skills; -increased number of citizens practicing environmental stewardship leading to a cleaner, safer environment; -increased capacity to create innovative solutions for complex environmental problems; -increased environmental stewardship advocacy; - revenue generation attributed to improved environmental sustainability; -increased use of alternative, renewable sources of energy
21	Increase citizen awareness of best management practices for residential landscapes
22	Increase adoption of principles taught: IPM, rain barrels installed, pruning for plant health/aesthetics, proper use of garden chemicals, right plant - right place, identification of invasive exotic plants, environmentally sound production of livestock and poultry
23	Increased knowledge and awareness of household hazards and their impact on the environment and human health; -Increased adoption of environmentally friendly homesite BMPs; -Modified behavior towards homesite and residential land management;-Increased conservation of soil and water
24	Increased information about the impact of ENSO phases on row crops, fruits and vegetables
25	Alabama stakeholders trained/educated in climate variability and climate change topics
26	Alabama growers, extension agents and extension specialists trained in using agroclimatic decision support tools
27	Capacities strengthened for integrating climate change risks and opportunities into state and regional development assistance
28	Capacities strengthened to access and use resources effectively to reduce risks associated with climate variability and climate change
29	Capacities strengthened to understand and manage water or natural resources in the context of climate vulnerability
30	Identification of the most profitable row crops management practices by ENSO phase
31	Identification of adaptation strategies to reduce climate change impacts
32	Increased awareness of the impacts of climate on agricultural Production
33	Medium-term outcomes: The medium-term outcomes of the Climate Change Extension Program are: implementation of a new system of management practices for row crops and vegetables according to ENSO phase

34	Improved agronomic management row crops and vegetables
35	Long-term outcomes: The long-term outcomes of the Climate Change Extension Program are: 1) increased profitability of Alabama growers
36	Improved soil conditions
37	Reduced environmental impacts
38	Competitive agronomic research, Extension and education system
39	Youth participants will acquire knowledge, skills and awareness regarding well head protection, point/non-point source pollution, environmental stewardship, conservation as well as, climate change and sustainable energy. Adult participants will incorporate skills/knowledge and change behavior related to: pollution prevention, management of water resources, litter disposal and waste management, conservation and recycling of natural resources and safe and effective use of fertilizers and pesticides. Awareness will be acquired in climate change and sustainable energy.
40	Percentage of individuals who adopted environmentally friendly home site best management practices (BMPs).
41	Percentage of Urban individuals who adopted environmentally friendly home site best management practices (BMPs).
42	Number of youth that improved their knowledge of environmentally-related topics through the Urban Environmental Science Education Program.
43	Quantity of pharmaceuticals and personal care products (pounds) collected through collaborative drug-take back initiatives.
44	Quantity of e-waste (pounds) recycled by citizens practicing improved environmental stewardship leading to a cleaner, safer environment.
45	The number of AAMU Research Natural Resource Conservation and Management, Environmental Sustainability, and Climate studies conducted
46	The number of AU research studies conducted on conservation practices
47	The percent of Sustainable Management of Forest and Range Land within Black Belt Counties who increased knowledge of feral hogs
48	TU Research and Extension Increased knowledge of soil health
49	The percent of participants who increased knowledge of climate change
50	TU Research and Extension The amount of corn and soybean calibration
51	Percent increase of water quality testing in Black Belt counties

2016 Tuskegee University and Auburn University and Alabama A&M University Combined Research and Extension Annual Report of Accomplishments and Results

52	The number of TU students who demonstrated increased knowledge of EJ and Water quality
53	The percent of TU Water Conservation participants who increased knowledge of surface water utilization techniques
54	Dollar value of response to animal nuisance contacts
55	Percent increase in knowledge of workshop attendees participating in various community forestry programs in 2015
56	Percentage of workers attending chainsaw safety who purchased safety equipment as a result of the training.
57	Number of newly certified arborists as a result of certification preparatory training.
58	Number of certified arborists able to retain Certified credentials as a result of continued education credits offered in 2016
59	Number of coaches who learned how to audit their irrigation systems
60	Number of participants trained in proper ID and control of weeds
61	Total gallons of water saved per growing season
62	Dollars saved through better weed ID and control knowledge
63	Percent positive response to management recommendation
64	Percent increase in women who participate in FWNR Extension Workshops
65	Change in knowledge by FWNR program participants
66	Increase in knowledge
67	Number of acres receiving treatment
68	Measurement of the Amount of Acres Impacted by Forage Focus Educational Programming
69	Number of livestock animals impacted by Forage Focus educational programming
70	Number of contacts through electronic educational delivery of Forage Focus programming
71	Acres Impacted by Forage Focus Drought Response Meetings

72	Number of livestock animals impacted by Forage Focus Drought Response Meetings
73	Economic impact of Forage Focus educational programming
74	Economic impact of Forage Focus Drought Response Meetings
75	Percent knowledge gained by participants of USDA NRCS-ACES Interagency Training
76	Number of volunteers that monitor water quality with Alabama Water Watch
77	Linear feet of streams enhanced or restored in Alabama
78	Community of Practice regional meeting
79	Resilience Indices workshops and webinars
80	Stakeholders will be aware of national working waterfront network efforts
81	Percentage of participants who learned a lot
82	Percentage of participants who plan to adopt information
83	Percentage of participants finding that pest problems are less frustrating
84	Percentage of participants who saved money as a result of the webinars
85	Percentage of participants who used less pesticide
86	Percentage of participants who identified an insect pest before using a pesticide
87	Percentage of participants who used other integrated pest management methods
88	Percentage of participants who implemented practices to encourage good bugs
89	Acres of oysters reef restored
90	Additional oyster larvae generated for ecosystem from planted oysters spawning
91	Dollar value of restored oyster reef

**Outcome #1**

**1. Outcome Measures**

Reduced carbon footprint by adopting improved agricultural practices

Not Reporting on this Outcome Measure

**Outcome #2**

**1. Outcome Measures**

Increased carbon sequestration by adoption of technologies and improved agricultural practices.

Not Reporting on this Outcome Measure

**Outcome #3**

**1. Outcome Measures**

Identification of crop varieties and animal stocks that can adapt to a changing environment.

Not Reporting on this Outcome Measure

**Outcome #4**

**1. Outcome Measures**

Increase profitability of pay-to-fish operations

Not Reporting on this Outcome Measure

**Outcome #5**

**1. Outcome Measures**

Increase knowledge and awareness of cogongrass ecology and control

Not Reporting on this Outcome Measure

**Outcome #6**

**1. Outcome Measures**

Increase knowledge and adoption of organic/naturally grown fruit and vegetable production practices

Not Reporting on this Outcome Measure

**Outcome #7**

**1. Outcome Measures**

Increase poultry farmer knowledge of new housing and equipment changes and techniques

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	1

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Poultry production is of great economic value in farm gate sales in Alabama. Farmers are always seeking ways to reduce costs and save resources. Auburn University researchers seeks to implement new technologies for energy efficiencies and cost reductions.

**What has been done**

Researchers developed a methodology to compare radiant heat performance of round radiant heaters used in commercial broiler housing systems. Radiant flux energy was measured at various levels and canopy elevations.

**Results**

Ability to recommend a heater and hanging elevation.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
601	Economics of Agricultural Production and Farm Management



**Outcome #8**

**1. Outcome Measures**

Increase awareness of spread of soybean rust and control measures

Not Reporting on this Outcome Measure

**Outcome #9**

**1. Outcome Measures**

Increase knowledge of ways to successfully provide for farm succession methods

Not Reporting on this Outcome Measure

**Outcome #10**

**1. Outcome Measures**

Increase knowledge of importance of forages in animal production systems and adoption of profitable forage production systems

Not Reporting on this Outcome Measure

**Outcome #11**

**1. Outcome Measures**

Increase knowledge of horticultural practices for Master Gardener Interns

Not Reporting on this Outcome Measure

**Outcome #12**

**1. Outcome Measures**

Sustain volunteer support from Master Gardeners

Not Reporting on this Outcome Measure

**Outcome #13**

**1. Outcome Measures**

Adoption of rainwater collection systems for urban noncommercial garden

Not Reporting on this Outcome Measure

**Outcome #14**

**1. Outcome Measures**

Increase awareness of water conservation

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	1

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

It is anticipated that water supply and water quality issues will soon affect economies and resources of national and international importance. Water conservation is a best usage practice that must be integrated into agricultural production systems.

**What has been done**

In 2016, we began a study of precision irrigation scheduling methods to determine viability of soil moisture sensing in a precision agriculture production system. Through sharing this new technology, we are educating farmers about water conservations.

**Results**

The results from the preliminary study will be used to enhance future precision agriculture production research in water sensing and micro irrigation.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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**Outcome #15**

**1. Outcome Measures**

Increase number of acres of rainwater irrigated fruits and vegetables

Not Reporting on this Outcome Measure

**Outcome #16**

**1. Outcome Measures**

Increase knowledge and understanding of environmental issues related to electronic waste management, storage and disposal

Not Reporting on this Outcome Measure

**Outcome #17**

**1. Outcome Measures**

Enhance environmental awareness among urban, nontraditional, and underrepresented audiences in the areas of forestry, wildlife, and natural resource management

Not Reporting on this Outcome Measure

**Outcome #18**

**1. Outcome Measures**

-knowledge increase local and state environment -how one's action affect the environment - increased knowledge of environmental sustainability -understand value of local involvement - increased knowledge of career choices related to environmental stewardship

Not Reporting on this Outcome Measure

**Outcome #19**

**1. Outcome Measures**

Increased respect for citizenry, community, and environment; -increased frequency of sustainability behaviors; -increased community service related to environmental stewardship; -inform the policy process as it relates to environmental stewardship; -increased implementation of environmental stewardship management practices

Not Reporting on this Outcome Measure

**Outcome #20**

**1. Outcome Measures**

Increased perception of self-empowerment - ability to make a difference; -increased capacity for planning organizing, problem solving, decision-making, and teamwork to address problems; - Increased leadership skills; -increased number of citizens practicing environmental stewardship leading to a cleaner, safer environment; -increased capacity to create innovative solutions for complex environmental problems; -increased environmental stewardship advocacy; - revenue generation attributed to improved environmental sustainability; -increased use of alternative, renewable sources of energy

Not Reporting on this Outcome Measure

**Outcome #21**

**1. Outcome Measures**

Increase citizen awareness of best management practices for residential landscapes

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	2

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

As urbanization continues, especially in the south, there is an increase in the abundance of non-native plants, increased insecticide usage, and ecosystem effects on birds or bees.

**What has been done**

Researchers at Auburn are evaluating alternatives to neonicotinoids for control of common landscape pests. Additionally, a novel plant growth promoting rhizobacteria (PGPR) collection from turf grass has been developed.

**Results**

Research is reducing the hazards of neonicotinoids to pollinators when they are used in turf grass and ornamentals.

#### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management

#### **Outcome #22**

##### **1. Outcome Measures**

Increase adoption of principles taught: IPM, rain barrels installed, pruning for plant health/aesthetics, proper use of garden chemicals, right plant - right place, identification of invasive exotic plants, environmentally sound production of livestock and poultry

Not Reporting on this Outcome Measure

#### **Outcome #23**

##### **1. Outcome Measures**

Increased knowledge and awareness of household hazards and their impact on the environment and human health; -Increased adoption of environmentally friendly homesite BMPs; -Modified behavior towards homesite and residential land management;-Increased conservation of soil and water

Not Reporting on this Outcome Measure

#### **Outcome #24**

##### **1. Outcome Measures**

Increased information about the impact of ENSO phases on row crops, fruits and vegetables

Not Reporting on this Outcome Measure

#### **Outcome #25**

##### **1. Outcome Measures**

Alabama stakeholders trained/educated in climate variability and climate change topics

Not Reporting on this Outcome Measure

**Outcome #26**

**1. Outcome Measures**

Alabama growers, extension agents and extension specialists trained in using agroclimatic decision support tools

Not Reporting on this Outcome Measure

**Outcome #27**

**1. Outcome Measures**

Capacities strengthened for integrating climate change risks and opportunities into state and regional development assistance

Not Reporting on this Outcome Measure

**Outcome #28**

**1. Outcome Measures**

Capacities strengthened to access and use resources effectively to reduce risks associated with climate variability and climate change

Not Reporting on this Outcome Measure

**Outcome #29**

**1. Outcome Measures**

Capacities strengthened to understand and manage water or natural resources in the context of climate vulnerability

Not Reporting on this Outcome Measure

**Outcome #30**

**1. Outcome Measures**

Identification of the most profitable row crops management practices by ENSO phase

Not Reporting on this Outcome Measure

**Outcome #31**

**1. Outcome Measures**

Identification of adaptation strategies to reduce climate change impacts

Not Reporting on this Outcome Measure

**Outcome #32**

**1. Outcome Measures**

Increased awareness of the impacts of climate on agricultural Production

Not Reporting on this Outcome Measure

**Outcome #33**

**1. Outcome Measures**

Medium-term outcomes: The medium-term outcomes of the Climate Change Extension Program are: implementation of a new system of management practices for row crops and vegetables according to ENSO phase

Not Reporting on this Outcome Measure

**Outcome #34**

**1. Outcome Measures**

Improved agronomic management row crops and vegetables

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	0

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Agronomic production needs to be sustainable and environmentally friendly for both the producers and consumers.

**What has been done**

Work is being done to develop a better understanding of the agronomic management practices that improve soil organic carbon. A two-year evaluation of calcium, manganese, and boron in peanut was completed. Another research is evaluating the liming ability of various industrial and agricultural by-products. By-products from paper, steel and phosphorus mining activities are under evaluation.

**Results**

Another year of study will take place before results are available.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
102	Soil, Plant, Water, Nutrient Relationships
131	Alternative Uses of Land
132	Weather and Climate

**Outcome #35**

**1. Outcome Measures**

Long-term outcomes: The long-term outcomes of the Climate Change Extension Program are: 1) increased profitability of Alabama growers

Not Reporting on this Outcome Measure

**Outcome #36**

**1. Outcome Measures**

Improved soil conditions

Not Reporting on this Outcome Measure

**Outcome #37**

**1. Outcome Measures**

Reduced environmental impacts

**2. Associated Institution Types**



- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	0

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The growth in the world population and the changes in climate have increased pressures on water availability not only for humans but for aquatic biodiversity. Water availability in streams in Lee and Russell County has been reduced over 40% in the past 50 years (Johnston and Macenia 2008). How water reduction acts as a catalyst for fish assemblage change has not been investigated in the southeastern United States. As fish assemblage structure changes and is homogenized, ecosystem function of aquatic systems is altered. That species are in decline and assemblages are changing is a sign of changes in our water quality and quantity. Research on the ecology, (especially reproductive biology, including sound production) and assemblage persistence of Alabama fishes will equip researchers with the information necessary to make appropriate management decisions regarding aquatic resources.

**What has been done**

One AU research project focuses on documenting patterns of persistence and decline and corresponding hydrology, habitat modification, land-use changes and habitat use of fishes. Researchers are also studying invasive species and the process of homogenization of faunas. Another study is focusing on the role of behavioral ecology on conservation, especially acoustics and noise pollution.

**Results**

Auburn Researchers have identified potential hydrologic factors contributing to fish assemblage change, including hydrologic flashiness and peak discharge. Long periods of low discharge are associated with recruitment success of summer spawning, primarily cosmopolitan species. We have documented fish assemblage shifts, favoring cosmopolitan species, across the state of Alabama. Work with bioacoustics has demonstrated increased stress in fishes exposed to road noise. In addition, road noise causes fishes to increase the amplitude of their acoustic signals.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water

112	Watershed Protection and Management
125	Agroforestry
131	Alternative Uses of Land
132	Weather and Climate

**Outcome #38**

**1. Outcome Measures**

Competitive agronomic research, Extension and education system

Not Reporting on this Outcome Measure

**Outcome #39**

**1. Outcome Measures**

Youth participants will acquire knowledge, skills and awareness regarding well head protection, point/non-point source pollution, environmental stewardship, conservation as well as, climate change and sustainable energy. Adult participants will incorporate skills/knowledge and change behavior related to: pollution prevention, management of water resources, litter disposal and waste management, conservation and recycling of natural resources and safe and effective use of fertilizers and pesticides. Awareness will be acquired in climate change and sustainable energy.

Not Reporting on this Outcome Measure

**Outcome #40**

**1. Outcome Measures**

Percentage of individuals who adopted environmentally friendly home site best management practices (BMPs).

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	78

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Education and outreach programs that address emerging environmental issues and offer integrated approaches to help resolve them are critical in combating environmental illiteracy among urban and suburban home owners. In order to enhance decision-making, homeowners must understand that their actions are crucial to the protection of their health and the environment.

**What has been done**

Twenty Alabama Urban Home\*a\*Syst workshops, demonstrations and activities were conducted in 2016 on topics such as water quality; runoff management; lawn and garden; managing hazardous products; storing automotive products; household wastewater treatment; managing trash and waste prevention and indoor air quality. Participants learned how to complete action checklists, perform environmental risk assessments, and implement home site BMPs.

**Results**

AAMU Extension 78% (n=154) of those surveyed via Alabama Home\*a\*Syst felt that the program enabled them to achieve a social (hazard free, securer home), environmental (protecting the environment from poor home site management practices) or economic (saving money ) expectation.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
133	Pollution Prevention and Mitigation
403	Waste Disposal, Recycling, and Reuse

**Outcome #41**

**1. Outcome Measures**

Percentage of Urban individuals who adopted environmentally friendly home site best management practices (BMPs).

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	78

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Education and outreach programs that address emerging environmental issues and offer integrated approaches to help resolve them are critical in combating environmental illiteracy among urban and suburban home owners. In order to enhance decision-making, homeowners must understand that their actions are crucial to the protection of their health and the environment.

**What has been done**

Twenty Alabama Urban Home\*a\*Syst workshops, demonstrations and activities were conducted in 2016 on topics such as water quality; runoff management; lawn and garden; managing hazardous products; storing automotive products; household wastewater treatment; managing trash and waste prevention and indoor air quality. Participants learned how to complete action checklists, perform environmental risk assessments, and implement home site BMPs.

**Results**

AAMU Extension 78% (n=154) of those surveyed via Alabama Home\*a\*Syst felt that the program enabled them to achieve a social (hazard free, securer home), environmental (protecting the environment from poor home site management practices) or economic (saving money ) expectation.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation
403	Waste Disposal, Recycling, and Reuse

**Outcome #42**

**1. Outcome Measures**

Number of youth that improved their knowledge of environmentally-related topics through the Urban Environmental Science Education Program.

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	86

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Outreach education provides a framework for citizens to avoid the long-term consequences associated with poor environmental stewardship and management of natural resources. The Urban Environmental Science Education Program (UESeP) seeks to improve citizen appreciation for science and enhance their understanding of the environment. In short, it identifies environmental issues and provides unbiased, science-based information to help citizens become better stewards of the environment.

#### What has been done

A team-based approach was used to implement UESeP in various settings. The team worked with K-12 teachers and students to improve their knowledge of forestry, wildlife and natural resource management. They carried out 111 activities utilizing multiple delivery modes, including classroom enrichment, workshops, field days, fairs, expos, festivals, earth days and conservation days.

#### Results

UESEP youth learned the impacts of non-point pollution; the importance of natural resource conservation, the importance of pollinators; and the benefits of reducing, reusing and recycling discarded waste. The percentage of youth participants who improved their knowledge of program concepts was as follows: water quality and quantity (74%); natural resource conservation (76%); forestry and wildlife; (70%) energy and waste management (69%) (n=645). The average youths' knowledge before the workshops was rated very low to moderate (1-3) compared to ratings of high and very high (4-5) after the workshops. Surveys revealed that 86% (n=645) of youth surveyed agreed that the program made them want to become better stewards of the environment. Comments: It's Good; I liked all of it; I love the learning; More, one per week please.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation
135	Aquatic and Terrestrial Wildlife
136	Conservation of Biological Diversity
403	Waste Disposal, Recycling, and Reuse

**Outcome #43**

**1. Outcome Measures**

Quantity of pharmaceuticals and personal care products (pounds) collected through collaborative drug-take back initiatives.

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	2547

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Pharmaceuticals and personal care products (PPCPs) are being detected in the environment by scientists all over the world. The Synergistic Efforts to Reduce Pharmaceuticals in the Environment (SerPIE) Program helps individuals understand the environmental safeguards germane to proper management and disposal of unwanted medicine. The program aims to improve human, animal and environmental health through a reduction in the number of pharmaceuticals fated for the environment and stockpiled in homes by promoting positive changes in behavior and adoption of recommended pharmaceutical best management practices (BMPs).

**What has been done**

Over forty workshops, demonstrations, exhibits, and drug take-back initiatives were carried out in 2016. One-hundred and twenty-five participants engaged to share educational information on PPCP extension and research via the first SerPIE-One Health Conference. Seven drug take-back programs with ACES staff participation were conducted. Participation among minorities at the city-wide events was fairly low. The majority of the medicines collected were prescription drugs, followed by over-the-counter (OTC) medicines.

**Results**

AAMU Extension The amount of pharmaceuticals and personal care products (PPCPs) stockpiled in homes and fated for the environment were reduced by an estimated 2547 lbs. Hence, reducing the accessibility and potential misuse/abuse of drugs among adults and teens and decreasing the amount of pharmaceuticals

fated for our water supplies. Overall, the reduction in PPCPs resulted in improved social, economic and environmental conditions for Extension's clientele.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation
135	Aquatic and Terrestrial Wildlife
403	Waste Disposal, Recycling, and Reuse

**Outcome #44**

**1. Outcome Measures**

Quantity of e-waste (pounds) recycled by citizens practicing improved environmental stewardship leading to a cleaner, safer environment.

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	12300

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Educational information to respond to community needs related to electronic waste (e-waste) management is becoming increasingly important. The number of electronic products in households and businesses that are considered to be obsolete, broken, or irreparable is growing at an enormous rate. Continued production of e-waste in such a rapid manner creates a need for improved education and increased adoption of e-waste BMPs. The E-Waste Institute serves as a medium to educate, train, and influence public policies about safe environmental practices for e-waste.

**What has been done**

In 2016, 1275 lbs. (877 units) of printer cartridges were recycled through the small electronics recycling program (SERP) via Funding Factory. The total earnings generated since the development of the Funding Factory partnership equals \$1159.48. 2) Five e-waste recycling drives in 2016 resulted in 11,025 lbs. of

e-waste being recycled (n=300).

**Results**

AAMU Extension These recycling efforts, yielding 12,300 lbs. of e-waste saved nonrenewable natural resources and offset harmful CO2 emissions. 1). The 1275 lbs. of e-waste recycled via SERP is equivalent to offsetting CO2 emissions from the consumption of 1,343 gallons of gasoline or counterbalancing CO2 emissions from the consumption of 28 barrels of oil. SERP activities also led to the reclamation of 173 lbs. of plastic nylon, steel, copper, and aluminum. 2). The economic gains observed from the 11,025 lbs. of e-waste recycled via the e-waste drives totaled an estimated \$1740.00. The five e-waste drives also deferred 33,761 lbs. of carbon emissions from entering the atmosphere. According to the EPA Waste Reduction Model (WARM) this equates to 5,727 gallons of gasoline conserved [@\$2.748 per gal. = \$15,737.79], 1302 trees saved, 48,929 plastic bottles recycled or 225,074 aluminum cans recycled [@\$0.85 per lb. = \$191,312.90].

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation
403	Waste Disposal, Recycling, and Reuse

**Outcome #45**

**1. Outcome Measures**

The number of AAMU Research Natural Resource Conservation and Management, Environmental Sustainability, and Climate studies conducted

**2. Associated Institution Types**

- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	5

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Natural Resource Conservation and Management, Environmental Sustainability, and Climate



issues are critical the sustainability of communities in North Alabama.

**What has been done**

Research studies conducted

**Results**

Research studies were on the effects of tillage and residue managements on soil microbial community, carbon dioxide effluxes and soil physical properties in a biofuel sorghum feedstock, coupling heat and water transfer in biochar amended soils, evaluating the impact of land management and climate on instream health of Limestone Bay Watershed, AL; soil climate and morphology of temporarily-saturated soils in N Alabama and Tennessee; bacterial community structure and biochemical transformation of phosphorus in poultry litter biochar-amended highly weathered soils; role of RNA (siRNA) and micro (miRNA) in regulating gene expressions in soybean under aluminum and drought stress conditions; and modeled the impacts of climate change, population growth, and land use change on water availability in the Tennessee River Basin; enhancing biotic and abiotic stress tolerances and adaptation in vegetables and assessing soil quality under long-term organic and conventional management; impact of Oak forest management on local climate and wildlife biodiversity in N. Alabama.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
132	Weather and Climate
133	Pollution Prevention and Mitigation

**Outcome #46**

**1. Outcome Measures**

The number of AU research studies conducted on conservation practices

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	5

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Conservation practices are important to community vitality

**What has been done**

Reserach studies conducted

**Results**

Research was conducted on conservation practices that improve soil organic carbon, reduce soil and water loss, and enhance the effectiveness of fertilizers, and on new fertilizer technologies and management practices for crop production, turfgrasses and ornamentals

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
111	Conservation and Efficient Use of Water
132	Weather and Climate
133	Pollution Prevention and Mitigation

**Outcome #47**

**1. Outcome Measures**

The percent of Sustainable Management of Forest and Range Land within Black Belt Counties who increased knowledge of feral hogs

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	98

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Limited resource landowners tend to sell timber without the aid of a consulting forester. Therefore, they need to know how to sell timber and be aware of contracts. They also need to know the alternatives to livestock management or forest management. Land-based conservation missions of agencies and organizations, Educational institutions, and land owners need to be addressed from a science-based perspective due to concerns for economic viability, real property

security/ sustainability and improvement of quality of life.

**What has been done**

Nine workshops, a conference, field days, and site visitations were conducted in throughout the Black Belt counties (Macon, Barbour, Bullock, Wilcox, and Lowndes) on how market timber, forestry contracts, and silvopasture management. In addition to TU personnel, forestry consultants, and forestry professionals were utilized to present information. Participants were educated in feral hog problems and maintenance, managing your forest resources for profit, tree identification, longleaf restoration, and advice on consultant selection were given to 420 landowners.

**Results**

TU Research and Extension Of the attendees of the feral hog workshops 98% of attendees said that they learned new techniques and technologies that will help them address their current problem, while 78% of the attendees of the longleaf pine workshop said that the knowledge gained through the workshops would be useful in their operations and/or personal stands.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife

**Outcome #48**

**1. Outcome Measures**

TU Research and Extension Increased knowledge of soil health

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	1

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Pesticides encompass a major area of industrial development that has been added to natural ecosystems. The increased use of herbicides in the US reflects their increased use in forested

systems for silviculture, as well as in field agriculture for weed management. Although select herbicides are registered for use in forestry, each individual herbicide typically affects non-target plant species and other species groups, some being of a broader spectrum than others, and some having unknown impacts on ecosystems such as the soil ecosystem.

**What has been done**

Soil samples were obtained from the Escambia Experimental Forest in Brewton, AL. Soil treatments were three herbicide treatments: hexazonine [ULW], triclopyr [garlon XRT; CH], imazapyr [chopper EC] and two fertilizer regimes: (+NPK -NPK) under a randomized complete block design. Soil samples were evaluated for selected soil enzyme activities: phosphodiesterase [PD] and phosphomonoesterases [PM] [acid and alkaline], in addition to soil chemical (total organic carbon and soil pH).

**Results**

In the assessment of enzyme activity as a soil health indicator, the only significant difference among herbicides was soils treated with triclopyr CH showing greater activity than imazapyr chopper EC (p<0.01) and a significant difference was also observed between fertilized and unfertilized plots for PD and PM (acid) enzyme activity. Also, enzyme activity was observed as being higher (p<0.05) in soils where no fertilizer was applied compared to soil containing fertilizer treatment. Thus, attention should be paid to both herbicide and fertilizer use in forest management, as it has long term impacts on soil health and function in ecosystems

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships

**Outcome #49**

**1. Outcome Measures**

The percent of participants who increased knowledge of climate change

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	67

**3c. Qualitative Outcome or Impact Statement**

### **Issue (Who cares and Why)**

Most limited resource farmers, land and well owners have limited understanding on the realities and impacts of climate change. Climate change is expected to have negative impacts on agricultural yields and water resources. Local farmers and land owners are most impacted by decreases in surface and ground water resources, increase adverse climate events, decrease of crop yields and weakened crop resilience as a results of climate change. Knowing the magnitude and spatial trends of these impacts will help farmers to be better educated and receptive to adaptation solutions.

### **What has been done**

Climate change questionnaires were received and analyzed for baseline knowledge of Farmers on the issue. Hydrologic models were setup and calibrated for the Alabama, Coosa and Tallapoosa (ACT) and Tombigbee River Basins. DSSAT model was calibrated for Ceres ? Maize and Cropgro ? Soybean models based on MIROC5 and IPSL-CM5A-MR GCM climate data under RCP 4.5 and 8.5 scenarios for the years 2045 and 2075, and results analyzed for yield changes. Future climate data was downloaded and been assimilated in SWAT model.

Extreme climate indices have been computed from the observed data. The frequency and intensity of extreme climatic events have been analyzed and mapped. A paper on this subject is being completed.

### **Results**

TU Research and Extension 44% of target audience respondents believe climate change is real and linked to anthropogenic causes, although 67% said climate change had affected their agricultural activities in the last 10-20 years. Baseline period experienced considerable increases in precipitation compared to the current period, while temperature increases were higher for current period compared to the baseline period. There was slight increases in average monthly streamflow in most subbasins within Alabama, Coosa and Tallapoosa River Basin, general sediment loads decreases, and total nitrogen load increases in some central subbasins, as a result of historical climate variability. The study projected an average decrease in corn yield of 17% and 32% in 2045, and 29% and 61% in 2075, under RCP 4.5 and RCP 8.5, respectively. Soybean yield is projected to decrease by an average of 29% and 23% in 2045, and 19% and 43% in 2075, under RCP 4.5 and RCP 8.5, respectively. The extreme climate analysis has shown that during the past 5 decades, there has been a decrease in cool nights and cool days and a sharp increase in warm nights, growing season length and extreme temperature range over the Southeast.

## **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
132	Weather and Climate

### **Outcome #50**

#### **1. Outcome Measures**

TU Research and Extension The amount of corn and soybean calibration

#### **2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	57

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Results showed that Climate change will impact corn and soybean yields in the future. Representative Concentration Pathways (RCPs) for greenhouse gases have been used to study the impact of climate change on both Corn and Soybean in the Black Belt counties of Alabama. It is projected that there will be an average decrease in corn yield of 17% and 32% in 2045, and 29% and 61% in 2075, under RCP 4.5 (medium) and RCP 8.5 (high), concentration scenarios respectively. Soybean yield is projected to decrease by an average of 29% and 23% in 2045, and 19% and 43% in 2075, under RCP 4.5 and RCP 8.5 concentration scenarios, respectively.

**What has been done**

The goal was to assimilate future climate data in hydrologic and crop model and analyze impacts of climate change. Dominant soils data, observed and future climate (2045 and 2075) data based on IPCC GCM MIROC5 and IPSL-CM5A-MR under RCP 4.5 (medium) and RCP 8.5 (high) scenarios, as well as corn and soybean genetic coefficients were calibrated assimilated into Decision Support System for Agrotechnology Transfer (DSSAT) DSSAT model and calibrated. Future climate data are being integrated into calibrated Soil and Water Assessment Tool (SWAT) model to analyze impact of climate change on hydrology within the Mobile River Basin. Research findings and farmer inputs from collected questionnaires are being analyzed for developing climate adoptions options and solutions.

**Results**

TU Research and Extension DSSAT model calibration results for corn and soybean was very good with d-statistics values ranging from 0.52 to 0.57, covering six counties in Alabama.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships

**Outcome #51**

**1. Outcome Measures**

Percent increase of water quality testing in Black Belt counties

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	6000

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama is one of the richest states in the US when water resources are concerned owing to its many surface water ways, as well as its relatively pristine groundwater resources. As the state's agricultural sector continues to grow the use of these resources for other functions than just residential is unavoidable, which is why education as to the responsible use and conservation of these resources is a necessity.

**What has been done**

Water Quality Program performs water testing services as well as one-on-one consultation for the results of the water testing. Seventy-three samples were submitted from both residential and agricultural sources for both personal and business use.

**Results**

TU Research and Extension Although within Safe Drinking Water Standards issued by the Environmental Protection Agency, 40 out 73 samples tested were for agricultural and residential use. Of those 40, 25 tested positive for fecal coliform bacteria. Of the positive fecal coliform tests, participants were consulted on how to treat the water, and 10 resubmitted tests with negative results for fecal coliform bacteria. Fifteen others stated they will be utilizing other water resources for use. The Water Quality Lab increased its testing activity by 600% from 2016 by reaching new clientele for residential, agricultural, and research issues.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships

111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation

## **Outcome #52**

### **1. Outcome Measures**

The number of TU students who demonstrated increased knowledge of EJ and Water quality

### **2. Associated Institution Types**

- 1890 Extension
- 1890 Research

### **3a. Outcome Type:**

Change in Action Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	92

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

Communities of color, which are often poor, are routinely targeted to host facilities that have negative environmental impacts. Environmental justice is an important part of the struggle to improve and maintain clean and healthy environments. Additionally in response to this present injustice, natural resource conservation and education is important to the resolution.

#### **What has been done**

University students were educated about water resources, pollution, water quality laws and the Safe Drinking Water Act (SDWA), and the history and application of Environmental Justice regionally, nationally, and internationally. Students then engaged in water quality site assessments and testing in the Municipality of Tuskegee. They also engaged in a debate about EJ issues in the Alabama Black Belt. Another activity was the Mobile Bay Coastal Cleanup, where students and faculty took part an opportunity to gain experience and learn about environmental and wildlife conservation issues.

#### **Results**

Out of the 137 students who participated in the debate about the ethical and moral issues that are involved in nature resource conservation and economics of rural communities, 92% demonstrated their new knowledge in both papers and post-tests regarding EJ and water conservation respectively. Out of the 42 students participating in the Coastal Cleanup, 31 reported that they



gained significant knowledge about coastal water susceptibility and methods of conservation from the event.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
133	Pollution Prevention and Mitigation

**Outcome #53**

**1. Outcome Measures**

The percent of TU Water Conservation participants who increased knowledge of surface water utilization techniques

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	100

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama is one of the richest states in the US when water resources are concerned owing to its many surface water ways, as well as its relatively pristine groundwater resources. As the state's agricultural sector continues to grow the use of these resources for other functions than just residential is unavoidable, which is why education as to the responsible use and conservation of these resources is a necessity.

**What has been done**

Cooperative Extension agents and specialists have assisted in developing demonstration sites throughout the Black Belt for the use of sustainable pumping methods for both groundwater and surfacewater. Two demonstrations were held in Butler and Macon counties in addition to 36 site visits to assess suitability for water use, water use efficiency, the importance of water quality testing, and assisting in system designs. Student interns and work study students were able to participate in all of the activities allowing for their training as future public service and/or Extension professionals.

**Results**

TU Research and Extension Demonstration and workshop post tests showed that 100% of participants learned surface water utilization techniques not previously known. Participants in field days and demonstrations came away with a better understanding of how to responsibly use water resources for both residential and agricultural purposes.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management

#### Outcome #54

##### 1. Outcome Measures

Dollar value of response to animal nuisance contacts

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	200000

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

Nuisance wildlife can be a source of economic damage, mental anguish, or both. A few examples: Many people have a phobia about snakes and will go to unnecessary expense and actions to try and ensure that snake do not occur in their yards. Bats are a valuable ecological resource, but when occupying a homeowner's attic, may pose a serious health risk. Armadillos destroy yards as they search for invertebrate food. Beavers cause millions of dollars in damage as they flood timber and agricultural lands. Deer provide a tremendous economic benefit to outdoor recreation in AL, but pose an economic and health risk from deer-vehicle collisions, and by destroying crops and ornamental vegetation. This is just one component of the Wildlife Management project.

**What has been done**

During 2016, 8 Extension publications/videos were produced providing information on wild pig management (Management and Sustainability of Forest Resources), nuisance wildlife, beaver, and cougars (Aquatic and Terrestrial Wildlife). More than 30 workshops were conducted in which attendees were show ways to identify control damage from nuisance wildlife. In addition, over 2500 one-on-one contacts were made concerning nuisance wildlife.

**Results**

Two evaluation strategies were used to determine the success of the wildlife damage component of the project. A random sample of one-on-one contacts were surveyed by email with a short questionnaire asking if they were satisfied with the service/information they received, would they use ACES again, and would they recommend ACES to a friend. All respondents indicated they were very satisfied, that they would use ACES again, in that they would recommend the services to a friend. A 2nd study was done to determine the potential money saved by contacting ACES as opposed to having the work done by a private operator. Prices vary depending on the exact nature of the problem. We used a minimum cost so as not to over-estimate the impact of ACES assistance. Combining 1-on-1 contacts and workshop attendees, we estimated a minimum of 1000 complaints about squirrels, armadillos, snakes, and moles. Using a conservative estimate of \$200 per call, this translates to \$200,000 of potential savings! Given that private operators charge \$2000 and up to remove bats from a residence and ACES received a minimum of 100 bat calls in 2016, the potential money by ACES clients can easily exceed \$300,000!

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
123	Management and Sustainability of Forest Resources
134	Outdoor Recreation
135	Aquatic and Terrestrial Wildlife
136	Conservation of Biological Diversity

**Outcome #55**

**1. Outcome Measures**

Percent increase in knowledge of workshop attendees participating in various community forestry programs in 2015

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	92

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

There is a need in Alabama to both raise the awareness and level of tree care of private citizens and municipal and professional tree workers. Trees improve our quality of life and health as well as improve energy conservation, sound mitigation, air quality, economic values of property and business. There is a need to ensure people are practicing proper tree care using the latest scientific techniques to ensure our forests remain healthy, vigorously growing and safe for future generations.

**What has been done**

32 workshops were offered to various groups including professional tree care workers, community maintenance crews and private homeowners. Workshop topics ranged from tree selection, planting and maintenance to tree risk assessment to tree preservation to inventorying our community forest resources.  
Outcome

**Results**

Workshop attendees on a post-program self-evaluation scored an average of 4.6 of 5 on a likert scale where 1=strongly disagreed and 5=strongly agreed when asked if the information had increased their knowledge on the programmatic topic. This translates to attendees believing they had experienced a 92% change in knowledge on the various community forestry topics taught in 2016.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources

**Outcome #56**

**1. Outcome Measures**

Percentage of workers attending chainsaw safety who purchased safety equipment as a result of the training.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	83

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The field of arboriculture is regarded as one of the most dangerous industries. Most injuries are related to chainsaws which result in 36,000 injuries and over \$350 million in medical costs annually. 10% of workshop attendees had previously suffered a chainsaw injury as a result of not wearing personal protective equipment while running a chainsaw.

**What has been done**

5 chainsaw safety workshops trained 72 municipal and commercial personnel

**Results**

83% of attendees purchased personal protective equipment needed for safer chainsaw operation following the workshops. This action should reduce the number and severity of injuries in Alabama among professional and municipal chainsaw operators.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources

**Outcome #57**

**1. Outcome Measures**

Number of newly certified arborists as a result of certification preparatory training.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	8

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama has low number of professionally certified arborists able to provide scientifically based tree care and techniques to clients. Certification in arboriculture ensures a higher standard of tree care.

**What has been done**

2 workshops aimed at preparing and educating tree workers with the scientific and technical knowledge necessary to become Certified Arborists. 32 tree workers attended in 2016 and this program contributed to 8 succeeding in becoming Certified Arborists in Alabama

**Results**

8 of 32 workshop attendees have taken and passed the International Society of Arboriculture exam and successfully become Certified Arborists in Alabama.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
123	Management and Sustainability of Forest Resources

**Outcome #58**

**1. Outcome Measures**

Number of certified arborists able to retain Certified credentials as a result of continued education credits offered in 2016

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	121

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Certified Arborists must maintain 30 continuing educational credits every three years to retain their professional license and ensure they are current on the latest scientific and technical specs.

**What has been done**

14 community forestry workshops throughout Alabama offered a total of 72.5 continuing educational credits in arboriculture for professional arborists.

**Results**

The 14 workshops and the corresponding 72.5 CEUs have allowed 121 Certified Arborists in Alabama to maintain their certification and improve their knowledge on the latest techniques in arboriculture.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
123	Management and Sustainability of Forest Resources

**Outcome #59**

**1. Outcome Measures**

Number of coaches who learned how to audit their irrigation systems

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	28

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Knowing how long to operate irrigation systems and how much water to deliver is critical in making sure that fields receive enough irrigation to grow and provide a safe playing surface without wasting water. Many coaches are unaware of how to audit their irrigation systems and how to tune them to provide the necessary amount of water without overwatering.

**What has been done**

Methods for auditing irrigation systems were taught as part of these seminars. Implementing irrigation audits and watering according to schedules taught in the seminars saved coaches one irrigation event per week, or an average of 50,000 gallons of water per week per field.

**Results**

Coaches became proficient in auditing irrigation systems and using them to save water.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water



**Outcome #60**

**1. Outcome Measures**

Number of participants trained in proper ID and control of weeds

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	28

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Proper ID of weeds is needed to avoid using the wrong control method - either the wrong herbicide, or incorrect timing of herbicide, or improper cultural practices. Most high school coaches do not have formal training in identification of weeds commonly found on sports fields in Alabama.

**What has been done**

Our seminars included both classroom and hands-on training in weed identification. Proper ID allowed the use of less expensive herbicides, and elimination of some improperly-timed herbicide applications. This saved cities and schools \$5,000 in herbicide and labor costs while providing better weed control.

**Results**

Coaches learned how to identify common weeds in sports fields and effective control measures

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
134	Outdoor Recreation

**Outcome #61**

**1. Outcome Measures**

Total gallons of water saved per growing season

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	50400000

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Coaches often water fields on a calendar basis instead of according to the actual water needs of the grass. They also do not have a clear idea of how much water their irrigation system applies. This results in overwatering and waste.

**What has been done**

Teaching coaches how to audit their irrigation systems allowed them to apply only as much water as the field requires. Coaches were taught how to audit their systems and how to apply that knowledge to reduce the amount of water used.

**Results**

Coaches estimated that they saved an average of one irrigation event per week during the growing season. One event applying a quarter inch of water to a standard baseball or football field is approximately 50,000 gallons of water. Over a 36-week growing season, this would average 1.8 million gallons per field - a total of 50.4 million gallons across all the fields represented in the seminars.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
111	Conservation and Efficient Use of Water

## **Outcome #62**

### **1. Outcome Measures**

Dollars saved through better weed ID and control knowledge

### **2. Associated Institution Types**

- 1862 Extension

### **3a. Outcome Type:**

Change in Condition Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	5000

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

Coaches often have no training in weed identification or the best practices for weed management. Therefore, they often use the wrong herbicides, or apply them at the wrong time, wasting money.

#### **What has been done**

Coaches learned how to identify common weeds in Alabama sports fields and the best management practices for them. They used this knowledge to better select management options and timing.

#### **Results**

Coaches were able to control weeds with fewer herbicide applications, saving roughly \$200 per field for a total of \$5,000 during 2016.

### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
134	Outdoor Recreation

**Outcome #63**

**1. Outcome Measures**

Percent positive response to management recommendation

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	100

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Pond owners must cope with management challenges that affect the status of their ponds. These include weeds, fish diseases, maintenance of algal fertility, controlling pest species, and maintaining quality size of fish, among others.

**What has been done**

This project addresses the needs of pond owners , managers, and those interested in ponds in 3 ways; proactively by generating literature, digital resources, ; interactively through workshops and events; and reactively by responding to the needs of individuals with problems (pond visits, weed identification and control, telephone and email consultations, office visits). Direct consultations was the component assessed.

**Results**

About 52 follow up conversations either in person, by phone, or by email were conducted by individuals with agents and specialists in this project. This represents less than 10% of the phone and email consultations by the team. Of those called none experienced negative results from the recommendations given. The majority of those pond owners had successfully implemented the recommendations provided. Of the pond consultations assessed about 65% were for aquatic weed control, 4% for pond structural issues, 4% for fish disease and mortality, 10% for fish management (growth

and angling success), 15% for water quality and fertility and the rest of the call addressed other issues including pest control, safety, fish out operations, etc.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
134	Outdoor Recreation
135	Aquatic and Terrestrial Wildlife

**Outcome #64**

**1. Outcome Measures**

Percent increase in women who participate in FWNR Extension Workshops

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	10

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Even though there is an obvious need for natural resource programming in Alabama, our Extension Team often struggles to get sizeable numbers of landowners to attend traditional meetings and workshops. With agents expressing frustration at hosting workshops with limited attendance, and survey results showing a common desire to leave a legacy for heirs and women landowners stating that they would like to have information on land management it was decided that a different approach was needed. After several team meetings of brainstorming workshop ideas, it was decided to create two new workshops: ForestHer: A workshop for women who love the land, and host an Alabama Extension BioBlitz.

**What has been done**

Even though there is an obvious need for natural resource programming in Alabama, our Extension Team often

struggles to get sizeable numbers of landowners to attend traditional meetings and workshops. With agents expressing frustration at hosting workshops with limited attendance, and survey results showing a common desire to leave a legacy for heirs and women landowners stating that they would like to have information on land management programs.

**Results**

ForestHer: While only one ForestHer workshop was completed it was viewed as very successful by the planning team of Regional Agents Spenser Bradley and Norm Haley, and Extension Specialist Becky Barlow. Thirty-one women and one brave man attended the ForestHer workshop. Participants came from across Alabama and as far away as Michigan, Ohio, Tennessee, and Mississippi. BioBlitz: Eighty-eight faculty, outreach specialists, research scientists, graduate students and undergraduate students from Alabama Cooperative Extension System (ACES), Auburn University School of Forestry and Wildlife Sciences (SFWS), Auburn University College of Science and Math (COSAM), Auburn University College of Agriculture, Auburn University Libraries, Auburn University Museum of Natural History, and the Louise Kreher Preserve and Nature Center. Over the 14-hour program period, approximately 200 citizen scientists helped catalog 348 individual taxon the MOTDF Forty-three percent of those adults who registered were women and over half the participants were youth. These programs contributed to an estimated 10% overall increase in participation by women.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
903	Communication, Education, and Information Delivery

**Outcome #65**

**1. Outcome Measures**

Change in knowledge by FWNR program participants

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	100

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Even though there is an obvious need for natural resource programming in Alabama, our Extension Team often struggles to get sizeable numbers of landowners to attend traditional meetings and workshops. With agents expressing frustration at hosting workshops with limited attendance, and survey results showing a common desire to leave a legacy for heirs and women landowners stating that they would like to have information on land management it was decided that a different approach was needed. After several team meetings of brainstorming workshop ideas, it was decided to create two new workshops: ForestHer: A workshop for women who love the land, and host an Alabama Extension BioBlitz.

**What has been done**

In 2016 it was decided to create two new workshops: ForestHer: A workshop for women who love the land, and host an Alabama Extension BioBlitz. On September 19 and 20, ACES Extension personnel hosted the first ForestHer workshop at Riverwood Farms in Bremen Alabama. A BioBlitz is a hands-on, citizen science event to promote interest in biodiversity. Our BioBlitz was held on April 23, 2016 at the Mary Olive Thomas Demonstration Forest (MOTDF) in Auburn, Alabama. Because a BioBlitz is a program that covers a wide range of topics that also appeal to women and youth, it was hoped that we might reach a larger audience than with some of our more traditional programs.

**Results**

In a follow-up survey of 10% of participants in the ForestHer program it was found that 100% of those surveyed have used techniques learned to improve the management of their property.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
903	Communication, Education, and Information Delivery

**Outcome #66**

**1. Outcome Measures**

Increase in knowledge

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	95

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Many homeowners do not realize that some ornamental plants are invasive and harmful to the environment. While many forest landowners and natural resource professionals are aware of invasive plants, the many potential impacts of invasive plants are not fully understood and many are unable to confidently identify and control the many species of established or emerging invasive plant species in Alabama. The forestry and natural resource community, and other stakeholders, look to Extension for current information regarding invasive plant identification, ecology and control, as well as for meetings that provide Continuing Education Credits for professional development

**What has been done**

Educational events, written materials, on-line resources and social media were used to inform landowners, natural resource professionals and educators, and the public about invasive plant identification, ecology and control. Continuing Education Credits offered at many events provided highly valued opportunities for professional development. Meeting attendees and consumers of social media and on-line materials gained knowledge and encouragement for improved control of invasive plants (starting with proper identification of a species as invasive), proper use of herbicides, and for making informed choices when selecting plants for wildlife plantings and



landscaping, among other related topics. This translates into improved invasive plant control, leading to healthier and more productive forests across the state.

**Results**

95 percent of attendees at educational events followed by a evaluation reported an increase in knowledge. individuals seeking out information on-line also increase knowledge.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources

**Outcome #67**

**1. Outcome Measures**

Number of acres receiving treatment

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	30000

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Many forest landowners and natural resource professionals are aware of invasive plants, the many potential impacts of invasive plants are not fully understood and many are unable to confidently identify and control the many species of established or emerging invasive plant species in Alabama. The forestry and natural resource community, and other stakeholders, look to Extension for current information regarding invasive plant identification, ecology and control. With this information they are better able to map and identify invasive plant infestations, more effectively treat infestations, avoid spreading invasive plants and generally include invasive plant issues in forest management plans

**What has been done**

The Alabama Invasive Plant Council Annual Conference (co-chaired by ACES) draws an attendance of over 100 natural resource professionals each year. The post meeting evaluation showed that the attendees, who owned or managed nearly 3 million acres of land, increased their knowledge and saw ways to include the information in their land management efforts. If even a small number of these attendees took action on just 1% of the land under their management (a very conservative estimate based on previous surveys), this would result in a slowdown in the spread of invasive plants and more acres treated, improving forest health and productivity across thousands of acres.

**Results**

Number of acres receiving improved invasive plant control Attendees at the ALIPC meeting taking action or improved action on just 1% of the 3 million acres of under their management, results in a slowdown in the spread of invasive plants and more acres treated, improving forest health and productivity across 30,000 acres.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
123	Management and Sustainability of Forest Resources

**Outcome #68**

**1. Outcome Measures**

Measurement of the Amount of Acres Impacted by Forage Focus Educational Programming

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	8570

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Utilizing forages in a livestock, equine or forage operation will impact the operation in many ways. Forages will significantly reduce water runoff and erosion and add to soil fertility. Properly planted and managed forages will reduce feed costs in livestock and equine operations. Hay producers depend on quality forages to produce quality hay needed when forages are in short supply. Proper weed and insect control is also needed in maintaining quality stands of forages. Management practices will significantly improve the quality of forages produced. Understanding how to perform certain analysis tests or tasks will help the land owner significantly.

**What has been done**

Educational programs through meetings, workshops and demonstrations were held throughout the state to address forage topics in specific areas of weed control, hay and baleage production, GrassMasters, Master Cattlemens 101, fencing clinics, fire ants, parasite control in sheep and goat production, nutrient management, water quality and beef forage production management.

**Results**

Acres impacted by Forage Focus educational programming equaled 8,570 acres. This was a result of post program surveys of educational program participants. Educational programs through meetings, workshops and demonstrations were held throughout the state to address forage topics in specific areas of weed control, hay and baleage production, GrassMasters, Master Cattlemens 101, fencing clinics, fire ants, parasite control in sheep and goat production, nutrient management, water quality and beef forage production management.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
102	Soil, Plant, Water, Nutrient Relationships
601	Economics of Agricultural Production and Farm Management

**Outcome #69**

**1. Outcome Measures**

Number of livestock animals impacted by Forage Focus educational programming

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	6662

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Utilizing forages in a livestock, equine or forage operation will impact the operation in many ways. Forages will significantly reduce water runoff and erosion and add to soil fertility. Properly planted and managed forages will reduce feed costs in livestock and equine operations. Hay producers depend on quality forages to produce quality hay needed when forages are in short supply. Proper weed and insect control is also needed in maintaining quality stands of forages. Management practices will significantly improve the quality of forages produced. Understanding how to perform certain analysis tests or tasks will help the land owner significantly.

**What has been done**

Educational programs through meetings, workshops and demonstrations were held throughout the state to address forage topics in specific areas of weed control, hay and baleage production, GrassMasters, Master Cattlemens 101, fencing clinics, fire ants, parasite control in sheep and goat production, nutrient management, water quality and beef forage production management.

**Results**

The total number of livestock animals impacted from educational programming equaled 6,662 animals. This was a result of post program surveys of educational program participants. Educational programs through meetings, workshops and demonstrations were held throughout the state to address forage topics in specific areas of weed control, hay and baleage production, GrassMasters, Master Cattlemens 101, fencing clinics, fire ants, parasite control in sheep and goat production, nutrient management, water quality and beef forage production management.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
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102	Soil, Plant, Water, Nutrient Relationships
601	Economics of Agricultural Production and Farm Management

**Outcome #70**

**1. Outcome Measures**

Number of contacts through electronic educational delivery of Forage Focus programming

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	6407

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Utilizing forages in a livestock, equine or forage operation will impact the operation in many ways. Forages will significantly reduce water runoff and erosion and add to soil fertility. Properly planted and managed forages will reduce feed costs in livestock and equine operations. Hay producers depend on quality forages to produce quality hay needed when forages are in short supply. Proper weed and insect control is also needed in maintaining quality stands of forages. Management practices will significantly improve the quality of forages produced. Understanding how to perform certain analysis tests or tasks will help the land owner significantly.

**What has been done**

Educational programs resources delivered through the Alabama Forages website, Facebook and Twitter accounts and also 6 webinars regarding forage topics in specific areas of weed control, hay and balegae production, Alabama forage grasses identification, soil, forage and water testing, insect pest management, nutrient management, water quality and beef forage production management.

**Results**

The total number of contacts through Alabama Forages website, Facebook and Twitter equaled 6,407 individuals. The

Alabama forages website and resources reached 5,064 visits in 2016. The Alabama Forages Facebook account has 802 page likes, an average reach and engagement of 420 organic followers per month. Followers are 53% male and 46% female, with 758 followers from the US and the remaining from foreign countries. The Forage Focus Twitter account has 514 followers and 1,501 tweets across 2016.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
601	Economics of Agricultural Production and Farm Management

**Outcome #71**

**1. Outcome Measures**

Acres Impacted by Forage Focus Drought Response Meetings

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	19915

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Utilizing forages in a livestock, equine or forage operation will impact the operation in many ways. Forages will significantly reduce water runoff and erosion and add to soil fertility. Properly planted and managed forages will reduce feed costs in livestock and equine operations. Hay producers depend on quality forages to produce quality hay. Management practices will significantly improve the quality of forages produced.

**What has been done**

In 2016, more than 66 percent of the state suffered under extreme or exceptional drought, the two most severe categories as defined by USDA. In response to this agricultural disaster, ACES Forage Focus programming

responded. Meetings were held, particularly in the most severe regions of the state to provide resources and guidance for livestock and forage producers to best address the drought and its affects.

**Results**

The acres impacted by Forage Focus drought resource meetings held in 2016 was 19,915 acres. This was a result of post program surveys of educational program participants. These meetings addressed pasture and hay assessment, winter annual feeding, commodity feed options, awareness and details of FSA assistance, tax implications of livestock sold in response to drought and hay testing for nitrates.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
102	Soil, Plant, Water, Nutrient Relationships
601	Economics of Agricultural Production and Farm Management

**Outcome #72**

**1. Outcome Measures**

Number of livestock animals impacted by Forage Focus Drought Response Meetings

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	8868

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Utilizing forages in a livestock, equine or forage operation will impact the operation in many ways. Forages will significantly reduce water runoff and erosion and add to soil fertility. Properly planted and managed forages will reduce feed costs in livestock and equine operations. Hay producers depend on quality forages to produce quality hay. Management practices will significantly improve the quality of forages produced.

**What has been done**

In 2016, more than 66 percent of the state suffered under extreme or exceptional drought, the two most severe categories as defined by USDA. In response to this agricultural disaster, ACES Forage Focus programming responded. Meetings were held, particularly in the most severe regions of the state to provide resources and guidance for livestock and forage producers to best address the drought and its affects

**Results**

The number of livestock animals impacted by Forage Focus drought resource meetings held in 2016. This was a result of post program surveys of educational program participants. These meetings addressed pasture and hay assessment, winter annual feeding, commodity feed options, awareness and details of FSA assistance, tax implications of livestock sold in response to drought and hay testing for nitrates.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
102	Soil, Plant, Water, Nutrient Relationships
601	Economics of Agricultural Production and Farm Management

**Outcome #73**

**1. Outcome Measures**

Economic impact of Forage Focus educational programming

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	116980

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Utilizing forages in a livestock, equine or forage operation will impact the operation in many ways. Forages will



significantly reduce water runoff and erosion and add to soil fertility. Properly planted and managed forages will reduce feed costs in livestock and equine operations. Hay producers depend on quality forages to produce quality hay needed when forages are in short supply. Proper weed and insect control is also needed in maintaining quality stands of forages. Management practices will significantly improve the quality of forages produced. Understanding how to perform certain analysis tests or tasks will help the land owner significantly.

**What has been done**

Educational programs through meetings, workshops and demonstrations were held throughout the state to address forage topics in specific areas of weed control, hay and baleage production, GrassMasters, Master Cattlemens 101, fencing clinics, fire ants, parasite control in sheep and goat production, nutrient management, water quality and beef forage production management.

**Results**

The estimated economic impact of Forage Focus educational programming is \$116,980.00 for livestock, equine and forage producers in Alabama. This was a result of post program surveys of educational program participants. Educational programs through meetings, workshops and demonstrations were held throughout the state to address forage topics in specific areas of weed control, hay and baleage production, GrassMasters, Master Cattlemens 101, fencing clinics, fire ants, parasite control in sheep and goat production, nutrient management, water quality and beef forage production management

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
601	Economics of Agricultural Production and Farm Management

**Outcome #74**

**1. Outcome Measures**

Economic impact of Forage Focus Drought Response Meetings

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	874125

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Utilizing forages in a livestock, equine or forage operation will impact the operation in many ways. Forages will significantly reduce water runoff and erosion and add to soil fertility. Properly planted and managed forages will reduce feed costs in livestock and equine operations. Hay producers depend on quality forages to produce quality hay. Management practices will significantly improve the quality of forages produced.

**What has been done**

In 2016, more than 66 percent of the state suffered under extreme or exceptional drought, the two most severe categories as defined by USDA. In response to this agricultural disaster, ACES Forage Focus programming responded. Meetings were held, particularly in the most severe regions of the state to provide resources and guidance for livestock and forage producers to best address the drought and its affects

**Results**

The estimated economic impact of \$874,125.00 to livestock, equine and forage operations affected by the drought conditions in 2016 as a result of Forage Focus Drought Response Meetings. This was a result of post program surveys of educational program participants. These meetings addressed pasture and hay assessment, winter annual feeding, commodity feed options, awareness and details of FSA assistance, tax implications of livestock sold in response to drought and hay testing for nitrates.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
601	Economics of Agricultural Production and Farm Management

**Outcome #75**

**1. Outcome Measures**

Percent knowledge gained by participants of USDA NRCS-ACES Interagency Training

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	25

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Improve communication among NRCS and ACES agencies. Provide educational training in the identification of predominant forage systems and clientele impacted. Design educational programming in perennial and annual grasses and legumes, forage mass estimation, grazing demonstrations, botanical composition and weed control. Educational delivery to the average clientele with 10 to 20 years experience and an average farm size 50 to 100 acres. Identify areas of need for future training sessions

**What has been done**

A two and a half day training program was conducted to highlight grazing management concepts and applications for ACES Extension agents and USDA NRCS Alabama personnel. This training included hands-on demonstrations, pasture walks, in-classroom presentations, and discussion groups focused on sustainable grazing management systems in the Southeast.

**Results**

The average percent of knowledge gained was 25.25% from participants of the Forage Focus USDA NRCS-ACES Interagency Training held in March 2016. From pre-test and post-test results gathered from the 24 respondents of this training, 36% gained knowledge in grazing management, 28% in forage mass, 17% in botanical composition and 20% in

animal nutritional requirements. Of the training participants, 21% had less than 5 years of experience and 65% of participants were highly likely to implement the use of forage monitoring techniques in their recommendations and discussions with clientele.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
601	Economics of Agricultural Production and Farm Management

**Outcome #76**

**1. Outcome Measures**

Number of volunteers that monitor water quality with Alabama Water Watch

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	63

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Water quality degradation is caused by nonpoint source pollution that originates from poor land management.

Introducing citizens to their role in understanding and improving water resources through increased knowledge of ?healthy? stream conditions assists in setting restoration priorities and accurately targeting watershed management practice implementation.

**What has been done**

AWW conducted 101 training sessions (39 water chemistry workshops, 27 bacteriological workshops, 6 biomonitoring workshops, 4 Exploring Alabama?s Living Streams workshops, 15 recertification sessions, 4 trainer

refresher workshop, 2 training of trainers, and 4 trainer intern trainings) in 2016 certifying 565 volunteer monitors and trainers. . Monitor groups included public school groups, lake homeowner-boat owner groups, retiree groups, lake stakeholder groups, stream/river stakeholder groups, bay/estuary stakeholder groups, 4-H youth groups, FFA groups, conservation groups, university student groups, and professional groups.

**Results**

Number of citizen monitor groups that are actively monitoring water quality on streams, lakes, or bays. These citizens provided 2,927 data records in 2016. Since 1993, Alabama Water Watch volunteers have submitted 85,518 water quality data records from 2,380 sites on 771 waterbodies

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
112	Watershed Protection and Management

**Outcome #77**

**1. Outcome Measures**

Linear feet of streams enhanced or restored in Alabama

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	3700

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Improving water resources through enhancement or restoration of streams includes approaching stream degradation from a systems approach: 1) Understand the causes of instability or degradation 2) Recommend innovative methods to address the cause of the problem while incorporating other goals such as improved ecology, infrastructure protection, decreasing loss of land to erosion, and aesthetics. 3) Use demonstration projects to

share lessons  
learned and promote wise stewardship of water resources

**What has been done**

Stream enhancement or restoration projects have been implemented that use natural channel design techniques. These techniques are sometimes referred to as 'green' engineering and have common components of: 1) stream channel design to accommodate low and high flows, maximize floodplain access 2) incorporating in-stream structures to resist or redirect erosive flows 3) plant native vegetation for long-term stability, habitat, and other ecological functions

**Results**

The ACES Water Program assisted with the enhancement or restoration of approximately 3,700 linear feet of streams in Alabama in 2016. D'Olive Creek at I-10, Daphne, Alabama (3,000 linear feet) Unnamed tributaries to Saughatchee Creek, Auburn, Alabama (200 linear feet) Headwaters Town Creek, Auburn University, Alabama (200 linear feet) Mill Creek, Phenix City, Alabama (300 linear feet) The D'Olive Creek project stopped an estimated 2,000 tons of sediment from entering Mobile Bay annually. This project was funded through the Mobile Bay National Estuary Program by the National Fish and Wildlife Foundation. Goodwyn, Mills and Cawood Inc. provided engineering and North State Environmental was the restoration contractor. ACES was invited to oversee riparian restoration plans and assist with outreach and education.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
112	Watershed Protection and Management

**Outcome #78**

**1. Outcome Measures**

Community of Practice regional meeting

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2016	1

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Extension, Sea Grant, and other professionals around the Gulf work in silos with local municipalities on climate and sea level rise issues. The Gulf Climate community of practice serves to allow for networking, coordinating efforts and information sharing across these organizations.

#### What has been done

The 6th annual Gulf Climate Community of Practice was held in Biloxi, MS. Assisted in coordinating the meeting were ACES personnel

#### Results

Meeting attendees learned of advances in climate science and shared regional efforts.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
132	Weather and Climate
903	Communication, Education, and Information Delivery

### Outcome #79

#### 1. Outcome Measures

Resilience Indices workshops and webinars

#### 2. Associated Institution Types

- 1862 Extension

#### 3a. Outcome Type:

Change in Condition Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2016	3

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The community resilience index and associated tourism, fisheries and ports business resilience indices were developed to assist coastal stakeholders in identifying gaps in resilience measures. Designed to be a conversation, extension, Sea Grant, and other outreach professional voluntarily facilitate index workshops with stakeholders. Success of the index tools has increased demand for trained facilitators.

**What has been done**

Two webinars and one in-person workshop were held to train resilience index facilitators around the Gulf.

**Results**

More than 30 individuals were trained to provide facilitated index meetings to coastal stakeholders using the index tools.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
132	Weather and Climate
903	Communication, Education, and Information Delivery

**Outcome #80**

**1. Outcome Measures**

Stakeholders will be aware of national working waterfront network efforts

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	3

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The National Working Waterfront Network connects wwf stakeholders around the country at a



national level.  
Alabama stakeholders can benefit from NWWN actions and participation.

**What has been done**

ACES serves on the executive committee and as chair of the Outreach and Education committee for the NWWN.

ACES serves as a liaison between the NWWN and local wwf stakeholder groups, providing information and educational opportunities.

**Results**

ACES personnel assisted local stakeholders in coordinating 3 meetings, providing for the exchange of information about local and national working waterfront issues.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
903	Communication, Education, and Information Delivery

**Outcome #81**

**1. Outcome Measures**

Percentage of participants who learned a lot

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	59

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Target audience lacks underlying knowledge of pest biology and available IPM tactics. This often leads to overuse of pesticides and the use of unnecessarily dangerous pesticides. All too often target audience spends more time and money than necessary to manage the pests.

**What has been done**

9 webinars were conducted on topics of general interest to homeowners; extension agents and specialists; master gardeners; and state, local, and school professionals. The webinars give the target audience a better understanding of pest biology and IPM tactics

**Results**

59% of webinar attendees said they learned a lot, 35% said they learned something, 6% said they learned a little, 0% said they learned nothing

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
136	Conservation of Biological Diversity

**Outcome #82**

**1. Outcome Measures**

Percentage of participants who plan to adopt information

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	97

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Target audience lacks underlying knowledge of pest biology and available IPM tactics. This often leads to overuse of pesticides and the use of unnecessarily dangerous pesticides. All too often target audience spends more time and money than necessary to manage the pests.

**What has been done**

9 webinars were conducted on topics of general interest to homeowners; extension agents and specialists; master gardeners; and state, local, and school professionals. The webinars give the target audience a better understanding

**Results**

98% of attendees said they planned to use the information that they had learned to change the way they had been managing pests.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
136	Conservation of Biological Diversity

**Outcome #83**

**1. Outcome Measures**

Percentage of participants finding that pest problems are less frustrating

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	98

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Target audience lacks underlying knowledge of pest biology and available IPM tactics. This often leads to overuse of pesticides and the use of unnecessarily dangerous pesticides. All too often target audience spends more time and money than necessary to manage the pests.

**What has been done**

9 webinars were conducted on topics of general interest to homeowners; extension agents and specialists; master gardeners; and state, local, and school professionals. The webinars give the target audience a better understanding of pest biology and IPM tactics.

**Results**

98% of participants said that as a result of the All Bugs Good and Bad Webinar Series, pest problems are less frustrating to them

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
136	Conservation of Biological Diversity

**Outcome #84**

**1. Outcome Measures**

Percentage of participants who saved money as a result of the webinars

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	23

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Target audience lacks underlying knowledge of pest biology and available IPM tactics. This often leads to overuse of pesticides and the use of unnecessarily dangerous pesticides. All too often target audience spends more time and money than necessary to manage the pests.

**What has been done**

9 webinars were conducted on topics of general interest to homeowners; extension agents and specialists; master gardeners; and state, local, and school professionals. The webinars give the target audience a better understanding of pest biology and IPM tactics.

**Results**

23% of participants said they had saved money as a result of the information they received from prior All Bugs Good and Bad Webinars. Based on the responses from 35 webinar attendees in November 2016, who said they had attended

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
136	Conservation of Biological Diversity

#### Outcome #85

##### 1. Outcome Measures

Percentage of participants who used less pesticide

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	49

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

Target audience lacks underlying knowledge of pest biology and available IPM tactics. This often leads to overuse of pesticides and the use of unnecessarily dangerous pesticides. All too often target audience spends more time and money than necessary to manage the pests.

###### **What has been done**

9 webinars were conducted on topics of general interest to homeowners; extension agents and specialists; master gardeners; and state, local, and school professionals. The webinars give the target audience a better understanding of pest biology and IPM tactics.

###### **Results**

49% of participants said they had used less pesticide as a result of the information they received from prior All Bugs Good and Bad Webinars. Using less pesticide improves environmental quality. Based on the responses from 35 webinar attendees in November 2016, who said they had attended previous webinars.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
136	Conservation of Biological Diversity

#### Outcome #86

##### 1. Outcome Measures

Percentage of participants who identified an insect pest before using a pesticide

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	63

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

Target audience lacks underlying knowledge of pest biology and available IPM tactics. This often leads to overuse of pesticides and the use of unnecessarily dangerous pesticides. All too often target audience spends more time and money than necessary to manage the pests.

###### **What has been done**

9 webinars were conducted on topics of general interest to homeowners; extension agents and specialists; master gardeners; and state, local, and school professionals. The webinars give the target audience a better understanding of pest biology and IPM tactics.

###### **Results**

63% of participants said they identified the pest before using a pesticide as a result of the information they received from prior All Bugs Good and Bad Webinars. Understanding the problem leads to using the appropriate pesticide. Based on the responses from 35 webinar attendees in November 2016, who said they had attended previous webinars.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
136	Conservation of Biological Diversity

#### Outcome #87

##### 1. Outcome Measures

Percentage of participants who used other integrated pest management methods

##### 2. Associated Institution Types

- 1862 Extension
- 1862 Research

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	57

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

Target audience lacks underlying knowledge of pest biology and available IPM tactics. This often leads to overuse of pesticides and the use of unnecessarily dangerous pesticides. All too often target audience spends more time and money than necessary to manage the pests

###### **What has been done**

9 webinars were conducted on topics of general interest to homeowners; extension agents and specialists; master gardeners; and state, local, and school professionals. The webinars give the target audience a better understanding of pest biology and IPM tactics

###### **Results**

57% of participants said they used other integrated pest management methods in addition to using a pesticide as a result of the information they received from prior All Bugs Good and Bad Webinars. Using additional or alternative IPM methods contributed to the previously reported outcomes of using less pesticide, saving money, and being less frustrated by the

pest problem. Based on the responses from 35 webinar attendees in November 2016, who said they had attended previous webinars

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
136	Conservation of Biological Diversity

**Outcome #88**

**1. Outcome Measures**

Percentage of participants who implemented practices to encourage good bugs

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	46

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Target audience lacks underlying knowledge of pest biology and available IPM tactics. This often leads to overuse of pesticides and the use of unnecessarily dangerous pesticides. All too often target audience spends more time and money than necessary to manage the pests.

**What has been done**

9 webinars were conducted on topics of general interest to homeowners; extension agents and specialists; master gardeners; and state, local, and school professionals. The webinars give the target audience a better understanding of pest biology and IPM tactics

**Results**

46% of participants said they implemented practices to encourage good bugs as a result of the information they received from prior All Bugs Good and Bad Webinars. Encouraging good bugs to control the bad bugs



contributed to the previously reported outcomes of using less pesticide, saving money, and being less frustrated by the pest problem. Based on the responses from 35 webinar attendees in November 2016, who said they had attended previous webinars.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
136	Conservation of Biological Diversity

**Outcome #89**

**1. Outcome Measures**

Acres of oysters reef restored

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	3

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Oyster reefs and oyster populations in Mobile Bay and the Mississippi Sound (AL) have been degraded

**What has been done**

Volunteers produced 58,500 oysters for planting on degraded reef sites in Mobile Bay.

**Results**

The 58,500 oysters produced by the 43 volunteer sites are sufficient to plant 2.89 acres.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
135	Aquatic and Terrestrial Wildlife

**Outcome #90**

**1. Outcome Measures**

Additional oyster larvae generated for ecosystem from planted oysters spawning

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	1000000

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Oyster reefs and oyster populations in Mobile Bay and the Mississippi Sound (AL) have been degraded

**What has been done**

58,500 advanced stocker oysters were planted in November 2016 which will spawn in the spring of 2017 producing millions of additional larvae for the estuarine system of Mobile Bay

**Results**

The spawning capacity of planted oysters will result in millions of additional larvae for the estuarine system of Mobile Bay

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
135	Aquatic and Terrestrial Wildlife

**Outcome #91**

**1. Outcome Measures**

Dollar value of restored oyster reef

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	55997

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Value of oyster reef restored includes ecological components ( pounds N removed), total net benefits, value of N removal, increase local economic value from higher catch rates, and increase revenue from harvested share of enhanced fish numbers.

**What has been done**

58,500 oysters produced by volunteer gardeners sufficient to restore (5/m<sup>2</sup>) 2.89acres with a per acre value of \$19,376.11 (TNC) for a total value of \$55,997for the 2.89 acres in 2016. ROI = 1:1.805 (80.5%)

**Results**

Dollar value of 2.89 acres of oyster reef restored (TNC) including total net benefits of added reef, increase local economic value from higher catch (habitat), increase in revenue from harvested share of enhanced fish numbers, pounds of N removed and the value of the N removed by the restored reef acreage. ROI = 1:1.805 (80.5%)

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife

## V(H). Planned Program (External Factors)

### External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

### Brief Explanation

n/a

## V(I). Planned Program (Evaluation Studies)

### Evaluation Results

**Alabama Home\*a\*Syst**-78% (n=154) of those surveyed via felt that the program enabled them to achieve a social (hazard free, securer home), environmental (protecting the environment from poor home site management practices) or economic (saving money ) expectation.

**SerPie**-The percentage of youth participants who improved their knowledge of program concepts was as follows: water quality and quantity (74%); natural resource conservation (76%); forestry and wildlife; (70%) energy and waste management (69%) (n=645).

**Alabama Water Watch**-Stream morphological and ecological assessment workshop, Following the workshop, participants noted an increase in knowledge:\* stream morphology assessment: 67% high;\* linking stream morphology to biota: 56% high \* stream classification: 56% high;\* stream field assessment: 56% high \* floodplain and stream vegetation: 56% high

**Global Climate Change Impact**- Results showed that climate change will impact corn and soybean yields in the future. It is projected that there will be an average decrease in corn yield of 17% and 32% in 2045, and 29% and 61% in 2075, under RCP 4.5 (medium) and RCP 8.5 (high), concentration scenarios respectively. Soybean yield is projected to decrease by an average of 29% and 23% in 2045, and 19% and 43% in 2075, under RCP 4.5 and RCP 8.5 concentration scenarios, respectively.

**Rural Well and Water Quality Assistance and Education**- Although within Safe Drinking Water Standards issued by the Environmental Protection Agency, 40 out 73 samples tested were for agricultural and residential use. Of those 40, 25 tested positive for fecal coliform bacteria. Of the positive fecal coliform tests, participants were consulted on how to treat the water, and 10 resubmitted tests with negative results for fecal coliform bacteria.

**Alabama Forestry Camp, Education and Career Awareness** -Of the programs, Alabama Forestry Camp seemed to be the most successful, as 95% of participants said that they were interested in forestry and natural resource careers. Case studies of individual youth of the other programs revealed a multiplicity of career interests, as many of the youth were being introduced to forestry and natural resources for the first time.

## Key Items of Evaluation

**Alabama Home\*a\*Syst**-78% (n=154) of those surveyed via felt that the program enabled them to achieve a social (hazard free, securer home), environmental (protecting the environment from poor home site management practices) or economic (saving money ) expectation.

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**V(A). Planned Program (Summary)**

**Program # 3**

**1. Name of the Planned Program**

Food Systems and Food Safety

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	13%	0%	0%	0%
205	Plant Management Systems	20%	0%	0%	0%
216	Integrated Pest Management Systems	12%	0%	0%	0%
304	Animal Genome	0%	0%	5%	7%
305	Animal Physiological Processes	0%	0%	5%	5%
307	Animal Management Systems	0%	0%	10%	13%
308	Improved Animal Products (Before Harvest)	0%	0%	5%	7%
311	Animal Diseases	0%	0%	5%	5%
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals	0%	0%	10%	10%
501	New and Improved Food Processing Technologies	5%	10%	10%	10%
503	Quality Maintenance in Storing and Marketing Food Products	5%	10%	10%	3%
504	Home and Commercial Food Service	10%	10%	5%	0%
607	Consumer Economics	0%	0%	5%	5%
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	20%	35%	10%	15%
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	0%	0%	10%	10%
721	Insects and Other Pests Affecting Humans	15%	35%	5%	0%
723	Hazards to Human Health and Safety	0%	0%	5%	10%
	<b>Total</b>	100%	100%	100%	100%

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

2016 Tuskegee University and Auburn University and Alabama A&M University Combined Research and Extension Annual Report of Accomplishments and Results

Year: 2016	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	17.0	7.4	14.0	8.0
<b>Actual Paid</b>	19.7	3.6	82.7	7.9
<b>Actual Volunteer</b>	0.0	0.0	0.0	0.0

**2. Institution Name:** Auburn University

**Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
666731	0	1600433	0
<b>1862 Matching</b>	<b>1890 Matching</b>	<b>1862 Matching</b>	<b>1890 Matching</b>
383479	0	1604106	0
<b>1862 All Other</b>	<b>1890 All Other</b>	<b>1862 All Other</b>	<b>1890 All Other</b>
2446198	0	7186620	0

**2. Institution Name:** Alabama A&M University

**Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	66379	0	418589
<b>1862 Matching</b>	<b>1890 Matching</b>	<b>1862 Matching</b>	<b>1890 Matching</b>
0	66379	0	367127
<b>1862 All Other</b>	<b>1890 All Other</b>	<b>1862 All Other</b>	<b>1890 All Other</b>
0	89219	0	0

**2. Institution Name:** Tuskegee University

**Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	57944	0	337615
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	47217	0	290961
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

## V(D). Planned Program (Activity)

### 1. Brief description of the Activity

**Good Agricultural Practices and Safe Food Production in Black Belt Alabama-** the project focused on safe handling practices, Enterprise Budget, and farm management best practices for limited resource farmers in the Black Belt.

**The ServSafe** course which is certified through the National Restaurant Association. A certified Food Safety Program is required to be completed by at least one individual in a Food Service Establishment in the State of Alabama. The food service individual must complete this certification every five years.

**Value Added Marketing-** The overall objective of this planned program is to increase farmer and rancher knowledge and expertise in various value-added marketing options.

**AU Food Systems Institute:** continues to be active in integrating research, education and outreach activities in food systems and food safety through the 12 working groups such as Animal Feed Manufacturing, and Obesity working groups. In addition, the AUFSI support to entrepreneurs in Alabama and beyond through the Food Entrepreneur Initiative/Conference.

**AU Aquatic Animal Nutrition Program** - This objective is to develop diet and feed management practices for important warm water aquaculture species.

**AU Animal Nutrition Programs** - Research is conducted on diet development, feed management and feed conversion for broilers. Research is also being carried on how dietary composition affect broiler muscle growth and feed conversion efficiency.

**Antimicrobial resistance in poultry:** Use of probiotics to develop, evaluate and implement effective and sustainable strategies to mitigate the emergence, spread, and persistence of antimicrobial resistant pathogens during farm to fork production of poultry.

**Purple Hull Peas Product Development-** The development of purple hull peas was an innovative way to utilize commonly grown agricultural produce in providing an alternative way of offering a wholesome food

**Flint Creek Watershed:** Identification and Enumeration of E. coli and the Impact of Climate Change and Variability to determine the Water Quality in the Flint Creek Watershed (FCW) establish baseline data to characterize the water quality of the FCW by determining the presence of fecal indicator bacteria in relationship to climatic factors that would ultimately assist in managing possible risk to human and environmental health.

**Walmart Initiative and Produce Supply-** The Walmart Initiative was to bridge the gap between the ability of historically disadvantaged farmers to grow produce and their ability to pack and market their produce in a manner that resulted in enhanced profits.

### 2. Brief description of the target audience

**ServSafe-** Any individual that wishes to meet the food safety certification required in the State of Alabama.

**Value Added Marketing Beef-**The target audience for this planned program is commercial and seed



stock beef cattle producers and also beef cattle industry organizations and professionals.

**AU Food System Institute**- Food entrepreneurs, food processors, regulatory officials, food safety professionals and general public.

**AU Aquatic Animal Nutrition Program** - Fish and aquaculture producers and stakeholders..

**AU Animal Nutrition Programs** - Poultry and other livestock producers.

**Antimicrobial Resistance in Poultry:** Poultry farmers, poultry integrators, poultry processing plant workers, poultry scientists

**Purple Hull Peas Product Development**- stakeholder across Alabama and beyond, scientific community, food processing companies

**Flint Creek Watershed:** stakeholders, regulators and watershed coordinators

**Walmart Initiative and Produce Supply**- historically disadvantaged farmers

**Good Agricultural Practices and Safe Food Production in Black Belt Alabama**- farmers from Dallas, Barbour, Wilcox, Autauga, Lowndes, and Butler Counties

### 3. How was eXtension used?

N/A

### V(E). Planned Program (Outputs)

#### 1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	53658	190874	30658	190355

#### 2. Number of Patent Applications Submitted (Standard Research Output)

##### Patent Applications Submitted

Year: 2016

Actual: 0

##### Patents listed

#### 3. Publications (Standard General Output Measure)

##### Number of Peer Reviewed Publications

2016	Extension	Research	Total
<b>Actual</b>	15	83	98

### V(F). State Defined Outputs

#### Output Target

**Output #1**

**Output Measure**

- Number of publications

<b>Year</b>	<b>Actual</b>
2016	45

**Output #2**

**Output Measure**

- Number of abstracts  
Not reporting on this Output for this Annual Report

**Output #3**

**Output Measure**

- Number of presentations given at scientific meetings

<b>Year</b>	<b>Actual</b>
2016	33

**Output #4**

**Output Measure**

- Number of Extension publications  
Not reporting on this Output for this Annual Report

**Output #5**

**Output Measure**

- Number of training programs

<b>Year</b>	<b>Actual</b>
2016	1026

**Output #6**

**Output Measure**

- Number of farm demonstrations  
Not reporting on this Output for this Annual Report

**Output #7**

**Output Measure**

- Number of graduate students  
Not reporting on this Output for this Annual Report

**Output #8**

**Output Measure**

- Number of thesis  
Not reporting on this Output for this Annual Report

**Output #9**

**Output Measure**

- Number of dissertations

<b>Year</b>	<b>Actual</b>
2016	1

**Output #10**

**Output Measure**

- Number of Food Preservation in the Home training programs

<b>Year</b>	<b>Actual</b>
2016	127

**Output #11**

**Output Measure**

- Number of attendees in the food preservation programs

<b>Year</b>	<b>Actual</b>
2016	7146

**Output #12**

**Output Measure**

- Number of Food Safety in Selling Cottage Foods training programs

<b>Year</b>	<b>Actual</b>
2016	191

**Output #13**

**Output Measure**

- Number that received a certificate for completing the cottage foods training class

<b>Year</b>	<b>Actual</b>
2016	462

**Output #14**

**Output Measure**

- Number of educational trainings, advisory board meetings and marketing events

<b>Year</b>	<b>Actual</b>
2016	45

**Output #15**

**Output Measure**

- Number of contacts from 82 contact reports

<b>Year</b>	<b>Actual</b>
2016	4708

**Output #16**

**Output Measure**

- Number of activities of educational meetings, advisory board meetings and farm visits

<b>Year</b>	<b>Actual</b>
2016	51

**Output #17**

**Output Measure**

- Number of total contacts from 106 contact reports

<b>Year</b>	<b>Actual</b>
2016	4734

**Output #18**

**Output Measure**

- Number of contacts from the Alabama BCIA website

<b>Year</b>	<b>Actual</b>
2016	4031

**Output #19**

**Output Measure**

- Number of Food Safety Training Programs for Food Service Workers

<b>Year</b>	<b>Actual</b>
2016	156

**Output #20**

**Output Measure**

- Number of participants in the Food Safety Training for Food Service Workers

<b>Year</b>	<b>Actual</b>
2016	1314

**Output #21**

**Output Measure**

- Number of Marketing for Profit training programs

<b>Year</b>	<b>Actual</b>
2016	4

**Output #22**

**Output Measure**

- Number of Marketing for Profit program participants trained

<b>Year</b>	<b>Actual</b>
2016	126

**Output #23**

**Output Measure**

- Number of Marketing for Profit surveys developed

<b>Year</b>	<b>Actual</b>
2016	1

**Output #24**

**Output Measure**

- Number of Marketing for Profit surveys completed

<b>Year</b>	<b>Actual</b>
2016	126

**Output #25**

**Output Measure**

- Number of Marketing for Profit webpages, flyers, and news releases

<b>Year</b>	<b>Actual</b>
2016	6

**Output #26**

**Output Measure**

- Number of Diseases in Aquaculture training programs

<b>Year</b>	<b>Actual</b>
2016	6

**Output #27**

**Output Measure**

- Number of Pond to Plate publications

<b>Year</b>	<b>Actual</b>
2016	21

**Output #28**

**Output Measure**

- Number of Pond to Plate outreach meetings

<b>Year</b>	<b>Actual</b>
2016	26

**Output #29**

**Output Measure**

- Number of Pond to Plate participants

<b>Year</b>	<b>Actual</b>
2016	9503

**Output #30**

**Output Measure**

- Number of Off-bottom oyster farming in Alabama Extension publications

<b>Year</b>	<b>Actual</b>
2016	12

**Output #31**

**Output Measure**

- Number of Off-bottom oyster farming in Alabama publications

<b>Year</b>	<b>Actual</b>
2016	2

**Output #32**

**Output Measure**

- Number of Off-bottom oyster farming in Alabama presentations given at scientific meetings

<b>Year</b>	<b>Actual</b>
2016	4

**Output #33**

**Output Measure**

- Number of AUFSI graduate students

<b>Year</b>	<b>Actual</b>
2016	42

**Output #34**

**Output Measure**

- Number of AUFSI thesis

<b>Year</b>	<b>Actual</b>
2016	4

**Output #35**

**Output Measure**

- Number of AUFSI dissertations

<b>Year</b>	<b>Actual</b>
2016	1

**Output #36**

**Output Measure**

- The number of AUFSI research conducted in diet development, feed management and feed conversion for important warm water aquaculture species and broilers

<b>Year</b>	<b>Actual</b>
2016	1

**Output #37**

**Output Measure**

- The number of AUFSI research projects carried on how dietary composition affect broiler muscle growth and feed conversion efficiency.

<b>Year</b>	<b>Actual</b>
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2016 1

**Output #38**

**Output Measure**

- The number of AUFSI reseach conducted in development of diet and feed management for important warm water aquaculture species

<b>Year</b>	<b>Actual</b>
2016	1

**Output #39**

**Output Measure**

- The number of AUFSI Food Entrepreneur Initiatives

<b>Year</b>	<b>Actual</b>
2016	1

**Output #40**

**Output Measure**

- The number of AUFSI working groups such as Animal Feed Manufacturing, and Obesity working groups

<b>Year</b>	<b>Actual</b>
2016	12



**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Decreased incidence of cases of food poisoning (AL state stats, % deaths from Salmonella and other intestinal infections in 2004 = 1.6%). Program success will be indicated by a decline or no change in this incidence.
2	New technology(-ies) developed to monitor microbial contaminants. (Medium term outcome)
3	New professionals in workforce with training in food safety and security. (Long-term)
4	Number of food service workers receiving certification in food safety training
5	Number of participants that Increase knowledge of alternate pest management strategies in home food gardens
6	Number of participants that increase adoption of principles taught: IPM in home vegetable and fruit crops, number of people who start/enhance their own food garden at home.
7	Number of people who start or enhance their own food gardens at home
8	Number of participants that adopt Good Agricultural Practices (GAP) for commercial food producers
9	Number of participants that adopt Good Handling Practices (GHP) for commercial food producers
10	Number of participants that Increase knowledge of safe food systems practices
11	Number of participants that adopt improved safe food systems practices.
12	Percent of attendees that gained knowledge from the home food preservation trainings
13	Number of individuals that received a certification of completion for the cottage foods class
14	Potential revenue from the required cottage foods certification
15	Percent of individuals that gained food safety knowledge class
16	Number of cattle producers who benefited from value-added marketing opportunity programs
17	Economic impact of value-added marketing as compared to conventional marketing channels

2016 Tuskegee University and Auburn University and Alabama A&M University Combined Research and Extension Annual Report of Accomplishments and Results

18	Increased revenue per feeder steer in value-added feeder calf marketing opportunities
19	Increased revenue per feeder heifer in value-added feeder calf marketing opportunities
20	Number of commercial and seedstock cattle producers committed to performance goals
21	Number of participants engaged in record keeping to enhance herd production and efficiency
22	Number of participants impacted by marketing opportunities and superior genetic selection
23	Economic impact of marketing opportunities for superior genetic breeding animals
24	Average increased revenue per replacement heifer from spring BCIA marketing opportunities
25	Average of increased revenue per replacement heifer from fall BCIA marketing opportunities
26	Percent of farmers completing the Food Safety for Farmers Market Training post test
27	Percent of participants successfully completing the Certified Food Safety Course
28	Percent of respondents who improved their decision making abilities related to their capacity and goals.
29	Percent of respondents who improved their abilities related to using marketing tools.
30	Percent of respondents who improved their abilities related to researching customers.
31	Percent of respondents who improved their abilities related to making production decisions based on marketing research.
32	Percent of respondents who improved their abilities related to creating marketing materials.
33	Percent of respondents who improved their abilities related to building relationships with customers.
34	Percent of respondents who increased their understanding of USDA AMS programs.
35	Percent of respondents who were confident in their ability to apply for funds after the workshop.
36	Number of Alabama growers now meeting the initial training requirements of the FSMA PSR provision 112.22.
37	Number of Alabama residents now qualified to deliver PSA Grower training to growers.

38	Percent of prospective trainers who increased their knowledge of general produce safety principles and practices as a result of attending the PSA Train-the-Trainer Course.
39	Percent of prospective trainers who increased their knowledge of worker health and hygiene principles and practices as a result of attending the PSA Train-the-Trainer Course.
40	Percent of prospective trainers who increased their knowledge of soil amendment principles and practices as a result of attending the PSA Train-the-Trainer Course.
41	Percent of prospective trainers who increased their knowledge of wildlife, domesticated animals and land use principles and practices as a result of attending the PSA Train-the-Trainer Course.
42	Percent of prospective trainers who increased their knowledge of production water principles and practices as a result of attending the PSA Train-the-Trainer Course.
43	Percent of prospective trainers who increased their knowledge of postharvest water principles and practices as a result of attending the PSA Train-the-Trainer Course.
44	Percent of prospective trainers who increased their knowledge of postharvest handling and sanitation principles and practices as a result of attending the PSA Train-the-Trainer Course.
45	Percent of prospective trainers who increased their knowledge of how to develop a food safety plan as a result of attending the PSA Train-the-Trainer Course.
46	Number of trainers now prepared and qualified to teach the PSA Grower Training to growers.
47	the number of participant who increased knowledge of aquaculture best management practices
48	Percent of participants who learned disease control measures
49	Oyster harvest by dollar value
50	Number of operating commercial oyster farms
51	Amount of Acreage in off bottom oyster farming production
52	Number of full-time jobs supported my oyster farm production
53	Number of part-time jobs support by oyster farm production
54	The number of research studies to establish baseline data characteristics of water quality of the FCW
55	The number of effective and sustainable strategies that mitigate emergence, spread and persistence of antimicrobial resistant pathogens

**Outcome #1**

**1. Outcome Measures**

Decreased incidence of cases of food poisoning (AL state stats, % deaths from Salmonella and other intestinal infections in 2004 = 1.6%). Program success will be indicated by a decline or no change in this incidence.

Not Reporting on this Outcome Measure

**Outcome #2**

**1. Outcome Measures**

New technology(-ies) developed to monitor microbial contaminants. (Medium term outcome)

Not Reporting on this Outcome Measure

**Outcome #3**

**1. Outcome Measures**

New professionals in workforce with training in food safety and security. (Long-term)

Not Reporting on this Outcome Measure

**Outcome #4**

**1. Outcome Measures**

Number of food service workers receiving certification in food safety training

Not Reporting on this Outcome Measure

**Outcome #5**

**1. Outcome Measures**

Number of participants that Increase knowledge of alternate pest management strategies in home food gardens

Not Reporting on this Outcome Measure

**Outcome #6**

**1. Outcome Measures**

Number of participants that increase adoption of principles taught: IPM in home vegetable and fruit crops, number of people who start/enhance their own food garden at home.

Not Reporting on this Outcome Measure

**Outcome #7**

**1. Outcome Measures**

Number of people who start or enhance their own food gardens at home

Not Reporting on this Outcome Measure

**Outcome #8**

**1. Outcome Measures**

Number of participants that adopt Good Agricultural Practices (GAP) for commercial food producers

Not Reporting on this Outcome Measure

**Outcome #9**

**1. Outcome Measures**

Number of participants that adopt Good Handling Practices (GHP) for commercial food producers

Not Reporting on this Outcome Measure

**Outcome #10**

**1. Outcome Measures**

Number of participants that Increase knowledge of safe food systems practices

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	114

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Foodborne illnesses cost the United States \$152 billion a year, a tab that works out to an average cost of \$1,850 each time someone gets sick from food (USA Today). The report by a former Food and Drug Administration economist notes that costs include medical services, deaths, lost work and disability.

**What has been done**

AUFSI led certification courses in Hazard Analysis and Critical Control Points, a program designed to help assure safer meat and seafood products. In 2016, AUFSI coordinated a total of five HACCP certification courses - four for meat products and one for seafood - for about 80 participants total. Another training opportunity coordinated by AUFSI in partnership with the Alabama Cooperative Extension System this year was the two-day Better Process Control School, which certifies supervisors involved in the manufacturing of low-acid and acidified foods. Such companies must operate with a certified supervisor on the premises. One session was held in March 2016 with 22 participants, and another was held November 2-3 with 12 participants, including two international attendees.

**Results**

The project has resulted in increased awareness and knowledge about foodborne illnesses and food safety among stakeholders. The AUFSI has facilitated interdisciplinary research on food safety.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
205	Plant Management Systems
501	New and Improved Food Processing Technologies
503	Quality Maintenance in Storing and Marketing Food Products
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

**Outcome #11**

**1. Outcome Measures**

Number of participants that adopt improved safe food systems practices.

Not Reporting on this Outcome Measure

**Outcome #12**

**1. Outcome Measures**

Percent of attendees that gained knowledge from the home food preservation trainings

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	72

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Home preserved foods can cause foodborne illness and even death if not done properly. Botulism remains one of the most deadly toxins known to man. If low acid foods are not pressure canned then Clostridium botulinum can grow in the anaerobic environment and produce the deadly botulism toxin.

**What has been done**

The Food Safety and Quality team taught a total of 127 Home Food Preservation classes to the general public. The attendance for the classes totaled 7146 individuals. The classes taught pressure canning, water bath canning, freezing, fermentation and drying.

**Results**

72 percent of the attendees that completed the pre and post-test for the course gained knowledge in the various principles taught in the home food preservation classes. Of the attendees answering the questions 158 had done home food preservation before but 100 had not ever done home food preservation. When asked how many years they had been doing home food preservation 180 answered 5 years or less. When asked how much they processed last year,

121 stated none, indicating that many new individuals want to gain knowledge about home food preservation. 76 of the individuals canned 10 to 20 jars of produce last year. In the pre-test we had 91 stated that they water bath canned green beans while in the post-test 229 stated they would now pressure can low acid canned foods. When asked if they water bath canned jellies and jams only 106 stated they did this but in the post-test 226 stated they would now water bath can these products.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

#### Outcome #13

##### 1. Outcome Measures

Number of individuals that received a certification of completion for the cottage foods class

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	462

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

CDC estimates that each year roughly 1 in 6 Americans (or 48 million people) get sick, 128,000 are hospitalized, and 3,000 die of foodborne diseases. Not only is there a human loss with foodborne illnesses but there is also economic losses. Scharff in 2012 ?estimated the cost of foodborne illness in the US is as high as \$152 billion. This cost of illness includes treatment costs, the value of time lost at work and the cost of willingness to pay to prevent death.? Therefore, the food safety training for individuals that wish to sell foods prepared under the cottage foods law plays its part toward reducing foodborne illnesses by teaching food safety principles.

###### **What has been done**

A total of 191 food safety cottage food law classes were taught in every county in Alabama with a total of 462 individuals receiving a certificate of completion which allows them to sell non-hazardous foods from their home.

###### **Results**



A total of 462 individuals attended a cottage food law food safety class and completed the exam required for the certificate to be issued. These individuals ranged in age from teenagers to senior adults. The majority of individuals were preparing baked goods, such as cakes, cookies, and candies. Some are selling fruit filled baked pies and other non-hazardous foods as allowed by the law. The law allows for the individuals which complete the food safety class to sell up to \$20,000 worth of food. If all of these individuals were able to sell up to the maximum allowed amount then the economic gain for the state of Alabama would be over 9.2 million dollars.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
504	Home and Commercial Food Service

#### Outcome #14

##### 1. Outcome Measures

Potential revenue from the required cottage foods certification

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	9240000

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

CDC estimates that each year roughly 1 in 6 Americans (or 48 million people) get sick, 128,000 are hospitalized, and 3,000 die of foodborne diseases. Not only is there a human loss with foodborne illnesses but there is also economic losses. Scharff in 2012 ?estimated the cost of foodborne illness in the US is as high as \$152 billion. This cost of illness includes treatment costs, the value of time lost at work and the cost of willingness to pay to prevent death.? Therefore, the food safety training for individuals that wish to sell foods prepared under the cottage foods law plays its part toward reducing foodborne illnesses by teaching food safety principles.

###### **What has been done**

A total of 191 classes to educate individuals about the rules and regulations required for them to sell non-hazardous foods from their home. 462 individuals completed the course which allows them to sell food products from their home.

###### **Results**

462 individuals completed the class and received a certificate of competition. Each individual has the potential to make \$20,000 per year for the potential revenue of 9.240 million dollars.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
504	Home and Commercial Food Service

#### Outcome #15

##### 1. Outcome Measures

Percent of individuals that gained food safety knowledge class

##### 2. Associated Institution Types

- 1862 Extension
- 1862 Research

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	100

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

CDC estimates that each year roughly 1 in 6 Americans (or 48 million people) get sick, 128,000 are hospitalized, and 3,000 die of foodborne diseases. Not only is there a human loss with foodborne illnesses but there is also economic losses. Scharff in 2012 ?estimated the cost of foodborne illness in the US is as high as \$152 billion. This cost of illness includes treatment costs, the value of time lost at work and the cost of willingness to pay to prevent death.? Therefore, the food safety training for individuals that wish to sell foods prepared under the cottage foods law plays its part toward reducing foodborne illnesses by teaching food safety principles.

###### **What has been done**

A total of 191 classes to educate individuals about the rules and regulations required for them to sell non-hazardous foods from their home. 462 individuals completed the course which allows them to sell food products from their home

###### **Results**

All of the individuals passed the exam required to completed the cottage food safety course that is required to obtain a permit to sell food from their homes in Alabama.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
504	Home and Commercial Food Service

#### Outcome #16

##### 1. Outcome Measures

Number of cattle producers who benefited from value-added marketing opportunity programs

##### 2. Associated Institution Types

- 1862 Extension
- 1862 Research

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	227

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

Education and guidance for beef cattle producers in adding value and marketing options to market feeder calves in economic units and breeding animals, such as bulls and replacement heifers. For feeder calf events, documentation supplying the description of the feeder calves, which includes breed composition, calf sex, average weight, number of head, immunization history, treatments such as castration method, growth stimulant implants and pre-conditioning history, is supplied. Documentation of performance information for BCIA bull evaluations and sales is generated for each marketing opportunity for beef cattle producers to understand the definitions and values of the performance information.

###### **What has been done**

Three value-added feeder calf marketing events were held with educational assistance by ACES personnel. Four marketing events within BCIA were also held to market bulls, bred and open replacement heifers. Forty-five activities of educational trainings, advisory board meetings, value-added marketing events, farm visits and demonstrations totaled to 4,708 contacts, from 82 contact reports. Fourteen value-added marketing events were held, 22 educational trainings, 3 advisory board meetings, 3 farm visits and 3 demonstrations.

###### **Results**

Two hundred twenty-seven individuals were impacted by opportunities for value-added livestock marketing. Forty-four Alabama beef cattle operations are represented in utilizing the opportunities

for value-added feeder calf marketing in these 3 highlighted feeder calf marketing events. Overall for 2016 breeding animal marketing events, a total of 183 beef cattle operations were impacted by value-added marketing opportunities and superior genetic selection.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

#### Outcome #17

##### 1. Outcome Measures

Economic impact of value-added marketing as compared to conventional marketing channels

##### 2. Associated Institution Types

- 1862 Extension
- 1862 Research

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	7707756

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

Education and guidance for beef cattle producers in adding value and marketing options to market feeder calves in economic units and breeding animals, such as bulls and replacement heifers. For feeder calf events, documentation supplying the description of the feeder calves, which includes breed composition, calf sex, average weight, number of head, immunization history, treatments such as castration method, growth stimulant implants and pre-conditioning history, is supplied. Documentation of performance information for BCIA bull evaluations and sales is generated for each marketing opportunity for beef cattle producers to understand the definitions and values of the performance information.

###### **What has been done**

Three value-added feeder calf marketing events were held with educational assistance by ACES personnel. Four marketing events within BCIA were also held to market bulls, bred and open replacement heifers. Forty-five activities of educational trainings, advisory board meetings, value-added marketing events, farm visits and demonstrations totaled to 4,708 contacts, from 82 contact reports. Fourteen value-added marketing events were held, 22 educational trainings, 3 advisory board meetings, 3 farm visits and 3 demonstrations.

### Results

Total economic impact of value-added livestock marketing opportunities equaled to \$7,707,756.00. Economic impact of 3 highlighted value-added feeder calf marketing events represented 6,255 head of Alabama bred and raised feeder calves worth \$6,434,241.57. For breeding animal marketing events, an economic impact of \$1,273,515 from 638 head marketed.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

### Outcome #18

#### 1. Outcome Measures

Increased revenue per feeder steer in value-added feeder calf marketing opportunities

#### 2. Associated Institution Types

- 1862 Extension
- 1862 Research

#### 3a. Outcome Type:

Change in Condition Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2016	126

#### 3c. Qualitative Outcome or Impact Statement

##### Issue (Who cares and Why)

Education and guidance for beef cattle producers in adding value and marketing options to market feeder calves in economic units and breeding animals, such as bulls and replacement heifers. For feeder calf events, documentation supplying the description of the feeder calves, which includes breed composition, calf sex, average weight, number of head, immunization history, treatments such as castration method, growth stimulant implants and pre-conditioning history, is supplied. Documentation of performance information for BCIA bull evaluations and sales is generated for each marketing opportunity for beef cattle producers to understand the definitions and values of the performance information.

##### What has been done

Three value-added feeder calf marketing events were held with educational assistance by ACES personnel. Four marketing events within BCIA were also held to market bulls, bred and open

replacement heifers. Forty-five activities of educational trainings, advisory board meetings, value-added marketing events, farm visits and demonstrations totaled to 4,708 contacts, from 82 contact reports. Fourteen value-added marketing events were held, 22 educational trainings, 3 advisory board meetings, 3 farm visits and 3 demonstrations.

**Results**

By producers utilizing proper management and health protocols, participating beef operations realized an increased revenue of \$126.12 per steer on average, with an increased price per hundred pounds of \$18.08 for steers by marketing in these marketing events over weekly livestock auction sales, as reported in the USDA Alabama Weekly Summary Report for the respective time period. Forty-four Alabama beef cattle operations are represented value-added feeder calf marketing in these 3 highlighted feeder calf marketing events.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
307	Animal Management Systems

**Outcome #19**

**1. Outcome Measures**

Increased revenue per feeder heifer in value-added feeder calf marketing opportunities

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	143

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Education and guidance for beef cattle producers in adding value and marketing options to market feeder calves in economic units and breeding animals, such as bulls and replacement heifers. For feeder calf events, documentation supplying the description of the feeder calves, which includes breed composition, calf sex, average weight, number of head, immunization history, treatments such as castration method, growth stimulant implants and pre-conditioning history, is supplied. Documentation of performance information for BCIA bull evaluations and sales is generated for each marketing opportunity for beef cattle producers to understand the definitions and values of the performance information.

### What has been done

Three value-added feeder calf marketing events were held with educational assistance by ACES personnel. Four marketing events within BCIA were also held to market bulls, bred and open replacement heifers. Forty-five activities of educational trainings, advisory board meetings, value-added marketing events, farm visits and demonstrations totaled to 4,708 contacts, from 82 contact reports. Fourteen value-added marketing events were held, 22 educational trainings, 3 advisory board meetings, 3 farm visits and 3 demonstrations

### Results

By producers utilizing proper management and health protocols, participating beef operations realized increased revenue of \$143.47 per heifer on average, with an increased price per hundred pounds of \$23.35 for heifers by marketing in these marketing events over weekly livestock auction sales, as reported in the USDA Alabama Weekly Summary Report for the respective time period. Forty-four Alabama beef cattle operations are represented value-added feeder calf marketing in these 3 highlighted feeder calf marketing events.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

## Outcome #20

### 1. Outcome Measures

Number of commercial and seedstock cattle producers committed to performance goals

### 2. Associated Institution Types

- 1862 Extension

### 3a. Outcome Type:

Change in Action Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2016	284

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Alabama BCIA assists its members in reaching the goal to produce better beef and genetics by collectively using the best genetic and management tools. Implementation of beef cattle performance tools and increased knowledge of the utilization benefits of performance record keeping is delivered. Increased knowledge of beef genetics and the overall beef cattle industry is also gained.

### What has been done

Twenty-two educational meetings, including county, regional and statewide meetings, workshops and field days, were held. Ten organizational advisory board meetings, 8 reports associated with marketing events, 7 farm visits/consultations and 4 stakeholder organizational meetings were held or attended. From bull evaluations and other marketing events, an economic impact of \$1,273,515 from 638 head marketed for 72 participants to 111 buyers. Tabulated 2014-15 state data included the processing of 28 total herds for a state average weaning weight of 551 lbs. from 3,952 calves. A total of 35 herds are currently enrolled in the BCIA commercial record keeping program, with 7 new herds added in 2016.

### Results

The 2016-17 BCIA membership results in 284 total members, consisting of 121 commercial members (48 with 1 to 50 head and 73 with over 50 head), 81 purebred members, 65 commercial and purebred members, 14 junior members (aged 9 to 19 years) and 3 corporate members. Alabama BCIA assists its members in reaching the goal to produce better beef and genetics by collectively using the best genetic and management tools.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

### Outcome #21

#### 1. Outcome Measures

Number of participants engaged in record keeping to enhance herd production and efficiency

#### 2. Associated Institution Types

- 1862 Extension

#### 3a. Outcome Type:

Change in Action Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2016	28

#### 3c. Qualitative Outcome or Impact Statement

##### Issue (Who cares and Why)

Alabama BCIA assists its members in reaching the goal to produce better beef and genetics by collectively using the best genetic and management tools. Implementation of beef cattle performance tools and increased knowledge of utilization benefits of performance record keeping is delivered. Increased knowledge of beef genetics and the overall beef cattle industry is also



**What has been done**

Twenty-two educational meetings were held, 7 farm visits/consultations, 10 organizational advisory board meetings and 4 stakeholder organizational meetings were held or attended. Four marketing events within BCIA were also held to market bulls and bred and open heifers. The BCIA Record Keeping Program 2014-15 state data included the processing of 28 total herds.

**Results**

Tabulated 2014-15 state data included the processing of 28 total herds for a state average weaning weight of 551 lbs. from 3,952 calves. Alabama BCIA assists its members in reaching the goal to produce better beef and genetics by collectively using the best genetic and management tools by providing the BCIA Commercial Record Keeping Program. Implementation of beef cattle performance tools and increased knowledge of the utilization benefits of performance tools is gained. Increased knowledge of beef genetics and the overall beef cattle industry is also gained.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
307	Animal Management Systems

**Outcome #22**

**1. Outcome Measures**

Number of participants impacted by marketing opportunities and superior genetic selection

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	183

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama BCIA assists its members in reaching the goal to produce better beef and genetics by collectively using the best genetic and management tools. Implementation of beef cattle performance tools and increased knowledge of the utilization benefits of performance record keeping is delivered. Increased knowledge of beef genetics and the overall beef cattle industry is

also gained.

**What has been done**

Twenty-two educational meetings were held, 7 farm visits/consultations, 10 organizational advisory board meetings and 4 stakeholder organizational meetings were held or attended. Four marketing events within BCIA were also held to market bulls and bred and open heifers. The BCIA Record Keeping Program 2014-15 state data included the processing of 28 total herds.

**Results**

Overall for 2016 sale events, a total of 183 beef cattle operations were impacted by marketing opportunities and superior genetic selection for an economic impact of \$1,273,515 from 638 head marketed for 72 participants to 111 buyers. Through breeding animal marketing events, 134 bulls were marketed through 2016 BCIA events for an overall gross of \$298,350 with an average price per bull of \$2,226. Bulls were sold by 36 different participants to 73 different buyers. Four hundred fifty-three bred heifers were marketed for an overall gross of \$922,750 with an average price per bred heifer of \$2,037. Bred heifers were sold by 29 different participants to 30 different buyers. Fifty-one open heifers were marketed for an overall gross of \$52,415 with an average price per open heifer of \$1,028. Open heifers were sold by 7 different participants to 8 different buyers.

Documentation of performance information for BCIA bull evaluation and sales is generated for each marketing opportunity for beef cattle producers to understand the definitions and values of the performance information. One hundred eighty-three direct participants of 2016 marketing events were directly impacted.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
307	Animal Management Systems

**Outcome #23**

**1. Outcome Measures**

Economic impact of marketing opportunities for superior genetic breeding animals

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
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**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama BCIA assists its members in reaching the goal to produce better beef and genetics by collectively using the best genetic and management tools. Implementation of beef cattle performance tools and increased knowledge of the utilization benefits of performance record keeping is delivered. Increased knowledge of beef genetics and the overall beef cattle industry is also gained.

**What has been done**

Twenty-two educational meetings were held, 7 farm visits/consultations, 10 organizational advisory board meetings and 4 stakeholder organizational meetings were held or attended. Four marketing events within BCIA were also held to market bulls and bred and open heifers. The BCIA Record Keeping Program 2014-15 state data included the processing of 28 total herds.

**Results**

Overall for 2016 sale events, an economic impact of \$1,273,515 from 638 head marketed for 72 participants to 111 buyers. Through breeding animal marketing events, 134 bulls were marketed through 2016 BCIA events for an overall gross of \$298,350 with an average price per bull of \$2,226. Bulls were sold by 36 different participants to 73 different buyers. Four hundred fifty-three bred heifers were marketed for an overall gross of \$922,750 with an average price per bred heifer of \$2,037. Bred heifers were sold by 29 different participants to 30 different buyers. Fifty-one open heifers were marketed for an overall gross of \$52,415 with an average price per open heifer of \$1,028. Open heifers were sold by 7 different participants to 8 different buyers.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
307	Animal Management Systems

**Outcome #24**

**1. Outcome Measures**

Average increased revenue per replacement heifer from spring BCIA marketing opportunities

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
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**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama BCIA assists its members in reaching the goal to produce better beef and genetics by collectively using the best genetic and management tools. Implementation of beef cattle performance tools and increased knowledge of the utilization benefits of performance record keeping is delivered. Increased knowledge of beef genetics and the overall beef cattle industry is also gained.

**What has been done**

Twenty-two educational meetings were held, 7 farm visits/consultations, 10 organizational advisory board meetings and 4 stakeholder organizational meetings were held or attended. Four marketing events within BCIA were also held to market bulls and bred and open heifers. The BCIA Record Keeping Program 2014-15 state data included the processing of 28 total herds.

**Results**

For the spring BCIA marketing event, bred heifers sold reflected an increased per head revenue on average of \$563 and up to an increase of \$1350 per head as compared to USDA Alabama Weekly Livestock Summary Report for the same time period.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
307	Animal Management Systems

**Outcome #25**

**1. Outcome Measures**

Average of increased revenue per replacement heifer from fall BCIA marketing opportunities

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	402

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama BCIA assists its members in reaching the goal to produce better beef and genetics by collectively using the best genetic and management tools. Implementation of beef cattle performance tools and increased knowledge of the utilization benefits of performance record keeping is delivered. Increased knowledge of beef genetics and the overall beef cattle industry is also gained.

**What has been done**

Twenty-two educational meetings were held, 7 farm visits/consultations, 10 organizational advisory board meetings and 4 stakeholder organizational meetings were held or attended. Four marketing events within BCIA were also held to market bulls and bred and open heifers. The BCIA Record Keeping Program 2014-15 state data included the processing of 28 total herds.

**Results**

For the fall BCIA marketing event, bred heifers 4 to 6 months bred reflected an average increased per head revenue of \$402 and up to an increase of \$775 per head as compared to USDA Alabama Weekly Livestock Summary Report for the same time period.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
307	Animal Management Systems

**Outcome #26**

**1. Outcome Measures**

Percent of farmers completing the Food Safety for Farmers Market Training post test

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	49

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

From 1990 to 2005 there have been 47 cases nationally of outbreaks related to produce. This is more than the outbreaks related to poultry, beef or seafood. Most of these have been traced back to restaurants (50%), but many of these foods may have come from locally grown produce

as this is the current trend to buy local. Therefore, the Alabama Cooperative Extension System Food Safety and Quality Team have set a goal to do food safety education classes for those individuals that sell their produce at farmers markets.

**What has been done**

A total of 4 farmers market food safety classes for farmers that sell their produce at farmers markets were offered in 2016. A total of 51 farmers successfully completed the class.

**Results**

All 51 farmers successfully completed the food safety training course. However only 25 completed the evaluation. However, even though not all the farmers completed the evaluation all of them received a certificate of completion.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
503	Quality Maintenance in Storing and Marketing Food Products
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

**Outcome #27**

**1. Outcome Measures**

Percent of participants successfully completing the Certified Food Safety Course

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	70

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

CDC estimates that 1 in 6 Americans get sick yearly with foodborne illnesses. Not only is there a human loss with the foodborne illnesses but there is also an economic loss. Scharff in 2012 "estimated that cost to be as high as \$152 billion. This cost of illness includes treatment cost, the value of the time at work that is lost, and the cost of willingness to pay to prevent death." CDC estimates that over half of these illnesses are associated with food service establishments. Therefore, food safety training for food service workers is critical to reducing foodborne illnesses

**What has been done**

A total of 156 food safety certification classes for food service workers were taught and held in all 67 counties in Alabama with a total of 1314 participants.

**Results**

A total of 1314 food service workers completed the certified food safety training. After the completion of the rigorous exam, 927 passed. This is a passage rate of only 70% which is down from a passage rate of 76% in the previous year. This is a reflection that the exam is becoming more rigorous. As in the past, the education level of the individual followed in direct correlation with the passage rate. Of the individuals that had less than a high school education, 65% of them failed the exam. There appears to be a great need to assist individuals with reading comprehension skills. Another fact is that 51% of the African American food service workers failed the exam while only 19% of the Caucasian food service workers failed. This might be related to the lack of educational opportunities and reading skills. We saw the same issues with the Spanish speaking population; with only 50% of the testers passing the exam. Even with a Spanish speaking teacher, the individuals did not perform well on the exam. This may also relate to reading and comprehension skills in their own language.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
504	Home and Commercial Food Service

**Outcome #28**

**1. Outcome Measures**

Percent of respondents who improved their decision making abilities related to their capacity and goals.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	75

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

There are currently 150 Farmers Markets registered with the Alabama Farmers Market Authority, as well as many more unregistered markets and farm stands throughout the state. Because volume requirements for wholesale markets may be unattainable, and retail outlets require costly certification, farmers markets may provide the only sales outlet for our small growers. Expanding and improving these outlets would have considerable economic impacts in our rural areas. In 2010, the Alabama Department of Agriculture estimated that farmers markets in Alabama generated substantial economic impact ? \$67 million in total output (Wambles, 2013). Using current data, by our calculations this impact has risen to \$76 million, supporting 1,065 jobs.

**What has been done**

Workshops were conducted in three Alabama Black Belt counties. Participants reported increasing their skills related to decision making and marketing products. A 20% increase in sales statewide would potentially leverage the economic impact to \$92 million and create 213 additional jobs.

**Results**

75% of respondents reported improvement in their abilities related to decision making based on their capacity and goals.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
503	Quality Maintenance in Storing and Marketing Food Products

**Outcome #29**

**1. Outcome Measures**

Percent of respondents who improved their abilities related to using marketing tools.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	80

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

There are currently 150 Farmers Markets registered with the Alabama Farmers Market Authority, as well as many more unregistered markets and farm stands throughout the state. Because volume requirements for wholesale markets may be unattainable, and retail outlets require costly



certification, farmers markets may provide the only sales outlet for our small growers. Expanding and improving these outlets would have considerable economic impacts in our rural areas. In 2010, the Alabama Department of Agriculture estimated that farmers markets in Alabama generated substantial economic impact ? \$67 million in total output (Wambles, 2013). Using current data, by our calculations this impact has risen to \$76 million, supporting 1,065 jobs.

**What has been done**

Workshops were conducted in three Alabama Black Belt counties. Participants reported increasing their skills related to decision making and marketing products. A 20% increase in sales statewide would potentially leverage the economic impact to \$92 million and create 213 additional jobs.

**Results**

80% of respondents reported improvements in their abilities related to using marketing tools.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
503	Quality Maintenance in Storing and Marketing Food Products

**Outcome #30**

**1. Outcome Measures**

Percent of respondents who improved their abilities related to researching customers.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	72

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

There are currently 150 Farmers Markets registered with the Alabama Farmers Market Authority, as well as many more unregistered markets and farm stands throughout the state. Because volume requirements for wholesale markets may be unattainable, and retail outlets require costly certification, farmers markets may provide the only sales outlet for our small growers. Expanding and improving these outlets would have considerable economic impacts in our rural areas. In 2010, the Alabama Department of Agriculture estimated that farmers markets in Alabama

generated substantial economic impact ? \$67 million in total output (Wambles, 2013). Using current data, by our calculations this impact has risen to \$76 million, supporting 1,065 jobs.

**What has been done**

Workshops were conducted in three Alabama Black Belt counties. Participants reported increasing their skills related to decision making and marketing products. A 20% increase in sales statewide would potentially leverage the economic impact to \$92 million and create 213 additional jobs.

**Results**

72% of respondents reported improvements in their abilities related to researching customers.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
504	Home and Commercial Food Service

**Outcome #31**

**1. Outcome Measures**

Percent of respondents who improved their abilities related to making production decisions based on marketing research.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	62

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

There are currently 150 Farmers Markets registered with the Alabama Farmers Market Authority, as well as many more unregistered markets and farm stands throughout the state. Because volume requirements for wholesale markets may be unattainable, and retail outlets require costly certification, farmers markets may provide the only sales outlet for our small growers. Expanding and improving these outlets would have considerable economic impacts in our rural areas. In 2010, the Alabama Department of Agriculture estimated that farmers markets in Alabama generated substantial economic impact ? \$67 million in total output (Wambles, 2013). Using current data, by our calculations this impact has risen to \$76 million, supporting 1,065 jobs.

**What has been done**

Workshops were conducted in three Alabama Black Belt counties. Participants reported increasing their skills related to decision making and marketing products. A 20% increase in sales statewide would potentially leverage the economic impact to \$92 million and create 213 additional jobs.

**Results**

62% of respondents reported improvements in their abilities related to making production decisions based on marketing research.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
503	Quality Maintenance in Storing and Marketing Food Products

**Outcome #32**

**1. Outcome Measures**

Percent of respondents who improved their abilities related to creating marking materials.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	75

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

There are currently 150 Farmers Markets registered with the Alabama Farmers Market Authority, as well as many more unregistered markets and farm stands throughout the state. Because volume requirements for wholesale markets may be unattainable, and retail outlets require costly certification, farmers markets may provide the only sales outlet for our small growers. Expanding and improving these outlets would have considerable economic impacts in our rural areas. In 2010, the Alabama Department of Agriculture estimated that farmers markets in Alabama generated substantial economic impact ? \$67 million in total output (Wambles, 2013). Using current data, by our calculations this impact has risen to \$76 million, supporting 1,065 jobs.

**What has been done**

Workshops were conducted in three Alabama Black Belt counties. Participants reported

increasing their skills related to decision making and marketing products. A 20% increase in sales statewide would potentially leverage the economic impact to \$92 million and create 213 additional jobs.

**Results**

75% of respondents reported improvements in their abilities related to creating marketing materials.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
504	Home and Commercial Food Service

**Outcome #33**

**1. Outcome Measures**

Percent of respondents who improved their abilities related to building relationships with customers.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	75

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

There are currently 150 Farmers Markets registered with the Alabama Farmers Market Authority, as well as many more unregistered markets and farm stands throughout the state. Because volume requirements for wholesale markets may be unattainable, and retail outlets require costly certification, farmers markets may provide the only sales outlet for our small growers. Expanding and improving these outlets would have considerable economic impacts in our rural areas. In 2010, the Alabama Department of Agriculture estimated that farmers markets in Alabama generated substantial economic impact ? \$67 million in total output (Wambles, 2013). Using current data, by our calculations this impact has risen to \$76 million, supporting 1,065 jobs.

**What has been done**

Workshops were conducted in three Alabama Black Belt counties. Participants reported increasing their skills related to decision making and marketing products. A 20% increase in sales statewide would potentially leverage the economic impact to \$92 million and create 213

additional jobs.

### Results

75% of respondents reported improvements in their abilities related to building relationships with customers.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
503	Quality Maintenance in Storing and Marketing Food Products

### Outcome #34

#### 1. Outcome Measures

Percent of respondents who increased their understanding of USDA AMS programs.

#### 2. Associated Institution Types

- 1862 Extension

#### 3a. Outcome Type:

Change in Action Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2016	100

#### 3c. Qualitative Outcome or Impact Statement

##### Issue (Who cares and Why)

There are currently 150 Farmers Markets registered with the Alabama Farmers Market Authority, as well as many more unregistered markets and farm stands throughout the state. Because volume requirements for wholesale markets may be unattainable, and retail outlets require costly certification, farmers markets may provide the only sales outlet for our small growers. Expanding and improving these outlets would have considerable economic impacts in our rural areas. In 2010, the Alabama Department of Agriculture estimated that farmers markets in Alabama generated substantial economic impact ? \$67 million in total output (Wambles, 2013). Using current data, by our calculations this impact has risen to \$76 million, supporting 1,065 jobs.

##### What has been done

Workshops were conducted in three Alabama Black Belt counties. Participants reported increasing their skills related to decision making and marketing products. A 20% increase in sales statewide would potentially leverage the economic impact to \$92 million and create 213 additional jobs.

**Results**

All respondents reported increasing their level of understanding of USDA AMS programs.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
503	Quality Maintenance in Storing and Marketing Food Products

**Outcome #35**

**1. Outcome Measures**

Percent of respondents who were confident in their ability to apply for funds after the workshop.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	70

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

There are currently 150 Farmers Markets registered with the Alabama Farmers Market Authority, as well as many more unregistered markets and farm stands throughout the state. Because volume requirements for wholesale markets may be unattainable, and retail outlets require costly certification, farmers markets may provide the only sales outlet for our small growers. Expanding and improving these outlets would have considerable economic impacts in our rural areas. In 2010, the Alabama Department of Agriculture estimated that farmers markets in Alabama generated substantial economic impact ? \$67 million in total output (Wambles, 2013). Using current data, by our calculations this impact has risen to \$76 million, supporting 1,065 jobs.

**What has been done**

Workshops were conducted in three Alabama Black Belt counties. Participants reported increasing their skills related to decision making and marketing products. A 20% increase in sales statewide would potentially leverage the economic impact to \$92 million and create 213 additional jobs.

**Results**

70% of respondents were confident in their ability to apply for funds after the workshop.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
503	Quality Maintenance in Storing and Marketing Food Products

#### Outcome #36

##### 1. Outcome Measures

Number of Alabama growers now meeting the initial training requirements of the FSMA PSR provision 112.22.

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	18

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

The FSMA PSR went into effect in January 2016. This new law requires that a representative from each farm attend a PSA or equivalent produce safety training course. A PSA Train-the-Trainer Course was needed to build training capacity in Alabama. The PSA provides fundamental, science-based, on-farm food safety knowledge to fresh fruit and vegetable farmers, packers, regulatory personnel and others interested in the safety of fresh produce. This includes assessing produce safety risks, implementing Good Agricultural Practices, and how to meet regulatory demands associated with the FSMA Produce Safety Rule, as well as meet buyer requirements for food safety.

###### **What has been done**

Seven short presentations were made in various locations around the state to raise awareness of the new federal regulation with growers. A PSA Train-the-Trainer Course was held in Montgomery. A grower Training Course was held in Fairhope. The PSA curriculum is designed to meet grower needs and be delivered in one day. Modules 1 through 6 align with sections outlined in the FSMA Produce Safety Rule. Module 7 is focused on helping growers develop a written farm food safety plan. Many growers need a written farm food safety plan in order to meet buyer demands for a third-party

audit to verify produce safety practices are in place.

**Results**

18 participants from the PSA Grower Training in Fairhope now meet the initial training requirements of the FSMA PSR, provision number 122.22.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

**Outcome #37**

**1. Outcome Measures**

Number of Alabama residents now qualified to deliver PSA Grower training to growers.

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	52

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The FSMA PSR went into effect in January 2016. This new law requires that a representative from each farm attend a PSA or equivalent produce safety training course. A PSA Train-the-Trainer Course was needed to build training capacity in Alabama. The PSA provides fundamental, science-based, on-farm food safety knowledge to fresh fruit and vegetable farmers, packers, regulatory personnel and others interested in the safety of fresh produce. This includes assessing produce safety risks, implementing Good Agricultural Practices, and how to meet regulatory demands associated with the FSMA Produce Safety Rule, as well as meet buyer requirements for food safety.

**What has been done**

Seven short presentations were made in various locations around the state to raise awareness of the new federal regulation with growers. A PSA Train-the-Trainer Course was held in Montgomery. A grower Training Course was held in Fairhope. The PSA curriculum is designed to



meet grower needs and be delivered in one day. Modules 1 through 6 align with sections outlined in the FSMA Produce Safety

Rule. Module 7 is focused on helping growers develop a written farm food safety plan. Many growers need a written farm food safety plan in order to meet buyer demands for a third-party audit to verify produce safety practices are in place.

**Results**

52 PSA Train-the-Trainer Course attendees are now trained to deliver PSA Grower Training to growers across the state.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

**Outcome #38**

**1. Outcome Measures**

Percent of prospective trainers who increased their knowledge of general produce safety principles and practices as a result of attending the PSA Train-the-Trainer Course.

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	66

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The FSMA PSR went into effect in January 2016. This new law requires that a representative from each farm attend a PSA or equivalent produce safety training course. A PSA Train-the-Trainer Course was needed to build training capacity in Alabama. The PSA provides fundamental, science-based, on-farm food safety knowledge to fresh fruit and vegetable farmers, packers, regulatory personnel and others interested in the safety of fresh produce. This includes assessing produce safety risks, implementing Good Agricultural Practices, and how to meet regulatory demands associated with the FSMA Produce Safety Rule, as well as meet buyer requirements for food safety.

**What has been done**

Seven short presentations were made in various locations around the state to raise awareness of the new federal regulation with growers. A PSA Train-the-Trainer Course was held in Montgomery. A grower Training Course was held in Fairhope. The PSA curriculum is designed to meet grower needs and be delivered in one day. Modules 1 through 6 align with sections outlined in the FSMA Produce Safety

Rule. Module 7 is focused on helping growers develop a written farm food safety plan. Many growers need a written farm food safety plan in order to meet buyer demands for a third-party audit to verify produce safety practices are in place.

**Results**

66% of prospective trainers reported increasing their level of knowledge of general produce safety principles and practices as a result of attending the PSA Train-the-Trainer Course.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

**Outcome #39**

**1. Outcome Measures**

Percent of prospective trainers who increased their of knowledge of worker health and hygiene principles and practices as a result of attending the PSA Train-the-Trainer Course.

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	77

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The FSMA PSR went into effect in January 2016. This new law requires that a representative from each farm attend a PSA or equivalent produce safety training course. A PSA Train-the-Trainer Course was needed to build training capacity in Alabama. The PSA provides fundamental, science-based, on-farm food safety knowledge to fresh fruit and vegetable farmers, packers, regulatory personnel and others interested in the safety of fresh produce. This includes

assessing produce safety risks, implementing Good Agricultural Practices, and how to meet regulatory demands associated with the FSMA Produce Safety Rule, as well as meet buyer requirements for food safety.

**What has been done**

Seven short presentations were made in various locations around the state to raise awareness of the new federal regulation with growers. A PSA Train-the-Trainer Course was held in Montgomery. A grower Training Course was held in Fairhope. The PSA curriculum is designed to meet grower needs and be delivered in one day. Modules 1 through 6 align with sections outlined in the FSMA Produce Safety

Rule. Module 7 is focused on helping growers develop a written farm food safety plan. Many growers need a written farm food safety plan in order to meet buyer demands for a third-party audit to verify produce safety practices are in place.

**Results**

77% of prospective trainers reported increasing their level of knowledge of worker health and hygiene principles and practices as a result of attending the PSA Train-the-Trainer Course.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

**Outcome #40**

**1. Outcome Measures**

Percent of prospective trainers who increased their knowledge of soil amendment principles and practices as a result of attending the PSA Train-the-Trainer Course.

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	0

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The FSMA PSR went into effect in January 2016. This new law requires that a representative from each farm attend a PSA or equivalent produce safety training course. A PSA Train-the-Trainer Course was needed to build training capacity in Alabama. The PSA provides fundamental, science-based, on-farm food safety knowledge to fresh fruit and vegetable farmers, packers, regulatory personnel and others interested in the safety of fresh produce. This includes assessing produce safety risks, implementing Good Agricultural Practices, and how to meet regulatory demands associated with the FSMA Produce Safety Rule, as well as meet buyer requirements for food safety.

**What has been done**

Seven short presentations were made in various locations around the state to raise awareness of the new federal regulation with growers. A PSA Train-the-Trainer Course was held in Montgomery. A grower Training Course was held in Fairhope. The PSA curriculum is designed to meet grower needs and be delivered in one day. Modules 1 through 6 align with sections outlined in the FSMA Produce Safety Rule. Module 7 is focused on helping growers develop a written farm food safety plan. Many growers need a written farm food safety plan in order to meet buyer demands for a third-party audit to verify produce safety practices are in place.

**Results**

79% of prospective trainers reported increasing their level of knowledge of soil amendment principles and practices as a result of attending the PSA Train-the-Trainer Course.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

**Outcome #41**

**1. Outcome Measures**

Percent of prospective trainers who increased their knowledge of wildlife, domesticated animals and land use principles and practices as a result of attending the PSA Train-the-Trainer Course.

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
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**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The FSMA PSR went into effect in January 2016. This new law requires that a representative from each farm attend a PSA or equivalent produce safety training course. A PSA Train-the-Trainer Course was needed to build training capacity in Alabama. The PSA provides fundamental, science-based, on-farm food safety knowledge to fresh fruit and vegetable farmers, packers, regulatory personnel and others interested in the safety of fresh produce. This includes assessing produce safety risks, implementing Good Agricultural Practices, and how to meet regulatory demands associated with the FSMA Produce Safety Rule, as well as meet buyer requirements for food safety.

**What has been done**

Seven short presentations were made in various locations around the state to raise awareness of the new federal regulation with growers. A PSA Train-the-Trainer Course was held in Montgomery. A grower Training Course was held in Fairhope. The PSA curriculum is designed to meet grower needs and be delivered in one day. Modules 1 through 6 align with sections outlined in the FSMA Produce Safety

Rule. Module 7 is focused on helping growers develop a written farm food safety plan. Many growers need a written farm food safety plan in order to meet buyer demands for a third-party audit to verify produce safety practices are in place.

**Results**

73% of prospective trainers reported increasing their level of knowledge of wildlife, domesticated animals and land use principles and practices as a result of attending the PSA Train-the-Trainer Course.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

**Outcome #42**

**1. Outcome Measures**

Percent of prospective trainers who increased their knowledge of production water principles and practices as a result of attending the PSA Train-the-Trainer Course.

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	84

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The FSMA PSR went into effect in January 2016. This new law requires that a representative from each farm attend a PSA or equivalent produce safety training course. A PSA Train-the-Trainer Course was needed to build training capacity in Alabama. The PSA provides fundamental, science-based, on-farm food safety knowledge to fresh fruit and vegetable farmers, packers, regulatory personnel and others interested in the safety of fresh produce. This includes assessing produce safety risks, implementing Good Agricultural Practices, and how to meet regulatory demands associated with the FSMA Produce Safety Rule, as well as meet buyer requirements for food safety.

**What has been done**

Seven short presentations were made in various locations around the state to raise awareness of the new federal regulation with growers. A PSA Train-the-Trainer Course was held in Montgomery. A grower Training Course was held in Fairhope. The PSA curriculum is designed to meet grower needs and be delivered in one day. Modules 1 through 6 align with sections outlined in the FSMA Produce Safety Rule. Module 7 is focused on helping growers develop a written farm food safety plan. Many growers need a written farm food safety plan in order to meet buyer demands for a third-party audit to verify produce safety practices are in place.

**Results**

84% of prospective trainers reported increasing their level of knowledge of production water principles and practices as a result of attending the PSA Train-the-Trainer Course.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

**Outcome #43**

**1. Outcome Measures**

Percent of prospective trainers who increased their knowledge of postharvest water principles and practices as a result of attending the PSA Train-the-Trainer Course.

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	79

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The FSMA PSR went into effect in January 2016. This new law requires that a representative from each farm attend a PSA or equivalent produce safety training course. A PSA Train-the-Trainer Course was needed to build training capacity in Alabama. The PSA provides fundamental, science-based, on-farm food safety knowledge to fresh fruit and vegetable farmers, packers, regulatory personnel and others interested in the safety of fresh produce. This includes assessing produce safety risks, implementing Good Agricultural Practices, and how to meet regulatory demands associated with the FSMA Produce Safety Rule, as well as meet buyer requirements for food safety.

**What has been done**

Seven short presentations were made in various locations around the state to raise awareness of the new federal regulation with growers. A PSA Train-the-Trainer Course was held in Montgomery. A grower Training Course was held in Fairhope. The PSA curriculum is designed to meet grower needs and be delivered in one day. Modules 1 through 6 align with sections outlined in the FSMA Produce Safety Rule. Module 7 is focused on helping growers develop a written farm food safety plan. Many growers need a written farm food safety plan in order to meet buyer demands for a third-party audit to verify produce safety practices are in place.

**Results**

79% of prospective trainers reported increasing their level of knowledge of postharvest water principles and practices as a result of attending the PSA Train-the-Trainer Course.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

## **Outcome #44**

### **1. Outcome Measures**

Percent of prospective trainers who increased their knowledge of postharvest handling and sanitation principles and practices as a result of attending the PSA Train-the-Trainer Course.

### **2. Associated Institution Types**

- 1862 Extension
- 1862 Research

### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	75

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

The FSMA PSR went into effect in January 2016. This new law requires that a representative from each farm attend a PSA or equivalent produce safety training course. A PSA Train-the-Trainer Course was needed to build training capacity in Alabama. The PSA provides fundamental, science-based, on-farm food safety knowledge to fresh fruit and vegetable farmers, packers, regulatory personnel and others interested in the safety of fresh produce. This includes assessing produce safety risks, implementing Good Agricultural Practices, and how to meet regulatory demands associated with the FSMA Produce Safety Rule, as well as meet buyer requirements for food safety.

#### **What has been done**

Seven short presentations were made in various locations around the state to raise awareness of the new federal regulation with growers. A PSA Train-the-Trainer Course was held in Montgomery. A grower Training Course was held in Fairhope. The PSA curriculum is designed to meet grower needs and be delivered in one day. Modules 1 through 6 align with sections outlined in the FSMA Produce Safety Rule. Module 7 is focused on helping growers develop a written farm food safety plan. Many growers need a written farm food safety plan in order to meet buyer demands for a third-party audit to verify produce safety practices are in place.

#### **Results**

75% of prospective trainers reported increasing their level of knowledge of postharvest handling and sanitation principles and practices as a result of attending the PSA Train-the-Trainer Course.



#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

#### Outcome #45

##### 1. Outcome Measures

Pervcent of prospective trainers who increased their knowledge of how to develop a food safety plan as a result of attending the PSA Train-the-Trainer Course.

##### 2. Associated Institution Types

- 1862 Extension
- 1862 Research

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	70

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

The FSMA PSR went into effect in January 2016. This new law requires that a representative from each farm attend a PSA or equivalent produce safety training course. A PSA Train-the-Trainer Course was needed to build training capacity in Alabama. The PSA provides fundamental, science-based, on-farm food safety knowledge to fresh fruit and vegetable farmers, packers, regulatory personnel and others interested in the safety of fresh produce. This includes assessing produce safety risks, implementing Good Agricultural Practices, and how to meet regulatory demands associated with the FSMA Produce Safety Rule, as well as meet buyer requirements for food safety.

###### **What has been done**

Seven short presentations were made in various locations around the state to raise awareness of the new federal regulation with growers. A PSA Train-the-Trainer Course was held in Montgomery. A grower Training Course was held in Fairhope. The PSA curriculum is designed to meet grower needs and be delivered in one day. Modules 1 through 6 align with sections outlined in the FSMA Produce Safety Rule. Module 7 is focused on helping growers develop a written farm food safety plan. Many growers need a written farm food safety plan in order to meet buyer demands for a third-party audit to verify produce safety practices are in place.

###### **Results**

70% of prospective trainers reported increasing their level of knowledge of how to develop a food safety plan as a result of attending the PSA Train-the-Trainer Course.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

**Outcome #46**

**1. Outcome Measures**

Number of trainers now prepared and qualified to teach the PSA Grower Training to growers.

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	87

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The FSMA PSR went into effect in January 2016. This new law requires that a representative from each farm attend a PSA or equivalent produce safety training course. A PSA Train-the-Trainer Course was needed to build training capacity in Alabama. The PSA provides fundamental, science-based, on-farm food safety knowledge to fresh fruit and vegetable farmers, packers, regulatory personnel and others interested in the safety of fresh produce. This includes assessing produce safety risks, implementing Good Agricultural Practices, and how to meet regulatory demands associated with the FSMA Produce Safety Rule, as well as meet buyer requirements for food safety.

**What has been done**

Seven short presentations were made in various locations around the state to raise awareness of the new federal regulation with growers. A PSA Train-the-Trainer Course was held in Montgomery. A grower Training Course was held in Fairhope. The PSA curriculum is designed to meet grower needs and be delivered in one day. Modules 1 through 6 align with sections outlined in the FSMA Produce Safety

Rule. Module 7 is focused on helping growers develop a written farm food safety plan. Many growers need a written farm food safety plan in order to meet buyer demands for a third-party audit to verify produce safety practices are in place.

**Results**

87% of prospective trainers reported being prepared to teach the PSA Grower Training to growers as a result of attending the PSA Train-the-Trainer Course.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

**Outcome #47**

**1. Outcome Measures**

the number of participant who increased knowledge of aquaculture best management practices

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	36

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Aquaculture, like agriculture, is a complex subject with numerous facets for study in educational programs. A number of secondary agriculture and science teachers have realized this and integrated aquaculture into their curricula. Aquaculture is an excellent teaching tool, because it easily integrates many disciplines including biology, chemistry, economics, math, and physics. Growing fish, aquatic plants, and other living things in the classroom creates a living laboratory and promotes daily hands-on experiences that enrich the learning environment. It makes learning practical, experimental, and enjoyable for teachers and students. The issue is that very few teachers have any formal training in aquaculture or aquaponics and are unprepared to teach these classes diminishing the potential impact.

**What has been done**

We have designed and implemented a 5 day intensive training workshop to provide teachers with the information and resources to enhance the impact of their programs. The teachers receive classroom and hands-on training in the construction and operation of aquaponic systems. We also provide ongoing technical support if the teachers have difficulty. When asked How do you feel this information will benefit your students? One teacher responded: "It will guide the way I teach my aquaponics course and have a good deal of impact on my greenhouse management course."

**Results**

0 teachers at our aquaponics workshop were pre/post tested on general and specific aquaculture knowledge using the Turning Point clicker based response system. These participants showed an average 36% increase in knowledge. In past years we have seen increases in knowledge by

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
205	Plant Management Systems
307	Animal Management Systems

**Outcome #48**

**1. Outcome Measures**

Percent of participants who learned disease control measures

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	75

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Over 300 catfish producers in West Alabama were provided catfish disease prevention information.

**What has been done**

The Alabama Fish Farming Center newsletter was used to deliver 12 articles pertaining to relevant catfish production management improvements. The annual catfish update meeting was used to provide information to catfish industry participants.

**Results**

Catfish feed millers and producers learned about phytase supplementation to feed allows fish to absorb more nutrients and minerals. Catfish producers learned more about virulent Aeromonas hydrophila disease and some treatments that seem to help. more research continues on this topic.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
307	Animal Management Systems

**Outcome #49**

**1. Outcome Measures**

Oyster harvest by dollar value

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	1000000

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Off-bottom oyster farming can be an important part of rural coastal communities' economy and culture. Oyster farms have increased in number and production since the program was implemented in 2009.

**What has been done**

Through Extension publications, applied research, invited speakers, technical advice and farm site visits, off-bottom oyster farming was assisted by improving current operations and helping new individuals get into the business.

**Results**

In terms of production, despite several challenges, the estimated harvest for 2016 will exceed \$1 million farm gate. This production was accomplished by 13 commercial operations, using 27 acres, with additional acreage in the permitting process. These farms are estimated to support at least 6 full-time jobs and over 12 part-time jobs.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
503	Quality Maintenance in Storing and Marketing Food Products
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

#### Outcome #50

##### 1. Outcome Measures

Number of operating commercial oyster farms

##### 2. Associated Institution Types

- 1862 Extension
- 1862 Research

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	13

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

Off-bottom oyster farming can be an important part of rural coastal communities' economy and culture. Oyster farms have increased in number and production since the program was implemented in 2009.

###### **What has been done**

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**Results**

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**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
307	Animal Management Systems

**Outcome #51**

**1. Outcome Measures**

Amount of Acreage in off bottom oyster farming production

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	26

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

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**Results**

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#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

#### Outcome #52

##### 1. Outcome Measures

Number of full-time jobs supported my oyster farm production

##### 2. Associated Institution Types

- 1862 Extension
- 1862 Research

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	6

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

Off-bottom oyster farming can be an important part of rural coastal communities' economy and culture. Oyster farms have increased in number and production since the program was implemented in 2009.

###### **What has been done**

Through Extension publications, applied research, invited speakers, technical advice and farm site visits, off-bottom oyster farming was assisted by improving current operations and helping new individuals get into the business.

###### **Results**

In terms of production, despite several challenges, the estimated harvest for 2016 will exceed \$1 million farm gate. This production was accomplished by 13 commercial operations, using 27 acres, with additional acreage in the permitting process. These farms are estimated to support at least 6 full-time jobs.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems



**Outcome #53**

**1. Outcome Measures**

Number of part-time jobs support by oyster farm production

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	12

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Off-bottom oyster farming can be an important part of rural coastal communities' economy and culture. Oyster farms have increased in number and production since the program was implemented in 2009.

**What has been done**

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In terms of production, despite several challenges, the estimated harvest for 2016 will exceed \$1 million farm gate. This production was accomplished by 13 commercial operations, using 27 acres, with additional acreage in the permitting process. These farms are estimated to support at least 6 full-time jobs and over 12 part-time jobs.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
307	Animal Management Systems

**Outcome #54**

**1. Outcome Measures**

The number of research studies to establish baseline data characteristics of water quality of the FCW

**2. Associated Institution Types**

- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	1

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Identification and Enumeration of E. coli and the Impact of Climate Change and Variability to determine the Water Quality in the Flint Creek Watershed (FCW)

**What has been done**

Research conducted by AAMU scientist

**Results**

The AAMU research establish baseline data to characterize the water quality of the FCW by determining the presence of fecal indicator bacteria in relationship to climatic factors that would ultimately assist in managing possible risk to human and environmental health.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
102	Soil, Plant, Water, Nutrient Relationships

**Outcome #55**

**1. Outcome Measures**

The number of effective and sustainable strategies that mitigate emergence, spread and persistence of antimicrobial resistant pathogens

**2. Associated Institution Types**

- 1862 Research
- 1890 Research

### 3a. Outcome Type:

Change in Condition Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2016	1

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Reduction of antimicrobial resistance in poultry product production utilizing probiotics

#### What has been done

Research to examine effective and sustainable strategies that mitigate emergence, spread and persistence of antimicrobial resistant pathogens in the ecosystem from farm to fork

#### Results

Probiotics and pathogens, were obtained from an industry partner and Auburn University, respectively. Probiotics and pathogens have been evaluated separately and when co-grown to measure growth rates and inhibitory effects.

Two regional poultry companies are very interested in the research and one has agreed to help with samples, analysis and future collaboration.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

## V(H). Planned Program (External Factors)

### External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

### Brief Explanation

## V(I). Planned Program (Evaluation Studies)

### Evaluation Results

**ServSafe-** A total of 1314 food service workers completed the certified food safety training. After the completion of the rigorous exam, 927 passed.

**Value Added Marketing Beef-**Overall for 2016 breeding animal marketing events, an economic impact of \$1,273,515 from 638 head marketed for 72 participants to 111 buyers. Through breeding animal marketing events, 134 bulls were marketed through 2016 BCIA events for an overall gross of \$298,350 with an average price per bull of \$2,226. Bulls were sold by 36 different participants to 73 different buyers. Four hundred fifty-three bred heifers were marketed for an overall gross of \$922,750 with an average price per bred heifer of \$2,037. Bred heifers were sold by 29 different participants to 30 different buyers. Fifty-one open heifers were marketed for an overall gross of \$52,415 with an average price per open heifer of \$1,028.

**AU Food System Institute-**The project resulted in increased awareness and knowledge about foodborne illnesses and food safety among stakeholders.

**AU Aquatic Animal Nutrition Program -**Conducted research on development of diet and feed management practices for important warm water aquaculture species.

**AU Animal Nutrition Programs -**Conducted research on diet development, feed management and feed conversion for broilers. Research is also being carried on how dietary composition affect broiler muscle growth and feed conversion efficiency.

**Purple Hull Peas -**Results indicated moisture content increased in samples containing food gums with values ranging from 33.2 to 45.5%; no difference was observed for ash ( $p>0.05$ ), total protein has values of 33.5% - 39.8%, with high of amounts leucine, lysine, phenylalanine, isoleucine and dietary fiber (13.6 - 16.4%). TPA showed enhanced texture in modified product compared to the control. Preliminary sensory testing indicated that panelist were able to differentiate test sample (PHP product) from control (commercially available).

**Good Agricultural Practices and Safe Food Production in Black Belt Alabama-** there was an 89% decrease in the amount of contaminated fresh produce through safe handling practices, and farmers understand how to calculate profitability of farm operation through financial educational material (Enterprise Budget), and improve farm management practices.

**Walmart Initiative and Produce Supply** - Three farmers had increased, at least doubled, their production and revenues for the crops sold in the program. Two farmers were able to sell to other commercial buyers, and the cooperative negotiated contracts with three potential markets. The project contributed to the expansion of the existing regional food system.

## Key Items of Evaluation

**ServSafe**- A total of 1314 food service workers completed the certified food safety training. After the completion of the rigorous exam, 927 passed.

**Value Added Marketing Beef**-Overall for 2016 breeding animal marketing events, an economic impact of \$1,273,515 from 638 head marketed for 72 participants to 111 buyers. Through breeding animal marketing events, 134 bulls were marketed through 2016 BCIA events for an overall gross of \$298,350 with an average price per bull of \$2,226. Bulls were sold by 36 different participants to 73 different buyers. Four hundred fifty-three bred heifers were marketed for an overall gross of \$922,750 with an average price per bred heifer of \$2,037. Bred heifers were sold by 29 different participants to 30 different buyers. Fifty-one open heifers were marketed for an overall gross of \$52,415 with an average price per open heifer of \$1,028.

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**V(A). Planned Program (Summary)**

**Program # 4**

**1. Name of the Planned Program**

Human nutrition, well-being, health and obesity

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
701	Nutrient Composition of Food	40%	20%	15%	15%
702	Requirements and Function of Nutrients and Other Food Components	0%	0%	10%	15%
703	Nutrition Education and Behavior	50%	40%	15%	13%
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	0%	0%	5%	5%
724	Healthy Lifestyle	5%	30%	20%	15%
802	Human Development and Family Well-Being	0%	0%	5%	7%
805	Community Institutions, Health, and Social Services	0%	0%	10%	5%
806	Youth Development	0%	0%	10%	20%
903	Communication, Education, and Information Delivery	5%	10%	10%	5%
	<b>Total</b>	100%	100%	100%	100%

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2016	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	98.6	21.1	10.0	10.0
<b>Actual Paid</b>	84.9	14.6	25.8	7.0
<b>Actual Volunteer</b>	0.0	0.0	0.0	0.0

2. Institution Name: Auburn University

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1335862	0	198416	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1469631	0	200400	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
12690119	0	3881825	0

**2. Institution Name:** Alabama A&M University

**Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	412085	0	251273
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	412085	0	220276
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	1619681	0	0

**2. Institution Name:** Tuskegee University

**Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	531153	0	406673
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	432816	0	350476
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

**Scale Back Alabama (SBA)** is a free statewide weight loss program sponsored by the Alabama Department of Public Health, the Alabama Hospital Association, and Blue Cross Blue Shield of Alabama. SBA is meant to encourage participants to lose 10 lbs. in a 10-week period.

**Right Bite-** a six weeks series of fun ways to learn how to enjoy delicious food that is prepared with less fat, sugar and sodium.

**TEEN** is an interactive technology drive program designed to educate teenagers on health, nutrition and physical activity. The program is comprised of four modules on nutrition, nutrients, sports nutrition and chronic disease; four iDance exercises and two food demonstrations.

**Urban EFNEP educators-** Lessons on basic nutrition, MyPlate, Dietary Guidelines, food safety, food preparation, food resource management and physical

**AU Obesity and Diabetes Program:** Researchers are investigating a) the mechanism by which glucose is transported into fat or muscle cells in order to minimize the elevation of blood glucose concentrations in diabetic patients, and b) the impact of dietary practices such as consumption of sugar-sweetened beverages in combination with high fat Western diet. Knowledge gained are important in developing novel approaches for treating or blocking the development of obesity-causing nonalcoholic fatty diseases.

**AU Sleep Research:** Research is conducted to better understand and address racial disparities in sleep.

**AU Intelligent Agent Technology for Seniors:** Virtual pharmacist (VP) that provides verbal and visual guidance to senior users of e-pharmacy was designed. VP assisted the seniors (50) in account sign up, prescription refill order and reminder set up, and performing searches for drug information.

**Extension Food Nutrition Education Program Eating Smart Being Active** uses paraprofessionals (peer educators) to deliver a series of hands-on, interactive lessons to program participants. Lessons are evidence-based and tailored to meet the needs of the audience. **Let's Move with Soccer**-consisted of bi-weekly lessons alternated for each site which received a one hour session in soccer training and techniques and a one hour session in healthy eating practices.

**Integrated Approach to Youth Obesity Prevention-** A culturally-specific nutrition education program was implemented in four of Alabama's Black Belt Counties: Greene, Lowndes, Bullock and Macon. Health, nutrition, food groups, portions sizes, food labels, food safety and the relationship between these topics and selected chronic diseases (obesity, heart disease and diabetes) were covered.

**Color Me Healthy** is a program designed to reach children ages four and five. It provides fun, innovative, interactive learning opportunities on physical activity and healthy eating

## 2. Brief description of the target audience

**Scale Back Alabama-** Adults who want to lose 10 pounds or more.

**Color Me Healthy-** Children ages four and five

**Right Bite-** Right Bite was delivered in forty-six Alabama's Counties - Of the 514 people that participated four hundred and forty-six were females and sixty-eight were males: 297 were African American and 14 Hispanic and 203 White.

**TEEN** classes were conducted at middle and high schools, boys and girls clubs, youth camps at recreation centers, attention centers and afterschool programs. The audiences demographics (n=869) were 1) Ethnic Background: Blacks (74%), Whites (17%) and Hispanics (4%) 2) Gender: Females (51%) and Males (49%) and 3) Ages: 9-12 (34%), 13-16 (56%) and 17 and above (4%).

**Urban SNAP-Ed** - Low-income Hispanic individuals and families in five North Alabama Counties; Madison, Dekalb, Limestone, Marshall, and Morgan.

**AU Obesity and Diabetes Program:** Food and nutrition scientists and professionals, clinicians, general public.

**AU Sleep Research:** Parents, college administrators and students, policy makers, general public.

**AU Intelligent Agent Technology for Seniors:** Pharmacy stores, senior citizens, senior centers, policy makers, senior-serving agencies.

**Childhood Obesity Prevention Parents** and families with at risk (overweight, obese and food insecure) children, key stakeholders, schools, childcare professionals.

**Extension Food Nutrition Education Program Eating Smart Being Active:** low-income families with



young children and low-income youth in the Alabama Black Belt Counties

**Let's Move with Soccer**-K-12 youth from Alabama Black Belt counties

**Integrated Approach to Youth Obesity Prevention**- K-12 youth in Black Belt counties

**3. How was eXtension used?**

eXtension was not used in this program

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	130591	699812	68803	695942

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

Year: 2016

Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2016	Extension	Research	Total
<b>Actual</b>	10	50	60

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Number of basic nutrition classes/workshops conducted  
Not reporting on this Output for this Annual Report

**Output #2**

**Output Measure**

- Number of people participating in nutrition classes  
Not reporting on this Output for this Annual Report

**Output #3**

**Output Measure**

- Number of food resource management classes conducted  
Not reporting on this Output for this Annual Report

**Output #4**

**Output Measure**

- Number of people participating in the food resource management classes  
Not reporting on this Output for this Annual Report

**Output #5**

**Output Measure**

- Number of food safety classes conducted  
Not reporting on this Output for this Annual Report

**Output #6**

**Output Measure**

- Number of people participating in food safety classes  
Not reporting on this Output for this Annual Report

**Output #7**

**Output Measure**

- Number of meal planning classes conducted  
Not reporting on this Output for this Annual Report

**Output #8**

**Output Measure**

- Number of people participating in meal planning classes  
Not reporting on this Output for this Annual Report

**Output #9**

**Output Measure**

- Number of food preparation classes conducted  
Not reporting on this Output for this Annual Report

**Output #10**

**Output Measure**

- Number of people participating in food preparation classes  
Not reporting on this Output for this Annual Report

**Output #11**

**Output Measure**

- Number of food demonstrations conducted  
Not reporting on this Output for this Annual Report

**Output #12**

**Output Measure**

- Number of people participating in food demonstrations  
Not reporting on this Output for this Annual Report

**Output #13**

**Output Measure**

- Number of students participating in Body Quest: Food of the Warrior.  
Not reporting on this Output for this Annual Report

**Output #14**

**Output Measure**

- Number of in-service trainings  
Not reporting on this Output for this Annual Report

**Output #15**

**Output Measure**

- Number of adult participants  
Not reporting on this Output for this Annual Report

**Output #16**

**Output Measure**

- Number of youth participants  
Not reporting on this Output for this Annual Report

**Output #17**

**Output Measure**

- Number of chronic disease lessons.  
Not reporting on this Output for this Annual Report

**Output #18**

**Output Measure**

- Number of physical activity lessons  
Not reporting on this Output for this Annual Report

**Output #19**

**Output Measure**

- Number of participants weighed-in  
Not reporting on this Output for this Annual Report

**Output #20**

**Output Measure**

- Number of people participating in physical activity  
Not reporting on this Output for this Annual Report

**Output #21**

**Output Measure**

- Number of places that provide healthy food options.  
Not reporting on this Output for this Annual Report

**Output #22**

**Output Measure**

- Number of places that provide opportunities for physical activity.  
Not reporting on this Output for this Annual Report

**Output #23**

**Output Measure**

- Number of people who receive diabetes self-management training.  
Not reporting on this Output for this Annual Report

**Output #24**

**Output Measure**

- Number of facts sheets, newsletters, etc.  
Not reporting on this Output for this Annual Report

**Output #25**

**Output Measure**

- Number of adaptive teaching and training curriculum modules  
Not reporting on this Output for this Annual Report

**Output #26**

**Output Measure**

- Number of new food products  
Not reporting on this Output for this Annual Report

**Output #27**

**Output Measure**

- Number of food coupons distributed  
Not reporting on this Output for this Annual Report

**Output #28**

**Output Measure**

- Number of Technology Enhancing Exercise and Nutrition (TEEN) youth participants

<b>Year</b>	<b>Actual</b>
2016	869

**Output #29**

**Output Measure**

- Number of Technology Enhancing Exercise and Nutrition (TEEN)classes/workshops conducted

<b>Year</b>	<b>Actual</b>
2016	250

**Output #30**

**Output Measure**

- Number of Technology Enhancing Exercise and Nutrition (TEEN)physical activity lessons

<b>Year</b>	<b>Actual</b>
2016	330

**Output #31**

**Output Measure**

- Number of Technology Enhancing Exercise and Nutrition (TEEN) food demonstrations conducted

<b>Year</b>	<b>Actual</b>
2016	30

**Output #32**

**Output Measure**

- Number of Technology Enhancing Exercise and Nutrition (TEEN) in-service trainings

<b>Year</b>	<b>Actual</b>
2016	2

**Output #33**

**Output Measure**

- Number of Technology Enhancing Exercise and Nutrition (TEEN) adaptive teaching and training curriculum modules

<b>Year</b>	<b>Actual</b>
2016	1

**Output #34**

**Output Measure**

- Number of Community Health Aerobic and Motivational Program Initiating Optimal Nutrition (CHAMPION) adult participants

<b>Year</b>	<b>Actual</b>
2016	583

**Output #35**

**Output Measure**

- Number of Community Health Aerobic and Motivational Program Initiating Optimal Nutrition (CHAMPION) classes/workshops conducted

<b>Year</b>	<b>Actual</b>
2016	198

**Output #36**

**Output Measure**

- Number of Community Health Aerobic and Motivational Program Initiating Optimal Nutrition (CHAMPION) physical activity lessons

<b>Year</b>	<b>Actual</b>
2016	111

**Output #37**

**Output Measure**

- Number of Community Health Aerobic and Motivational Program Initiating Optimal Nutrition (CHAMPION) in-service trainings

<b>Year</b>	<b>Actual</b>
2016	1

**Output #38**

**Output Measure**

- Number of Community Health Aerobic and Motivational Program Initiating Optimal Nutrition (CHAMPION) adaptive teaching and training curriculum modules

<b>Year</b>	<b>Actual</b>
2016	2

**Output #39**

**Output Measure**

- Number of Community Health Aerobic and Motivational Program Initiating Optimal Nutrition (CHAMPION)radio PSAs

<b>Year</b>	<b>Actual</b>
2016	1

**Output #40**

**Output Measure**

- Number of Community Health Aerobic and Motivational Program Initiating Optimal Nutrition (CHAMPION)health fairs

<b>Year</b>	<b>Actual</b>
2016	23

**Output #41**

**Output Measure**

- Number of Community Health Aerobic and Motivational Program Initiating Optimal Nutrition (CHAMPION)youth participants

<b>Year</b>	<b>Actual</b>
2016	380

**Output #42**

**Output Measure**

- Number of Community Health Aerobic and Motivational Program Initiating Optimal Nutrition (CHAMPION)Youth classes/workshops conducted (nutrition, nutrients, physical activity)

<b>Year</b>	<b>Actual</b>
2016	96

**Output #43**

**Output Measure**

- Number of Community Health Aerobic and Motivational Program Initiating Optimal Nutrition (CHAMPION)Youth physical activity lessons

<b>Year</b>	<b>Actual</b>
2016	48

**Output #44**

**Output Measure**

- Number of Community Health Aerobic and Motivational Program Initiating Optimal Nutrition (CHAMPION) Youth in-service trainings

<b>Year</b>	<b>Actual</b>
2016	1

**Output #45**

**Output Measure**

- Number of Color Me Healthy youth participants

<b>Year</b>	<b>Actual</b>
2016	455

**Output #46**

**Output Measure**

- Number of Right Bite people participating in nutrition classes

<b>Year</b>	<b>Actual</b>
2016	514

**Output #47**

**Output Measure**

- Number of Urban EFNEP adult participants

<b>Year</b>	<b>Actual</b>
2016	227

**Output #48**

**Output Measure**

- Number of Urban EFNEP youth participants

<b>Year</b>	<b>Actual</b>
2016	66

**Output #49**

**Output Measure**

- Number of Urban EFNEP in-service trainings

<b>Year</b>	<b>Actual</b>
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2016 1

**Output #50**

**Output Measure**

- Number of Urban EFNEP food demonstrations conducted

<b>Year</b>	<b>Actual</b>
2016	18

**Output #51**

**Output Measure**

- Number of Urban EFNEP basic nutrition classes/workshops conducted

<b>Year</b>	<b>Actual</b>
2016	18

**Output #52**

**Output Measure**

- Number of Expanded Food and Nutrition Education Program (EFNEP) basic nutrition classes/workshops conducted

<b>Year</b>	<b>Actual</b>
2016	13569

**Output #53**

**Output Measure**

- Number of Expanded Food and Nutrition Education Program (EFNEP) adult participants

<b>Year</b>	<b>Actual</b>
2016	2448

**Output #54**

**Output Measure**

- Number of Expanded Food and Nutrition Education Program (EFNEP) youth participants

<b>Year</b>	<b>Actual</b>
2016	5513

**Output #55**

**Output Measure**

- Number of Expanded Food and Nutrition Education Program (EFNEP) in-service trainings

<b>Year</b>	<b>Actual</b>
2016	7

**Output #56**

**Output Measure**

- Number of People in Program Families of Adult EFNEP Participants

<b>Year</b>	<b>Actual</b>
2016	8921

**Output #57**

**Output Measure**

- Number of Adult EFNEP participating in text messaging nutrition education for lesson reinforcement

<b>Year</b>	<b>Actual</b>
2016	86

**Output #58**

**Output Measure**

- Number of EFNEP limited-resource Pregnant Teens and Women

<b>Year</b>	<b>Actual</b>
2016	797

**Output #59**

**Output Measure**

- Number of hours of basic nutrition education taught to adults completing EFNEP

<b>Year</b>	<b>Actual</b>
2016	17367

**Output #60**

**Output Measure**

- Number of hours of basic nutrition education taught to youth completing EFNEP

<b>Year</b>	<b>Actual</b>
2016	1953

**Output #61**

**Output Measure**

- Number of Sites/locations where EFNEP basic nutrition education classes taught

<b>Year</b>	<b>Actual</b>
2016	300

**Output #62**

**Output Measure**

- Number of EFNEP Community Partnerships

<b>Year</b>	<b>Actual</b>
2016	264

**Output #63**

**Output Measure**

- Number of EFNEP Volunteers, Ages 18 or Older

<b>Year</b>	<b>Actual</b>
2016	231

**Output #64**

**Output Measure**

- Number of EFNEP Volunteers, Under 18

<b>Year</b>	<b>Actual</b>
2016	5

**Output #65**

**Output Measure**

- Number of EFNEP adults who are minorities

<b>Year</b>	<b>Actual</b>
2016	1828

**Output #66**

**Output Measure**

- Number of EFNEP adults whose income is at or below 100% of the Poverty Level

<b>Year</b>	<b>Actual</b>
2016	2265

**Output #67**

**Output Measure**

- Number of Urban SNAP-Ed basic nutrition classes/workshops conducted

<b>Year</b>	<b>Actual</b>
2016	287

**Output #68**

**Output Measure**

- Number of Urban SNAP-Ed food resource management classes conducted

<b>Year</b>	<b>Actual</b>
2016	225

**Output #69**

**Output Measure**

- Number of Urban SNAP-Ed adult participants

<b>Year</b>	<b>Actual</b>
2016	2476

**Output #70**

**Output Measure**

- Number of Urban SNAP-Ed youth participants

<b>Year</b>	<b>Actual</b>
2016	3690

**Output #71**

**Output Measure**

- Number of Urban SNAP-Ed food demonstrations conducted

<b>Year</b>	<b>Actual</b>
2016	450

**Output #72**

**Output Measure**

- Number of Urban SNAP-Ed food safety classes conducted

<b>Year</b>	<b>Actual</b>
2016	225

**Output #73**

**Output Measure**

- Number of Urban SNAP-Ed meal planning classes conducted

<b>Year</b>	<b>Actual</b>
2016	225

**Output #74**

**Output Measure**

- Number of Urban SNAP-Ed in-service trainings

<b>Year</b>	<b>Actual</b>
2016	2

**Output #75**

**Output Measure**

- Number of Urban SNAP-Ed fact sheets, newsletters, etc.

<b>Year</b>	<b>Actual</b>
2016	5000

**Output #76**

**Output Measure**

- Number of Urban SNAP-Ed community garden sites established

<b>Year</b>	<b>Actual</b>
2016	6

**Output #77**

**Output Measure**

- Number of Urban SNAP-Ed raised bed gardens constructed and planted

<b>Year</b>	<b>Actual</b>
2016	24

**Output #78**

**Output Measure**

- Number of Urban SNAP-Ed nutrition/physical activity related social marketing billboards placed in urban counties

<b>Year</b>	<b>Actual</b>
2016	18

**Output #79**

**Output Measure**

- Number of Supplemental Nutrition Assistance Program - Education (SNAP-Ed) students participating in Body Quest: Food of the Warrior

<b>Year</b>	<b>Actual</b>
2016	5581

**Output #80**

**Output Measure**

- Number of Supplemental Nutrition Assistance Program - Education (SNAP-Ed)adult participants

<b>Year</b>	<b>Actual</b>
2016	72546

**Output #81**

**Output Measure**

- Number of Supplemental Nutrition Assistance Program - Education (SNAP-Ed)in-service trainings

<b>Year</b>	<b>Actual</b>
2016	7

**Output #82**

**Output Measure**

- Number of Supplemental Nutrition Assistance Program - Education (SNAP-Ed)places that provide healthy food options

<b>Year</b>	<b>Actual</b>
2016	174

**Output #83**

**Output Measure**

- Number of Supplemental Nutrition Assistance Program - Education (SNAP-Ed)places that provide opportunities for physical activity

<b>Year</b>	<b>Actual</b>
2016	15

**Output #84**

**Output Measure**

- Number of Supplemental Nutrition Assistance Program - Education (SNAP-Ed)fact sheets, newsletters, etc.

<b>Year</b>	<b>Actual</b>
2016	148636

**Output #85**

**Output Measure**

- Number of Supplemental Nutrition Assistance Program - Education (SNAP-Ed)basic nutrition classes/workshops conducted

<b>Year</b>	<b>Actual</b>
2016	23361

**Output #86**

**Output Measure**

- Number of Supplemental Nutrition Assistance Program - Education (SNAP-Ed)impressions for social marketing billboard campaign

<b>Year</b>	<b>Actual</b>
2016	47198556

**Output #87**

**Output Measure**

- Number of Supplemental Nutrition Assistance Program - Education (SNAP-Ed)adults and youth reached through policy, systems and environmental (PSE) strategies

<b>Year</b>	<b>Actual</b>
2016	118847

**Output #88**

**Output Measure**

- Number of Supplemental Nutrition Assistance Program - Education (SNAP-Ed)hours for in-service training per educator

<b>Year</b>	<b>Actual</b>
2016	24

**Output #89**

**Output Measure**

- Number of youth who participated in Supplemental Nutrition Assistance Program - Education (SNAP-Ed)nutrition education (unduplicated count)

<b>Year</b>	<b>Actual</b>
2016	22790

**Output #90**

**Output Measure**

- Number of youth who participated in Supplemental Nutrition Assistance Program - Education (SNAP-Ed)nutrition education (count)

<b>Year</b>	<b>Actual</b>
2016	80114

**Output #91**

**Output Measure**

- Number of adults who participated in Supplemental Nutrition Assistance Program - Education (SNAP-Ed) nutrition education (contacts)

<b>Year</b>	<b>Actual</b>
2016	64246

**Output #92**

**Output Measure**

- Number of hour third grade students participated in Supplemental Nutrition Assistance Program - Education (SNAP-Ed) Body Quest

<b>Year</b>	<b>Actual</b>
2016	83715

**Output #93**

**Output Measure**

- Number of schools with at least 50% free and reduced price meal rates that participated in Supplemental Nutrition Assistance Program - Education (SNAP-Ed) Body Quest

<b>Year</b>	<b>Actual</b>
2016	112

**Output #94**

**Output Measure**

- Number of Supplemental Nutrition Assistance Program - Education (SNAP-Ed) billboards used in social marketing campaign

<b>Year</b>	<b>Actual</b>
2016	73

**Output #95**

**Output Measure**

- Number of weeks Supplemental Nutrition Assistance Program - Education (SNAP-Ed) social marketing billboards were displayed

<b>Year</b>	<b>Actual</b>
2016	12



**Output #96**

**Output Measure**

- Number of adults participating in a phone survey for Supplemental Nutrition Assistance Program - Education (SNAP-Ed)social marketing billboard campaign

<b>Year</b>	<b>Actual</b>
2016	962

**Output #97**

**Output Measure**

- Number of people reached through Alabama Extension Facebook page related to Supplemental Nutrition Assistance Program - Education (SNAP-Ed)social marketing billboard campaign

<b>Year</b>	<b>Actual</b>
2016	10858

**Output #98**

**Output Measure**

- Number of adults participating in a phone survey for Supplemental Nutrition Assistance Program - Education (SNAP-Ed)social marketing billboard campaign who recalled seeing at least one billboard

<b>Year</b>	<b>Actual</b>
2016	321

**Output #99**

**Output Measure**

- Number of parents who participated in a Supplemental Nutrition Assistance Program - Education (SNAP-Ed)text messaging nutrition education program

<b>Year</b>	<b>Actual</b>
2016	448

**Output #100**

**Output Measure**

- Number of Supplemental Nutrition Assistance Program - Education (SNAP-Ed)text messages sent to participating Body Quest parents over a 15-week intervention

<b>Year</b>	<b>Actual</b>
2016	45

**Output #101**

**Output Measure**

- Number of weeks Supplemental Nutrition Assistance Program - Education (SNAP-Ed) text messages were sent to parents

<b>Year</b>	<b>Actual</b>
2016	52

**Output #102**

**Output Measure**

- Number of Supplemental Nutrition Assistance Program - Education (SNAP-Ed) text messages sent to parents over a one-year education period (unduplicated)

<b>Year</b>	<b>Actual</b>
2016	156

**Output #103**

**Output Measure**

- Number of individuals who participated in a one-year Supplemental Nutrition Assistance Program - Education (SNAP-Ed) text messaging initiative

<b>Year</b>	<b>Actual</b>
2016	740

**Output #104**

**Output Measure**

- Number of ALProHealth partnerships with SNAP-Ed representatives that agreed to develop a plan for improving nutrition or physical activity practices where nutrition education is provided

<b>Year</b>	<b>Actual</b>
2016	52

**Output #105**

**Output Measure**

- Number of communities with partnerships including at least 10 diverse partners with a community-wide plan to engage multiple strategies and sectors to prevent obesity

<b>Year</b>	<b>Actual</b>
2016	18

**Output #106**

**Output Measure**

- Number of healthier environmental and promotional changes adopted in retail sites

<b>Year</b>	<b>Actual</b>
2016	39

**Output #107**

**Output Measure**

- Number of Supplemental Nutrition Assistance Program - Education (SNAP-Ed) healthy initiatives adopted in community and school gardens

<b>Year</b>	<b>Actual</b>
2016	37

**Output #108**

**Output Measure**

- Number of Supplemental Nutrition Assistance Program - Education (SNAP-Ed) healthy initiatives adopted in emergency food assistance sites

<b>Year</b>	<b>Actual</b>
2016	58

**Output #109**

**Output Measure**

- Number of Alabama counties with healthy retail initiatives prompting environmental and promotional changes to increase availability and appeal of healthy foods

<b>Year</b>	<b>Actual</b>
2016	19

**Output #110**

**Output Measure**

- Number of Alabama counties with environmental changes involving edible gardens to increase availability and appeal of healthy foods

<b>Year</b>	<b>Actual</b>
2016	23

**Output #111**

**Output Measure**

- Number of Alabama counties with policy, systems and promotional changes at farmers markets to increase availability and appeal of healthy foods

<b>Year</b>	<b>Actual</b>
2016	30

**Output #112**

**Output Measure**

- Number of Alabama counties with promotional changes at emergency food assistance sites to increase appeal of healthy foods

<b>Year</b>	<b>Actual</b>
2016	28

**Output #113**

**Output Measure**

- Number of Alabama counties with nutrition education billboards as part of social marketing billboard campaign

<b>Year</b>	<b>Actual</b>
2016	53

**Output #114**

**Output Measure**

- Number of Alabama counties with elementary schools participating in childhood obesity prevention initiative

<b>Year</b>	<b>Actual</b>
2016	56

**Output #115**

**Output Measure**

- Number of third grade classrooms participating in childhood obesity prevention initiative

<b>Year</b>	<b>Actual</b>
2016	352

**Output #116**

**Output Measure**

- Number of Scale Back Alabama (SBA) adult participants

<b>Year</b>	<b>Actual</b>
2016	994

**Output #117**

**Output Measure**

- Number of Scale Back Alabama (SBA) participants weighed-in

<b>Year</b>	<b>Actual</b>
2016	994

**Output #118**

**Output Measure**

- Number of Scale Back Alabama (SBA) at weigh-out

<b>Year</b>	<b>Actual</b>
2016	536

**Output #119**

**Output Measure**

- Percentage of Scale Back Alabama (SBA) people retained at weigh-out

<b>Year</b>	<b>Actual</b>
2016	53

**Output #120**

**Output Measure**

- Number of Extension Nutrition Education Program personnel coordinating Scale Back Alabama (SBA) county activities

<b>Year</b>	<b>Actual</b>
2016	24

**Output #121**

**Output Measure**

- Number of Extension Expanded Food and Nutrition education Program (EFNEP) personnel coordinating Scale Back Alabama (SBA) county activities

<b>Year</b>	<b>Actual</b>
2016	16

**Output #122**

**Output Measure**

- Number of Extension County Extension Coordinator personnel coordinating Scale Back Alabama (SBA) county activities

<b>Year</b>	<b>Actual</b>
2016	22

**Output #123**

**Output Measure**

- Number of Extension Human Nutrition, Diet and Health Regional Extension Agent personnel coordinating Scale Back Alabama (SBA) county activities

<b>Year</b>	<b>Actual</b>
2016	6

**Output #124**

**Output Measure**

- Number of Extension Administrative Assistant personnel coordinating Scale Back Alabama (SBA) county activities

<b>Year</b>	<b>Actual</b>
2016	23

**Output #125**

**Output Measure**

- Number of Alabama counties participating in Scale Back Alabama (SBA) through Extension

<b>Year</b>	<b>Actual</b>
2016	38

**Output #126**

**Output Measure**

- Number of ALProHealth community members participating in community coalitions

<b>Year</b>	<b>Actual</b>
2016	191

**Output #127**

**Output Measure**

- Number of ALProHealth technical assistance trainings

<b>Year</b>	<b>Actual</b>
2016	4

**Output #128**

**Output Measure**

- Number of ALProHealth in-service trainings

<b>Year</b>	<b>Actual</b>
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2016 9

**Output #129**

**Output Measure**

- Number of surveys mailed to households within ALProHealth counties to assess access to healthy food and physical activity opportunities

<b>Year</b>	<b>Actual</b>
2016	8000

**Output #130**

**Output Measure**

- Number of surveys returned by households within 14 ALProHealth counties responding to questions regarding access to healthy food and physical activity opportunities

<b>Year</b>	<b>Actual</b>
2016	1449

**Output #131**

**Output Measure**

- Number of state partnerships supporting statewide efforts of ALProHealth

<b>Year</b>	<b>Actual</b>
2016	27

**Output #132**

**Output Measure**

- Number of ALProHealth county-level partnerships supporting local community coalitions

<b>Year</b>	<b>Actual</b>
2016	139

**Output #133**

**Output Measure**

- Number of grants applied for using leverage from ALProHealth funds

<b>Year</b>	<b>Actual</b>
2016	4

**Output #134**

**Output Measure**

- Number of ALProHealth communities conducting nutrition education programming for adults

<b>Year</b>	<b>Actual</b>
2016	14

**Output #135**

**Output Measure**

- Number of ALProHealth communities conducting Body Quest, a childhood obesity prevention initiative for 3rd graders

<b>Year</b>	<b>Actual</b>
2016	14

**Output #136**

**Output Measure**

- Number of ALProHealth communities conducting food demonstrations at local Farmers Markets

<b>Year</b>	<b>Actual</b>
2016	4

**Output #137**

**Output Measure**

- Number of ALProHealth communities conducting healthy cooking classes

<b>Year</b>	<b>Actual</b>
2016	9

**Output #138**

**Output Measure**

- Number of ALProHealth communities supporting health fairs

<b>Year</b>	<b>Actual</b>
2016	8

**Output #139**

**Output Measure**

- Number of faith-based organizations providing free health screenings for ALProHealth

<b>Year</b>	<b>Actual</b>
2016	2

**Output #140**

**Output Measure**

- Number of school systems providing free health screenings on Parents/Grandparents Day for ALProHealth



<b>Year</b>	<b>Actual</b>
2016	1

**Output #141**

**Output Measure**

- Number of ALProHealth communities supporting or enhancing a school garden

<b>Year</b>	<b>Actual</b>
2016	8

**Output #142**

**Output Measure**

- Number of schools implementing "Just Move! Alabama," a statewide initiative to increase physical activity in children grades K-8 for ALProHealth

<b>Year</b>	<b>Actual</b>
2016	2

**Output #143**

**Output Measure**

- Number of ALProHealth communities establishing or enhancing a community garden

<b>Year</b>	<b>Actual</b>
2016	9

**Output #144**

**Output Measure**

- Number of ALProHealth communities conducting raised bed or container gardening workshops

<b>Year</b>	<b>Actual</b>
2016	5

**Output #145**

**Output Measure**

- Number of ALProHealth communities providing educational tours of local farms

<b>Year</b>	<b>Actual</b>
2016	5

**Output #146**

**Output Measure**

- Number of ALProHealth communities establishing a demonstration garden to display farming and growing techniques

<b>Year</b>	<b>Actual</b>
2016	3

**Output #147**

**Output Measure**

- Number of ALProHealth communities promoting healthy lifestyle choices through installing signage

<b>Year</b>	<b>Actual</b>
2016	6

**Output #148**

**Output Measure**

- Number of ALProHealth communities establishing or enhancing a Farmers Market

<b>Year</b>	<b>Actual</b>
2016	10

**Output #149**

**Output Measure**

- Number of ALProHealth communities training Farmers Market producers to accept SNAP, WIC, and/or SFMNP vouchers

<b>Year</b>	<b>Actual</b>
2016	9

**Output #150**

**Output Measure**

- Number of ALProHealth communities providing educational reinforcement tool to purchase healthy food items at a grocery store

<b>Year</b>	<b>Actual</b>
2016	1

**Output #151**

**Output Measure**

- Number of ALProHealth communities developing a guide for direct purchase from local producers

<b>Year</b>	<b>Actual</b>
2016	3

**Output #152**

**Output Measure**

- Number of ALProHealth communities working with local food stores to promote healthy food choices

<b>Year</b>	<b>Actual</b>
2016	10

**Output #153**

**Output Measure**

- Number of ALProHealth communities increasing the capacity and distribution of fruits and vegetables at food banks

<b>Year</b>	<b>Actual</b>
2016	7

**Output #154**

**Output Measure**

- Number of ALProHealth communities promoting healthy food vendors through local media

<b>Year</b>	<b>Actual</b>
2016	6

**Output #155**

**Output Measure**

- Number of ALProHealth communities installing outdoor fitness equipment

<b>Year</b>	<b>Actual</b>
2016	10

**Output #156**

**Output Measure**

- Number of ALProHealth communities establishing or supporting an indoor community fitness facility

<b>Year</b>	<b>Actual</b>
2016	3

**Output #157**

**Output Measure**

- Number of ALProHealth communities supporting the development of local playgrounds

<b>Year</b>	<b>Actual</b>
2016	5

**Output #158**

**Output Measure**

- Number of ALProHealth communities enhancing aesthetics and amenities of local parks

<b>Year</b>	<b>Actual</b>
2016	6

**Output #159**

**Output Measure**

- Number of ALProHealth communities enhancing safety of local parks

<b>Year</b>	<b>Actual</b>
2016	4

**Output #160**

**Output Measure**

- Number of ALProHealth communities establishing new walking trails

<b>Year</b>	<b>Actual</b>
2016	5

**Output #161**

**Output Measure**

- Number of ALProHealth communities repairing existing walking trails

<b>Year</b>	<b>Actual</b>
2016	3

**Output #162**

**Output Measure**

- Number of ALProHealth communities establishing or supporting adult or youth sports leagues

<b>Year</b>	<b>Actual</b>
2016	2

**Output #163**

**Output Measure**

- Number of ALProHealth communities participating in "Scale Back Alabama," a statewide weight reduction initiative

<b>Year</b>	<b>Actual</b>
2016	5

**Output #164**

**Output Measure**

- Number of ALProHealth communities establishing a wellness program for senior citizens

<b>Year</b>	<b>Actual</b>
2016	5

**Output #165**

**Output Measure**

- Number of ALProHealth communities establishing a walking or exercise group

<b>Year</b>	<b>Actual</b>
2016	5

**Output #166**

**Output Measure**

- Number of ALProHealth communities engaging professional consultants to improve access to parks or other places for physical activity

<b>Year</b>	<b>Actual</b>
2016	4

**Output #167**

**Output Measure**

- Number of ALProHealth communities creating safer routes for children to walk and bike to school

<b>Year</b>	<b>Actual</b>
2016	2

**Output #168**

**Output Measure**

- Number of people participating in Right Bite nutrition classes

<b>Year</b>	<b>Actual</b>
2016	500

**Output #169**

**Output Measure**

- Number of SNAP-Ed basic nutrition classes/workshops conducted

<b>Year</b>	<b>Actual</b>
2016	7012

**Output #170**

**Output Measure**

- Number of SNAP-Ed adult participants

<b>Year</b>	<b>Actual</b>
2016	68123

**Output #171**

**Output Measure**

- The number of TU EFNEP Adults

<b>Year</b>	<b>Actual</b>
2016	183

**Output #172**

**Output Measure**

- The number of TU EFNEP Family members

<b>Year</b>	<b>Actual</b>
2016	565

**Output #173**

**Output Measure**

- The TU EFNEP Graduation rate

<b>Year</b>	<b>Actual</b>
2016	94

**Output #174**

**Output Measure**

- The number of TU EFNEP Total Youth

<b>Year</b>	<b>Actual</b>
2016	486

**Output #175**

**Output Measure**

- The number of TU EFNEP Total Youth Groups

<b>Year</b>	<b>Actual</b>
2016	25

**Output #176**

**Output Measure**

- The TU EFNEP Youth Graduation Rate

<b>Year</b>	<b>Actual</b>
2016	77

**Output #177**

**Output Measure**

- Number of Skegee Fit participants

<b>Year</b>	<b>Actual</b>
2016	245

**Output #178**

**Output Measure**

- Number of Integrative Approach to Prevention and Reduction Overweight and Childhood Obesity in the Alabama Black Belt graduate theses

<b>Year</b>	<b>Actual</b>
2016	2

**Output #179**

**Output Measure**

- Number of Integrative Approach to Prevention and Reduction Overweight and Childhood Obesity in the Alabama Black Belt abstracts

<b>Year</b>	<b>Actual</b>
2016	4

**Output #180**

**Output Measure**

- Output #1 Number of Integrative Approach to Prevention and Reduction Overweight and Childhood Obesity in the Alabama Black Belt basic nutrition classes/workshops conducted

<b>Year</b>	<b>Actual</b>
2016	23

**Output #181**

**Output Measure**

- Number of people participating in Integrative Approach to Prevention and Reduction Overweight and Childhood Obesity in the Alabama Black Belt nutrition classes

<b>Year</b>	<b>Actual</b>
2016	225

**Output #182**

**Output Measure**

- Number of Integrative Approach to Prevention and Reduction Overweight and Childhood Obesity in the Alabama Black Belt food preparation classes conducted

<b>Year</b>	<b>Actual</b>
2016	3

**Output #183**

**Output Measure**

- Number of people participating in Integrative Approach to Prevention and Reduction Overweight and Childhood Obesity in the Alabama Black Belt food preparation classes

<b>Year</b>	<b>Actual</b>
2016	210

**Output #184**

**Output Measure**

- 18 Number of Integrative Approach to Prevention and Reduction Overweight and Childhood Obesity in the Alabama Black Belt chronic disease lessons

<b>Year</b>	<b>Actual</b>
2016	12

**Output #185**

**Output Measure**

- Number of Integrative Approach to Prevention and Reduction Overweight and Childhood Obesity in the Alabama Black Belt physical activity lessons

<b>Year</b>	<b>Actual</b>
2016	8

**Output #186**

**Output Measure**

- Number of Integrative Approach to Prevention and Reduction Overweight and Childhood Obesity in the Alabama Black Belt participants weighed-in



<b>Year</b>	<b>Actual</b>
2016	210

**Output #187**

**Output Measure**

- Number of Integrative Approach to Prevention and Reduction Overweight and Childhood Obesity in the Alabama Black Belt people participating in physical activity

<b>Year</b>	<b>Actual</b>
2016	216

**Output #188**

**Output Measure**

- Number of Integrative Approach to Prevention and Reduction Overweight and Childhood Obesity in the Alabama Black Belt facts sheets, newsletters, etc.

<b>Year</b>	<b>Actual</b>
2016	13

**Output #189**

**Output Measure**

- 26 Number of Integrative Approach to Prevention and Reduction Overweight and Childhood Obesity in the Alabama Black Belt adaptive teaching and training curriculum modules

<b>Year</b>	<b>Actual</b>
2016	16

**Output #190**

**Output Measure**

- Number of Integrative Approach to Prevention and Reduction Overweight and Childhood Obesity in the Alabama Black Belt new food products

<b>Year</b>	<b>Actual</b>
2016	2

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Increase in the #/% of participants that understand basic nutrition concepts
2	Increase in #/% of participants that follow MyPlate/Dietary Guidelines recommendations
3	Increase in #/% of participants who are physically active
4	Increase in #/% of participants who follow food safety tips
5	Increase in #/% of participants who read food labels when purchasing food
6	Increase in #/% of participants who utilize a personal budget
7	Increase in #/% of participants who plan meals based on what's on hand, on sale, and in season
8	Increase in #/% of participants who prepare shopping list before shopping
9	Increase in #/% of participants who modify recipes to make them healthier
10	Increase in #/% of participants who use comparison shopping techniques
11	Number/% of treatment group participants who increase fruit and vegetable consumption from pre- to post-assessment and as compared to control group
12	Number/% of treatment group participants who increase physical activity from pre- to post-assessment and as compared to control group
13	Number/% of treatment group families of participants who increase physical activity from pre- to post-assessment and as compared to control group
14	Number/% of treatment group who increase drinking water in place of sugar-sweetened beverages from pre- to post-assessment and as compared to control group
15	Number/% of treatment group participants who increase eating breakfast from pre- to post-assessment and as compared to control group
16	Number/% of treatment group participants who increase understanding of recommended daily fruit and vegetable servings from pre- to post-assessment and as compared to control group
17	Means comparison of youth and adults participants? nutritional, physical activity and chronic diseases knowledge increased before and after education

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18	Number of adults increased physical activity to 30 minutes or more
19	Number of youth increased physical activity to 60 minutes or more
20	Percent change of adult participants? weight loss
21	Percentage of improved eating habits before and after education
22	Means comparison of youth and adults nutritional, physical activity, and chronic disease knowledge retained three (3) months post education
23	Percentage of youth and adults improved eating habits and physical activity time three (3) months post education
24	Increase knowledge among participants in high-obesity Alabama Counties about healthy behaviors associated with eating.
25	Increased knowledge among participants in high-obesity Alabama counties about healthy behaviors associated with physical activity.
26	Improved behaviors associated with healthy foods and beverages
27	Increased in the #/% of participants who controlled blood sugar
28	Increased knowledge of diabetes.
29	Decreased #/% of adult clients that run out of food before the month end
30	Increased #/% of participants? fruit and vegetable consumption combined
31	The number of TU EFNEP -Eating Smart Being Active participants who consume more fruits
32	The number of TU EFNEP -Eating Smart Being Active participants who consume more vegs
33	The number of TU EFNEP -Eating Smart Being Active participants who consume more whole grains
34	The number of TU EFNEP Eating Healthy Being Active participants who consume more dairy products
35	The nubmer of TU EFNEP Eating Healthy Being Active adults who are more physically active
36	The percent of TU CATCH youth who consume more fruits
37	The percent of TU CATCH youth who consume more vegetables

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38	The percent of TU CATCH youth who consume more whole grains
39	The percent of TU CATCH youth who consume more and more dairy products
40	The percent of TU CATCH youth who improve in nutrition practices (99%),
41	The percent of TU CATCH youth who increased food resource management skills
42	The percent of TU CATCH youth who increased food safety practices (89%);
43	Percent of Skegee Fit adults who decreased health risks
44	The percentage of Skegee Fit participants with a drop in blood sugar
45	Percentage of obese children with decreased energy intake post Tuskegee Research and Extension intervention study
46	Percentage of Integrative Approach to Prevention and Reduction Overweight and Childhood Obesity in the Alabama Black Belt participants who lose weight and decreased BMI as a result of the nutrition and physical activity program
47	Integrative Approach to Prevention and Reduction Overweight and Childhood Obesity in the Alabama Black Belt Significance level decrease in HDL levels as a result of Integrative Approach to Prevention and Reduction Overweight and Childhood Obesity in the Alabama Black Belt
48	The percentage increase of moisture in Tuskegee University research on purple hull peas
49	The number AAMU research pilot project which established a need for a preventative obesity intervention among low-income residents of North Alabama.
50	Number of AU Research studies underway to develop management practices that will enhance the growing/production of medicinal plants in Alabama
51	The number of TEENS youth who increased knowledge.
52	Increased #/% of teenagers' dance steps and calories burned.
53	Increased #/% of teenagers that follow MyPlate/Dietary Guidelines recommendations.
54	Increased #/% of teenagers that were physically active for 60 minutes.
55	Increased #/% adults' nutrition, nutrients, chronic diseases, and physical activity knowledge
56	Increase in #/% of adult participants who follow MyPlate/Dietary Guidelines recommendations

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57	Increase in #/% of adult participants who are physically active.
58	Increased #/% of youth participants knowledge of nutrition, nutrients and physical activity
59	Increased #/% of participants' fruit and vegetable consumption combined
60	Increased #/% of youth engaged in physical activity 60 minutes or more
61	Increase in #/% of adult participants who prepare shopping list before shopping
62	Increase in #/% of adult participants who compared prices when shopping
63	Increase in #/% of adult participants who used the "Nutrition Facts" labels to make food choices
64	Increase in #/% of adult participants who follow proper food thawing technique.
65	Increase in #/% of adult participants who follow food safety recommendation of not letting food sit out for more than 2 hours.
66	Decreased #/% of adult participants that run out of food before the end of the month.
67	The number of adults with improved behaviors associated with healthy foods and beverages
68	Increased #/% of youth participants fruit and vegetable consumption combined
69	Increase in the #/% of Urban SNAP ED participants that understand basic nutrition concepts
70	Increase in #/% of Urban SNAP Ed participants who increased physical activity
71	Increase in #/% of Urban SNAP ED participants that follow MyPlate/Dietary Guidelines recommendations
72	Increase in the #/% of Urban SNAP ED participants who plan meals based on whats on hand, on sale, and in season
73	#/% of participants who increased fruit and vegetable consumption after participating in USNAP-Ed Community Gardens
74	Increase in the #/% of Urban SNAP Ed participants who read food labels when purchasing food.
75	Number of respondents that reported improving fruit/vegetable consumption after seeing billboard promoting eating fruits and vegetables
76	The number of young children who eat more fruits

77	The number of children who increased the consumption of vegs
78	The number of youth children you increased physical activity
79	The mean increase of participants from pre to post who eat foods with 2-3 grams of fiber
80	The number of people who decreased salting food at the table.
81	The number of participants who increased the consumption of 8 glasses of water a day
82	Food Insecurity
83	Reducing Infant Mortality
84	Childhood Obesity
85	Handle Food Safely
86	Number/% of treatment group participants who increased fruit and vegetable consumption through the School Lunch Program at post-assessment compared to control group participants
87	Number/% of treatment group participants who increased fruit consumption from pre- to post-assessment and as compared to control group participants
88	Number/% of treatment group participants who increased vegetable consumption from pre- to post-assessment and as compared to control group participants.
89	Number/% of treatment group participants who decreased sugar sweetened beverage consumption from pre- to post-assessment and as compared to control group participants
90	Number/% of treatment group participants who increased physical activity from pre- to post-assessment and as compared to control group participants
91	Number/% of treatment group participants who increased physical activity and decreased screen time from pre- to post-assessment and as compared to control group participants
92	Number/% of treatment group parents who increased healthy shopping behaviors from pre- to post-assessment
93	Number/% of treatment group parents who increased vegetable consumption from pre- to post-assessment
94	Number/% of treatment group parents who increased fruit and vegetables consumption as snacks from pre- to post assessment and as compared to control group parents
95	Number/% of treatment group parents who increased family physical activity from pre- to post-assessment

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96	Number/% of Body Quest parents participating in text messaging survey who reported enjoying the text messages
97	Number/% of Body Quest parents participating in a text messaging survey who reported buying more vegetables after Body Quest education
98	Number/% of Body Quest parents participating in a text messaging survey who reported eating more vegetables after Body Quest education
99	Number/% of Body Quest parents participating in a text messaging survey who reported having been asked by their child to buy more vegetables after Body Quest education
100	Number/% of Body Quest parents participating in a text messaging survey who reported their child eating more vegetables after Body Quest education
101	Number/% of Body Quest parents participating in a text messaging survey who reported reducing sugar sweetened beverage consumption after Body Quest education
102	Number/% of Body Quest parents participating in a text messaging survey who reported engaging in more physical activity with their child after Body Quest education
103	Increase in the # of people reached with healthy foods and beverages through vending machines
104	Increase in the # of people reached through a healthy retail initiative in convenience stores to increase access and appeal for healthy foods and beverages
105	Increase in the # of people reached through a healthy retail initiative in grocery stores to increase access and appeal for healthy foods and beverages
106	Increase in the # of people reached through a healthy retail initiative in concession areas to increase access and appeal for healthy foods and beverages
107	Increase in the #/% of people reached through a community garden/emergency food setting partnership to increase access and appeal for healthy foods
108	Increase in the #/% of people reached through school and community garden initiatives
109	Increase in the # of locations providing physical activity opportunities with walking trails
110	Increase in the # of school wellness committees partnering with SNAP-Ed to improve school environment
111	Increase in the # of people reached through farmers markets
112	Increase in the # of people reached with healthy food initiative at emergency food assistance sites
113	Number of participants who decreased weight by more than 10 pounds
114	Number of pounds lost through SBA
115	Increase in grant funds obtained and in-kind donations utilized by leveraging resources from ALProHealth

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116	Increase in number of statewide partners educated on the priorities of the ALProHealth initiative
117	Increase in number of Community Coalition members educated on evidence-based strategies to combat obesity
118	Number of individuals completing Scale Back Alabama, a 10-week weight loss program encouraging adult participants to lose 10 pounds
119	The number of community members impacted through installation of signage promoting healthy lifestyle choices
120	Number of community members with increased access to fresh, locally grown produce through enhancement or establishment of a Farmers Market
121	Number of residents with increased impact involving marketing of healthy food and beverage choices at grocery and convenience stores
122	Number of individuals with increased emergency food preparedness through the enhancement of local food banks
123	Number of people with increased access to outdoor exercise or fitness equipment
124	Number of people with increased access to a new or enhanced indoor fitness facility
125	Number of children with increased access to playground equipment at local parks
126	Number of community members with increased access to parks or walking trails with improved aesthetics and amenities
127	Number of community members with increased access to a new or renovated walking trail
128	Number of senior citizens participating in a community wellness program
129	Number of students attending schools that have participated in creating safer routes to school for children who walk or bike
130	Number of community members who participated in health screenings at local schools or faith-based organizations
131	Number of students impacted by school gardens established or enhanced through the ALProHealth initiative
132	Number of community members with the opportunity to participate in a community garden established or enhanced through the ALProHealth initiative
133	Number of 3rd graders participating in Body Quest classes in the 14 ALProHealth counties
134	Number of parents participating in Body Quest Parent classes in the 14 ALProHealth counties
135	Number of impressions from a social marketing billboard campaign



136	Number/% of treatment group participants who increase understanding of recommended daily fruit and vegetable servings from pre- to post-assessment and as compared to control group.
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**Outcome #1**

**1. Outcome Measures**

Increase in the #/% of participants that understand basic nutrition concepts

Not Reporting on this Outcome Measure

**Outcome #2**

**1. Outcome Measures**

Increase in #/% of participants that follow MyPlate/Dietary Guidelines recommendations

Not Reporting on this Outcome Measure

**Outcome #3**

**1. Outcome Measures**

Increase in #/% of participants who are physically active

Not Reporting on this Outcome Measure

**Outcome #4**

**1. Outcome Measures**

Increase in #/% of participants who follow food safety tips

Not Reporting on this Outcome Measure

**Outcome #5**

**1. Outcome Measures**

Increase in #/% of participants who read food labels when purchasing food

Not Reporting on this Outcome Measure

**Outcome #6**

**1. Outcome Measures**

Increase in #/% of participants who utilize a personal budget

Not Reporting on this Outcome Measure

**Outcome #7**

**1. Outcome Measures**

Increase in #/% of participants who plan meals based on what's on hand, on sale, and in season

Not Reporting on this Outcome Measure

**Outcome #8**

**1. Outcome Measures**

Increase in #/% of participants who prepare shopping list before shopping

Not Reporting on this Outcome Measure

**Outcome #9**

**1. Outcome Measures**

Increase in #/% of participants who modify recipes to make them healthier

Not Reporting on this Outcome Measure

**Outcome #10**

**1. Outcome Measures**

Increase in #/% of participants who use comparison shopping techniques

Not Reporting on this Outcome Measure

**Outcome #11**

**1. Outcome Measures**

Number/% of treatment group participants who increase fruit and vegetable consumption from pre- to post-assessment and as compared to control group

Not Reporting on this Outcome Measure

**Outcome #12**

**1. Outcome Measures**

Number/% of treatment group participants who increase physical activity from pre- to post-assessment and as compared to control group

Not Reporting on this Outcome Measure

**Outcome #13**

**1. Outcome Measures**

Number/% of treatment group families of participants who increase physical activity from pre- to post-assessment and as compared to control group

Not Reporting on this Outcome Measure

**Outcome #14**

**1. Outcome Measures**

Number/% of treatment group who increase drinking water in place of sugar-sweetened beverages from pre- to post-assessment and as compared to control group

Not Reporting on this Outcome Measure

**Outcome #15**

**1. Outcome Measures**

Number/% of treatment group participants who increase eating breakfast from pre- to post-assessment and as compared to control group

Not Reporting on this Outcome Measure

**Outcome #16**

**1. Outcome Measures**

Number/% of treatment group participants who increase understanding of recommended daily fruit and vegetable servings from pre- to post-assessment and as compared to control group

Not Reporting on this Outcome Measure

**Outcome #17**

**1. Outcome Measures**

Means comparison of youth and adults participants? nutritional, physical activity and chronic diseases knowledge increased before and after education

Not Reporting on this Outcome Measure

**Outcome #18**

**1. Outcome Measures**

Number of adults increased physical activity to 30 minutes or more

Not Reporting on this Outcome Measure

**Outcome #19**

**1. Outcome Measures**

Number of youth increased physical activity to 60 minutes or more

Not Reporting on this Outcome Measure

**Outcome #20**

**1. Outcome Measures**

Percent change of adult participants? weight loss

Not Reporting on this Outcome Measure

**Outcome #21**

**1. Outcome Measures**

Percentage of improved eating habits before and after education

Not Reporting on this Outcome Measure

**Outcome #22**

**1. Outcome Measures**

Means comparison of youth and adults nutritional, physical activity, and chronic disease knowledge retained three (3) months post education

Not Reporting on this Outcome Measure

**Outcome #23**

**1. Outcome Measures**

Percentage of youth and adults improved eating habits and physical activity time three (3) months post education

Not Reporting on this Outcome Measure

**Outcome #24**

**1. Outcome Measures**

Increase knowledge among participants in high-obesity Alabama Counties about healthy behaviors associated with eating.

Not Reporting on this Outcome Measure

**Outcome #25**

**1. Outcome Measures**

Increased knowledge among participants in high-obesity Alabama counties about healthy behaviors associated with physical activity.

Not Reporting on this Outcome Measure

**Outcome #26**

**1. Outcome Measures**

Improved behaviors associated with healthy foods and beverages

Not Reporting on this Outcome Measure

**Outcome #27**

**1. Outcome Measures**

Increased in the #/% of participants who controlled blood sugar

Not Reporting on this Outcome Measure

**Outcome #28**

**1. Outcome Measures**

Increased knowledge of diabetes.

Not Reporting on this Outcome Measure

**Outcome #29**

**1. Outcome Measures**

Decreased #/% of adult clients that run out of food before the month end

Not Reporting on this Outcome Measure

**Outcome #30**

**1. Outcome Measures**

Increased #/% of participants? fruit and vegetable consumption combined

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	0

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

{No Data Entered}

**What has been done**

{No Data Entered}

**Results**

{No Data Entered}

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
701	Nutrient Composition of Food
703	Nutrition Education and Behavior
724	Healthy Lifestyle
802	Human Development and Family Well-Being
805	Community Institutions, Health, and Social Services
903	Communication, Education, and Information Delivery

**Outcome #31**

**1. Outcome Measures**

The number of TU EFNEP -Eating Smart Being Active participants who consume more fruits

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	85

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Obesity, poor nutrition, and limited physical activity are significant health concerns. Poor health disproportionately affects minority and low-income populations. Educational opportunities and resources are limited.

**What has been done**

EFNEP uses paraprofessionals (peer educators) to deliver a series of hands-on, interactive lessons to program participants. Lessons are evidence-based and tailored to meet the needs of the audience. (Paraprofessionals typically live in the communities where they work. They recruit families and receive referrals from current and former participants, neighborhood contacts, and community organizations and agencies. EFNEP paraprofessionals are trained and supervised by university- and locally-based professional staff. Volunteers may assist with program delivery.)

**Results**

TU EFNEP Consumption of more fruits (48%)

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #32**

**1. Outcome Measures**

The number of TU EFNEP -Eating Smart Being Active participants who consume more vegs

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure



### 3b. Quantitative Outcome

Year	Actual
2016	104

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Obesity, poor nutrition, and limited physical activity are significant health concerns. Poor health disproportionately affects minority and low-income populations. Educational opportunities and resources are limited.

#### What has been done

EFNEP uses paraprofessionals (peer educators) to deliver a series of hands-on, interactive lessons to program participants. Lessons are evidence-based and tailored to meet the needs of the audience. (Paraprofessionals typically live in the communities where they work. They recruit families and receive referrals from current and former participants, neighborhood contacts, and community organizations and agencies. EFNEP paraprofessionals are trained and supervised by university- and locally-based professional staff. Volunteers may assist with program delivery.)

#### Results

TU ENFEP - 104 of 183 participants consume more vegetables

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

### Outcome #33

#### 1. Outcome Measures

The number of TU EFNEP -Eating Smart Being Active participants who consume more whole grains

#### 2. Associated Institution Types

- 1890 Extension
- 1890 Research

#### 3a. Outcome Type:

Change in Action Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
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**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Obesity, poor nutrition, and limited physical activity are significant health concerns. Poor health disproportionately affects minority and low-income populations. Educational opportunities and resources are limited.

**What has been done**

EFNEP uses paraprofessionals (peer educators) to deliver a series of hands-on, interactive lessons to program participants. Lessons are evidence-based and tailored to meet the needs of the audience. (Paraprofessionals typically live in the communities where they work. They recruit families and receive referrals from current and former participants, neighborhood contacts, and community organizations and agencies. EFNEP paraprofessionals are trained and supervised by university- and locally-based professional staff. Volunteers may assist with program delivery.)

**Results**

TU ENFEP 43 of 183 participants eat more whole grains after participating in -Eating Smart Being Active

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #34**

**1. Outcome Measures**

The number of TU EFNEP Eating Healthy Being Active participants who consume more dairy products

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	81

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Obesity, poor nutrition, and limited physical activity are significant health concerns. Poor health disproportionately affects minority and low-income populations. Educational opportunities and resources are limited.

**What has been done**

EFNEP uses paraprofessionals (peer educators) to deliver a series of hands-on, interactive lessons to program participants. Lessons are evidence-based and tailored to meet the needs of the audience. (Paraprofessionals typically live in the communities where they work. They recruit families and receive referrals from current and former participants, neighborhood contacts, and community organizations and agencies. EFNEP paraprofessionals are trained and supervised by university- and locally-based professional staff. Volunteers may assist with program delivery.)

**Results**

TU Research and Extension- 81 of 183 participants eat more dairy products

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #35**

**1. Outcome Measures**

The number of TU EFNEP Eating Healthy Being Active adults who are more physically active

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	114

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Obesity, poor nutrition, and limited physical activity are significant health concerns. Poor health disproportionately affects minority and low-income populations. Educational opportunities and resources are limited.

**What has been done**

EFNEP uses paraprofessionals (peer educators) to deliver a series of hands-on, interactive lessons to program participants. Lessons are evidence-based and tailored to meet the needs of the audience. (Paraprofessionals typically live in the communities where they work. They recruit families and receive referrals from current and former participants, neighborhood contacts, and community organizations and agencies. EFNEP paraprofessionals are trained and supervised by university- and locally-based professional staff. Volunteers may assist with program delivery.)

**Results**

114 of 183 adults are more physically active

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #36**

**1. Outcome Measures**

The percent of TU CATCH youth who consume more fruits

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	74

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Obesity, poor nutrition, and limited physical activity are significant health concerns. Poor health disproportionately affects minority and low-income populations. Educational opportunities and resources are limited.

**What has been done**

EFNEP uses paraprofessionals (peer educators) to deliver a series of hands-on, interactive lessons to program participants. Lessons are evidence-based and tailored to meet the needs of the audience. (Paraprofessionals typically live in the communities where they work. They recruit

families and receive referrals from current and former participants, neighborhood contacts, and community organizations and agencies. EFNEP paraprofessionals are trained and supervised by university- and locally-based professional staff. Volunteers may assist with program delivery.)

**Results**

TU CATCH 74 % of 586 youth consume more fruits

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #37**

**1. Outcome Measures**

The percent of TU CATCH youth who consume more vegetables

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	80

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Obesity, poor nutrition, and limited physical activity are significant health concerns. Poor health disproportionately affects minority and low-income populations. Educational opportunities and resources are limited.

**What has been done**

EFNEP uses paraprofessionals (peer educators) to deliver a series of hands-on, interactive lessons to program participants. Lessons are evidence-based and tailored to meet the needs of the audience. (Paraprofessionals typically live in the communities where they work. They recruit families and receive referrals from current and former participants, neighborhood contacts, and community organizations and agencies. EFNEP paraprofessionals are trained and supervised by university- and locally-based professional staff. Volunteers may assist with program delivery.)

**Results**

80% of 586 youth eat more veggies

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #38**

**1. Outcome Measures**

The percent of TU CATCH youth who consume more whole grains

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	69

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Obesity, poor nutrition, and limited physical activity are significant health concerns. Poor health disproportionately affects minority and low-income populations. Educational opportunities and resources are limited.

**What has been done**

EFNEP uses paraprofessionals (peer educators) to deliver a series of hands-on, interactive lessons to program participants. Lessons are evidence-based and tailored to meet the needs of the audience. (Paraprofessionals typically live in the communities where they work. They recruit families and receive referrals from current and former participants, neighborhood contacts, and community organizations and agencies. EFNEP paraprofessionals are trained and supervised by university- and locally-based professional staff. Volunteers may assist with program delivery.)

**Results**

69% of 586 youth consume more whole grains

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

#### Outcome #39

##### 1. Outcome Measures

The percent of TU CATCH youth who consume more and more dairy products

##### 2. Associated Institution Types

- 1890 Extension
- 1890 Research

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	66

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

Obesity, poor nutrition, and limited physical activity are significant health concerns. Poor health disproportionately affects minority and low-income populations. Educational opportunities and resources are limited.

###### **What has been done**

EFNEP uses paraprofessionals (peer educators) to deliver a series of hands-on, interactive lessons to program participants. Lessons are evidence-based and tailored to meet the needs of the audience. (Paraprofessionals typically live in the communities where they work. They recruit families and receive referrals from current and former participants, neighborhood contacts, and community organizations and agencies. EFNEP paraprofessionals are trained and supervised by university- and locally-based professional staff. Volunteers may assist with program delivery.)

###### **Results**

TU Reserach and Extension- 66% of 586 youth consume more and more dairy products

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
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703 Nutrition Education and Behavior  
724 Healthy Lifestyle

**Outcome #40**

**1. Outcome Measures**

The percent of TU CATCH youth who improve in nutrition practices (99%),

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	99

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Obesity, poor nutrition, and limited physical activity are significant health concerns. Poor health disproportionately affects minority and low-income populations. Educational opportunities and resources are limited.

**What has been done**

EFNEP uses paraprofessionals (peer educators) to deliver a series of hands-on, interactive lessons to program participants. Lessons are evidence-based and tailored to meet the needs of the audience. (Paraprofessionals typically live in the communities where they work. They recruit families and receive referrals from current and former participants, neighborhood contacts, and community organizations and agencies. EFNEP paraprofessionals are trained and supervised by university- and locally-based professional staff. Volunteers may assist with program delivery.)

**Results**

99% of 586 TU CATCH youth improved in nutrition practices

**4. Associated Knowledge Areas**

**KA Code    Knowledge Area**  
703        Nutrition Education and Behavior  
724        Healthy Lifestyle



**Outcome #41**

**1. Outcome Measures**

The percent of TU CATCH youth who increased food resource management skills

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	86

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Obesity, poor nutrition, and limited physical activity are significant health concerns. Poor health disproportionately affects minority and low-income populations. Educational opportunities and resources are limited.

**What has been done**

EFNEP uses paraprofessionals (peer educators) to deliver a series of hands-on, interactive lessons to program participants. Lessons are evidence-based and tailored to meet the needs of the audience. (Paraprofessionals typically live in the communities where they work. They recruit families and receive referrals from current and former participants, neighborhood contacts, and community organizations and agencies. EFNEP paraprofessionals are trained and supervised by university- and locally-based professional staff. Volunteers may assist with program delivery.)

**Results**

86 % of 586 TU CATCH youth increased food resource management skills

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #42**

**1. Outcome Measures**

The percent of TU CATCH youth who increased food safety practices (89%);

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	89

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Obesity, poor nutrition, and limited physical activity are significant health concerns. Poor health disproportionately affects minority and low-income populations. Educational opportunities and resources are limited.

**What has been done**

EFNEP uses paraprofessionals (peer educators) to deliver a series of hands-on, interactive lessons to program participants. Lessons are evidence-based and tailored to meet the needs of the audience. (Paraprofessionals typically live in the communities where they work. They recruit families and receive referrals from current and former participants, neighborhood contacts, and community organizations and agencies. EFNEP paraprofessionals are trained and supervised by university- and locally-based professional staff. Volunteers may assist with program delivery.)

**Results**

89% of 586 TU CATCH youth who increased food safety practices

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #43**

**1. Outcome Measures**

Percent of Skegee Fit adults who decreased health risks

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	72

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Currently at 35.6 % Alabama has second highest adult obesity in the nation. This is over the national average of 26.4 %. Adult Obesity leads to adult type 2 diabetes. Alabama is 4th highest with Diabetes Type 2 behind WV, TN and MS. AL death rate at 24.3 % which is also above national average of 21.2%.

**What has been done**

Over 245 (contact) participants include initial weighing in to know how much weight lost after 10 weeks of daily activities. Others include Aerobic class, kick boxing, circuit fitness, basketball, drill, push-ups, tennis, soccer and Ab-blast walkout

**Results**

Skegee Fit focuses on promoting healthy lifestyles and wellness in a fun but busy university community. 72% of 245 participants reported loss in weight, great appetite, and disappeared head aches.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #44**

**1. Outcome Measures**

The percentage of Skegee Fit participants with a drop in blood sugar

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	0

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Currently at 35.6 % Alabama has second highest adult obesity in the nation. This is over the national average of 26.4 %. Adult Obesity leads to adult type 2 diabetes. Alabama is 4th highest with Diabetes Type 2 behind WV, TN and MS. AL death rate at 24.3 % which is also above national average of 21.2%.

**What has been done**

Skegee Fit focuses on promoting healthy lifestyles and wellness in a fun but busy university community. More than 245 (contact) faculty, staff and Students of TU registered and were trained safe physical activities conducted by a licensed coach. Weekly activities included also seminar presentation by health specialists and Nutritionists

**Results**

15% of 245 participants reported a drop of 15% in blood sugar.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #45**

**1. Outcome Measures**

Percentage of obese children with decreased energy intake post Tuskegee Research and Extension intervention study

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	93

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Childhood obesity is increasing in prevalence and influenced by many factors, especially in the African-American communities Alabama ranked sixth nationwide with 36.1% of its children, ages 10-17, falling into the obese category; most of these children reside in the Alabama Black Belt. The obesity rates Bullock, Greene, Macon, and Wilcox/Lowndes counties are 48.5, 47.4, 40.2, 48.9, and 42.5 respectively, exceeding the national average.

**What has been done**

A culturally-specific nutrition education program was implemented in four of Alabama's Black Belt Counties: Greene, Lowndes, Bullock and Macon. Pre/Post Assessments of participants: Physical activity questionnaire (PAQ-C), Block Kids Food Frequency Questionnaire (FFQ), Anthropometric (weight, heights, waist circumference, BMI, WHR). Demographic profile was also included. Delivery of nutrition education included: Health, nutrition, food groups, portions sizes, food labels, food safety and the relationship between these topics and selected chronic diseases (obesity, heart disease and diabetes).

**Results**

TU Research and Extension Results indicated that 93% of recruits completed the program. Preliminary results indicated that FFQ data showed a decrease in energy intake of 10, 6, 5% for Green, Macon, and Bullock counties respectively. In general, individually children in three of the four counties showed a decrease in energy intake except for Lowndes. The results also indicated that children 8-15 years old in Bullock, Green and Macon counties on an average were within the mean daily Caloric intake based on age and gender.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle
806	Youth Development

#### Outcome #46

##### 1. Outcome Measures

Percentage of Integrative Approach to Prevention and Reduction Overweight and Childhood Obesity in the Alabama Black Belt participants who lose weight and decreased BMI as a result of the nutrition and physical activity program

##### 2. Associated Institution Types

- 1890 Extension
- 1890 Research

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	50

##### 3c. Qualitative Outcome or Impact Statement

###### Issue (Who cares and Why)

Childhood obesity is increasing in prevalence and influenced by many factors, especially in the African-American communities Alabama ranked sixth nationwide with 36.1% of its children, ages 10-17, falling into the obese category; most of these children reside in the Alabama Black Belt. The obesity rates Bullock, Greene, Macon, and Lowndes counties are 48.5, 47.4, 40.2, 48.9, and 42.5 respectively, exceeding the national average.

###### What has been done

Aculturally-specific nutrition education program was implemented in four of Alabama's Black Belt Counties: Greene, Lowndes, Bullock and Macon. Pre/Post Assessments of participants: Physical activity questionnaire (PAQ-C), Block Kids Food Frequency Questionnaire (FFQ), Anthropometric (weight, heights, waist circumference, BMI, WHR). Demographic profile was also included. Delivery of nutrition education included: Health, nutrition, food groups, portions sizes, food labels, food safety and the relationship between these topics and selected chronic diseases (obesity, heart disease and diabetes)

###### Results

Preliminary results indicated that of children in Lowndes County 45% were overweight (&#8805; 85 percentile) and 45% obese (&#8805; 95th percentile) pre intervention. Post intervention revealed a decreased from 45% 36% among those who were obese (9.0% reduction). Obesity rate among boys decreased from 31% to 25% and among girls from 50% to 44%. Similar trend was observed for Green County where overweight (&#8805; 85 percentile) decreased from 38% to 30% and 50% to 38% for boys and girls respectively. Obesity (&#8805; 95th percentile) decreased from 50% to 25% among girls, with only a 1% decrease among obese boys. This preliminary results show a promising impact. Further correlation analysis with physical activity and energy intake will be forth coming.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle
806	Youth Development

**Outcome #47**

**1. Outcome Measures**

Integrative Approach to Prevention and Reduction Overweight and Childhood Obesity in the Alabama Black Belt  
 Significance level decrease in HDL levels as a result of Integrative Approach to Prevention and Reduction Overweight and Childhood Obesity in the Alabama Black Belt

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	5

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Currently 66 and 34% of the United States (U.S.) adult population are overweight and obese, respectively. Alabama ranks second in the nation with 35.26% and among adults and 25.1% among young adults 18-25. Obesity is a risk factor for diabetes and other chronic diseases. Diabetes affects African Americans disproportionately due to the high rates of obesity in this population group. Currently due to the high rates of obesity, there is an increase the prevalence of diabetes among young adults.

### **What has been done**

A randomized block design study with 43 young adults ages 18-25years old was implemented. Quantitative data (BMI, waist circumference, blood pressure, 3-day diet records, lipid profile, A1C, and c-peptide) were collect pre- middle, and post intervention. The study consisted of a nutrition education group, app technology/MyFitnessPal, and a control group. This study lasted for 10 weeks with nutrition lessons given weekly to participants in the nutrition education group.

### **Results**

Results indicated that the nutrition education group had an increase in HDL levels and the largest decrease in triglyceride levels. Increased hemoglobin A1C and plasma lipids positively correlated with increased risk for Type II diabetes. The mobile phone app technology significantly ( $p<0.05$ ) resulted in the improvement of dietary habits among study participants.

## **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle
802	Human Development and Family Well-Being
806	Youth Development

### **Outcome #48**

#### **1. Outcome Measures**

The percentage increase of moisture in Tuskegee University research on purple hull peas

#### **2. Associated Institution Types**

- 1890 Extension
- 1890 Research

#### **3a. Outcome Type:**

Change in Condition Outcome Measure

#### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	46

#### **3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**



Is Childhood obesity is increasing in prevalence and influenced by many factors, especially in the African-American communities Alabama ranked sixth nationwide with 36.1% of its children, ages 10-17, falling into the obese category; most of these children reside in the Alabama Black Belt. The obesity rates Bullock, Greene, Macon, and Wilcox/Lowndes counties are 48.5, 47.4, 40.2, 48.9, and 42.5 respectively, exceeding the national average. The development of this product was an innovative way to utilize commonly grown agricultural produce in providing an alternative way of offering a wholesome food that will appeal to children 8-15 years old.

**What has been done**

Purple hull peas (PHP) plays a critical role in the lives of millions of people in Africa and other parts of the developing world, where it is a major source of dietary protein that nutritionally complements low-protein cereal and tuber crops. A PHP-based product was developed after being subjected to several natural processes to reduce the anti-nutrients components. The product was analyzed for its physiochemical properties (Proximate analysis, amino acid profile, total dietary fiber (TDF), mineral cooking loss, content, phytic acid and texture profile analysis (TPA) and sensory characteristics

**Results**

Results indicated moisture content increased in samples containing food gums with values ranging from 33.2 to 45.5%; no difference was observed for ash (p>0.05), total protein has values of 33.5% - 39.8%, with high of amounts leucine, lysine, phenylalanine, isoleucine and dietary fiber (13.6 ? 16.4%). TPA showed enhanced texture in modified product compared to the control. Preliminary sensory testing indicated that panelist were able to differentiate test

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
701	Nutrient Composition of Food
724	Healthy Lifestyle
802	Human Development and Family Well-Being

**Outcome #49**

**1. Outcome Measures**

The number AAMU research pilot project which established a need for a preventative obesity intervention among low-income residents of North Alabama.

**2. Associated Institution Types**

- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
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### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

The prevalence of overweight and obesity has increased substantially. Alabama has the second highest adult obesity rate in the nation. Children in Alabama are ranked tenth highest in the nation and are among the most obese. Children who are overweight or obese are more likely to become obese adults. Low income individuals are at an increased risk for obesity and food insecurity. Disparities in access to healthy foods may contribute to disparities in eating patterns and obesity. A preventative intervention to reduce risk factors associated with obesity and food insecurity among low-income children, resulting from unhealthy diet and physical activity, was developed. Consumer nutrition environments in retail food stores were measured

#### What has been done

##### 1. Community Needs Assessment

?Obtained data on the prevalence of childhood obesity and overweight.

?Assessed opportunities for physical activity available to children.

?Assessed the availability of healthy foods choices for children.

?Obtained input from parents, principals and other community members on their perceptions of childhood obesity opportunities and barriers to physical activity and healthy food choices.

##### 2. Food Insecurity Assessment

?Nutrition environments of local stores were assessed for the following:

1. Availability of healthy options

2. Quality of healthy choices

3. Cost

#### Results

AAMU- Research Obesity continues to be an issue of great importance among low income individuals. This pilot project has established a need for a preventative obesity intervention among low-income residents of North Alabama. Additionally, the project has identified (1) limited accessibility to nutrient-dense foods in the local consumer nutrition environment (2) limited sidewalk accessibility and (3) parents misclassification of the weight status of their children are barriers to healthy food choices, physical activity among children and parents perceptions; respectively

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
805	Community Institutions, Health, and Social Services

**Outcome #50**

**1. Outcome Measures**

Number of AU Research studies underway to develop management practices that will enhance the growing/production of medicinal plants in Alabama

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	2

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Goal is to reduce incidence of obesity and diabetes by conducting studies that aim at regulating glucose transport into fat or muscle cells or minimize the elevation of blood glucose concentrations in diabetic patients including the impact of dietary practices such as consumption of sugar sweetened beverages in combination with high fat Western diet.

**What has been done**

Knowledge gained can be used in clinical studies to develop novel ways to treat or block the development of nonalcoholic fatty disease which occur as a result of obesity.

**Results**

Studies are underway to develop management practices that will enhance the production of medicinal plants in Alabama (turmeric). Turmeric has curcumin which is believed to have potential in treating cancer and preventing Alzheimer's disease

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle
802	Human Development and Family Well-Being

**Outcome #51**

**1. Outcome Measures**

The number of TEENS youth who increased knowledge.

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	869

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama teenagers are ranked 9th for obesity (16%). This age group is the next generation of adults at risk for chronic diseases.

**What has been done**

Nine Regional Extension Agents (REAs) taught four modules on nutrition, nutrients, sports nutrition, and chronic diseases to teenagers in the metropolitan areas.

**Results**

AAMU Extension Teens' increased nutrition, nutrients, sports nutrition and chronic diseases knowledge from pre (n=869)- 22% to post (n=774)- 53%.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle

**Outcome #52**

**1. Outcome Measures**

Increased #/% of teenagers' dance steps and calories burned.

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	774

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama teenagers are ranked 9th for obesity (16%) and 22% are physically inactive. This age group is the next generation of adults at risk for chronic diseases.

**What has been done**

Four iDance exercises were conducted per REA, each class was 30-60 minutes. The iDance units recorded time, steps and calories burned.

**Results**

AAMU Extension- The total number of steps at endline was over 1 million. The average calories burned per teen was 420.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #53**

**1. Outcome Measures**

Increased #/% of teenagers that follow MyPlate/Dietary Guidelines recommendations.

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
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**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama teenagers are ranked 9th for obesity (16%). This age group is the next generation of adults at risk for chronic diseases.

**What has been done**

Nine Regional Extension Agents (REAs) taught four modules on nutrition, nutrients, sports nutrition, and chronic diseases to teenagers in the metropolitan areas.

**Results**

AAMU Extension Teens' consumption of food groups: Vegetables- pre (26%), post (36%), Fruits- pre (70%), post (75%), Whole grains- pre (29%), post (40%), Proteins- pre (73%), post (66%), Dairy- pre (55%), post (49%), High Fat Foods- pre (58%), post (37%).

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle
806	Youth Development

**Outcome #54**

**1. Outcome Measures**

Increased #/% of teenagers that were physically active for 60 minutes.

**2. Associated Institution Types**

- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	869

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama teenagers are ranked 9th for obesity (16%) and 22% are physically inactive. This age group is the next generation of adults at risk for chronic diseases.

**What has been done**

Nine Regional Extension Agents (REAs) taught four modules on nutrition, nutrients, sports nutrition, and chronic diseases to teenagers in the metropolitan areas.

**Results**

AAMU Extension Teenagers increased physical activity to 60 minutes per day: pre (60%) and post (68%).

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle
806	Youth Development

**Outcome #55**

**1. Outcome Measures**

Increased #/% adults' nutrition, nutrients, chronic diseases, and physical activity knowledge

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	583

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama is ranked second for adult obesity (36%). Majority of individuals ages 26-64 years (40%); Blacks (43%) and Women (34%) and Men (32%) are at the highest risk. This rate has an effect on the increased incidents of obesity-related diseases (Diabetes- 14%, Hypertension- 40%, High Cholesterol- 34%, Coronary Heart Disease- 7%). Contributing key factors are unhealthy eating habits- consumed under the recommended servings of fruits and vegetables combined (adults- 52%) and physical activity (adults-31%).

**What has been done**

Nine (9) Regional Extension Agents (REAs) implemented a 12-week CHAMPION program in nine (9) metropolitan areas. Each agent conducted six (6) lessons and three (3) 30 minutes exercise classes using the iChoose CHAMPION curriculum for adults ages 18 and above. Before and after

lessons, the agents collected demographics, behavioral and knowledge data. Behavioral habits were reassessed three (3) months after program completion.

**Results**

AMMU Extension Adults? before (N=583) and after (N=510) nutrition, chronic diseases and physical activity knowledge increased from pretest (55%) to posttest (78%).

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #56**

**1. Outcome Measures**

Increase in #/% of adult participants who follow MyPlate/Dietary Guidelines recommendations

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	583

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama?s is ranked second for adult obesity (36%). Majority of individuals ages 26-64 years (40%); Blacks (43%) and Women (34%) and Men (32%) are at the highest risk. This rate has an effect on the increased incidents of obesity-related diseases (Diabetes- 14%, Hypertension- 40%, High Cholesterol- 34%, Coronary Heart Disease- 7%). Contributing key factors are unhealthy eating habits- consumed under the recommended servings of fruits and vegetables combined (adults- 52%) and physical activity (adults-31%).

**What has been done**

Nine (9) Regional Extension Agents (REAs) implemented a 12-week CHAMPION program in nine (9) metropolitan areas. Each agent conducted six (6) lessons and three (3) 30 minutes exercise classes using the iChoose CHAMPION curriculum for adults ages 18 and above. Before and after lessons, the agents collected demographics, behavioral and knowledge data. Behavioral habits were reassessed three (3) months after program completion.



**Results**

AAMU Extension -Behavioral habits of adults before (N=583), after (N=510) and three (3) months post-delayed (N=378) were assessed for consumption of fruits, vegetables, whole grains, lean meats, and water. The majority consumed 1) Fruits 1-2 times/day: Pre- 65%; Post- 74% and Post-delayed- 66%, 2) Vegetables were consumed 1-2 times/day: Pre- 73%; Post- 74%; Post-delayed- 58%, 3) Whole grains were consumed 1-2 times/day: Pre- 48%; Post- 45%; Post-delayed- 37%, 4) Lean or low-fat meats were consumed 1-2 times/day: Pre- 86%; Post- 84%; Post-delayed- 68%, 5) Low-fat or fat-free dairy or milk products were consumed 1-2 times/day: Pre- 44%; Post- 42%; Post-delayed- 42%, and 6) 8 ounces or more of water was consumed 5 or more times/day: Pre- 62%; Post- 58%; and Post-delayed- 43%.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #57**

**1. Outcome Measures**

Increase in #/% of adult participants who are physically active.

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	583

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama is ranked second for adult obesity (36%). Majority of individuals ages 26-

**What has been done**

Nine (9) Regional Extension Agents (REAs) implemented a 12-week CHAMPION program in nine (9) metropolitan areas. Each agent conducted six (6) lessons and three (3) 30 minutes exercise classes using the iChoose CHAMPION curriculum for adults ages 18 and above. Before and after lessons, the agents collected demographics, behavioral and knowledge data. Behavioral habits were reassessed three (3) months after program completion.

**Results**

AAMU Extension Physical activity of adults 3-5 days per week for 30 minutes: before (N=583)- 53%, after (N=510)- 58% and three (3) months post-delayed (N=378)- 47%.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #58**

**1. Outcome Measures**

Increased #/% of youth participants knowledge of nutrition, nutrients and physical activity

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	380

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The obesity rate in Alabama is significantly high among 10-17 years old (19%). Among these youth, 16% of high school students (13-17 years old) are obese. This rate has an effect on the increased incidents of obesity-related diseases (Diabetes-14%, Hypertension-40%, High Cholesterol-34 %, Coronary Heart Disease-7%). Contributing key factors are unhealthy eating habits- consume under the recommended servings of fruits and vegetables combined (youth-165%) and physical inactivity (youth-22%).

**What has been done**

Nine (9) Regional Extension Agents (REAs) implemented a 10-week Community Health Aerobic Motivational Program Initiating Optimal Nutrition (CHAMPION) program in nine (9) metropolitan areas. Each agent conducted six (6) lessons and three (3) 60 minutes exercise classes using the iChoose CHAMPION curriculum for youth ages 5 and 17. Before and after lessons, the agents collected demographics, behavioral and knowledge data. Behavioral habits were reassessed three (3) months after program completion.

**Results**

AMMU Extension Youth before (N=380) and after (N=379) knowledge was assessed for K-12th grades. K-4th graders? pretest and posttest (N=229) knowledge increased (63% to 79%); 5th-8th graders? (N=94) increased (58% to 77%) and 9-12th graders pretest (N=57) and posttest (N=56) increased (67% to 84%).

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #59**

**1. Outcome Measures**

Increased #/% of participants' fruit and vegetable consumption combined

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	380

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The obesity rate in Alabama is significantly high among 10-17 years old (19%). Among these youth, 16% of high school students (13-17 years old) are obese. This rate has an effect on the increased incidents of obesity-related diseases (Diabetes-14%, Hypertension-40%, High Cholesterol-34 %, Coronary Heart Disease-7%). Contributing key factors are unhealthy eating habits- consume under the recommended servings of fruits and vegetables combined (youth-165%) and physical inactivity (youth-22%).

**What has been done**

Nine (9) Regional Extension Agents (REAs) implemented a 10-week Community Health Aerobic Motivational Program Initiating Optimal Nutrition (CHAMPION) program in nine (9) metropolitan areas. Each agent conducted six (6) lessons and three (3) 60 minutes exercise classes using the iChoose CHAMPION curriculum for youth ages 5 and 17. Before and after lessons, the agents collected demographics, behavioral and knowledge data. Behavioral habits were reassessed three (3) months after program completion.

**Results**

AAMU Extension K-12th graders combined before (N=380), after (N=379) and three (3) months post-delayed (N=227) behavioral habits were assessed for consumption of fruits and vegetables. The majority responded: 1) Vegetables consumption for Pre- All the time (38%), Post- All the time (57%); Post-delayed- All the time (41%), 2) Fruits consumption All the time for Pre- 85%; Post- 85% and Post-delayed- 82%.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #60**

**1. Outcome Measures**

Increased #/% of youth engaged in physical activity 60 minutes or more

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	380

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The obesity rate in Alabama is significantly high among 10-17 years old (19%). Among these youth, 16% of high school students (13-17 years old) are obese. This rate has an effect on the increased incidents of obesity-related diseases (Diabetes-14%, Hypertension-40%, High Cholesterol-34 %, Coronary Heart Disease-7%). Contributing key factors are unhealthy eating habits- consume under the recommended servings of fruits and vegetables combined (youth-165%) and physical inactivity (youth-22%).

**What has been done**

Nine (9) Regional Extension Agents (REAs) implemented a 10-week Community Health Aerobic Motivational Program Initiating Optimal Nutrition (CHAMPION) program in nine (9) metropolitan areas. Each agent conducted six (6) lessons and three (3) 60 minutes exercise classes using the iChoose CHAMPION curriculum for youth ages 5 and 17. Before and after lessons, the agents collected demographics, behavioral and knowledge data. Behavioral habits were reassessed three (3) months after program completion.

**Results**

K-12th graders combined physical activity All the time for Pre (N=380)- 58%; Post (N=379)- 66% and Post-delayed (N=227)- 48%.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle
806	Youth Development

**Outcome #61**

**1. Outcome Measures**

Increase in #/% of adult participants who prepare shopping list before shopping

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	165

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Low-income families must stretch food dollars to ensure enough food is available until the next pay cycle, while also incorporating healthy foods into the diet.

**What has been done**

Urban EFNEP Program Assistants taught participants how to create a shopping list and plan meals based on what was already on hand in the home, in season, and on sale, in order to save on money spent for food and allow food budget to last until the next pay cycle, whether, weekly, biweekly, or monthly.

**Results**

AAMU Extension 67% (110 of 165) of adult participants more often used a list for grocery shopping

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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## **Outcome #62**

### **1. Outcome Measures**

Increase in #/% of adult participants who compared prices when shopping

### **2. Associated Institution Types**

- 1890 Extension

### **3a. Outcome Type:**

Change in Action Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	120

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

Low-income families must stretch food dollars to ensure enough food is available until the next pay cycle, while also incorporating healthy foods into the diet. Using comparison shopping techniques like, comparing prices, calculating unit prices, and comparing brand names, to store brands, can assist families in lowering the amount of money spent on food, while also planning for healthy meals.

#### **What has been done**

UEFNEP Program Assistants taught program participants comparison shopping techniques.

#### **Results**

AAMU Extension 73% (120 of 164) adult participants more often compared prices when shopping.

### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #63**

**1. Outcome Measures**

Increase in #/% of adult participants who used the "Nutrition Facts" labels to make food choices

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	130

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Knowing how to read food labels is essential in selecting foods that line up with your personal dietary goals, i.e control blood pressure, control diabetes, lose/maintain weight.

**What has been done**

Urban EFNEP Program Assistants taught lessons on how to read a food labels.

**Results**

AAMU Extension 78% (130 of 166) adult participants more often used the "Nutrition Facts" labels to make food selections/choices.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #64**

**1. Outcome Measures**

Increase in#/% of adult participants who follow proper food thawing technique.

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	84

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The Centers for Disease Control report that each year, roughly 1 in 6 Americans (or 48 million people) get sick, 128,000 are hospitalized, and 3,000 die of food-borne diseases.. Properly handling foods at home is important to staying healthy.

**What has been done**

UEFNEP adult participants were taught lessons on basic food safety, including safe thawing techniques.

**Results**

AAMU Extension 51% (84 of 165) more often followed the recommended practices of not thawing foods at room temperature.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #65**

**1. Outcome Measures**

Increase in#/% of adult participants who follow food safety recommendation of not letting food sit out for more than 2 hours.

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure



### 3b. Quantitative Outcome

Year	Actual
2016	67

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

The Centers for Disease Control report that each year, roughly 1 in 6 Americans (or 48 million people) get sick, 128,000 are hospitalized, and 3,000 die of food-borne diseases.. Properly handling foods at home is important to staying healthy.

#### What has been done

UEFNEP adult participants were taught lessons on basic food safety, including refrigerating items within 2 hours.

#### Results

AMMU Extension 41% (67 of 164) more often followed the recommended practices of not allowing meat and diary foods to sit out more than two hours.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

### Outcome #66

#### 1. Outcome Measures

Decreased #/% of adult participants that run out of food before the end of the month.

#### 2. Associated Institution Types

- 1890 Extension

#### 3a. Outcome Type:

Change in Action Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2016	32

#### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Limited resource families often face the challenge of stretching dollars to meet all your needs including rent, utilities, medicine and food. Often, because of this challenge, many families don't have enough food to last the entire month. According to the Alabama Food Bank Association, 19.2% of Alabama's population is food insecure.

**What has been done**

UEFNEP adult participants were taught techniques to stretch food dollars, including creating a shopping list, meal planning, using comparison shopping techniques, and using store rewards and coupons to save on food items.

**Results**

AMMU Extension 19% (32 of 165) less often ran out of food before the end of the month.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #67**

**1. Outcome Measures**

The number of adults with improved behaviors associated with healthy foods and beverages

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	77

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Low-income families contend with barriers that may impede their ability to make healthy food and beverage choices. Barriers exist on many levels, individual, environmental, and governmental levels. Knowledge of the importance of consuming health foods and beverages is important.

**What has been done**

Participants are taught lessons on MyPlate, healthy snacking, etc.

**Results**

AAMU Extension 47% (77 of 165) more often prepared foods without adding salt

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #68**

**1. Outcome Measures**

Increased #/% of youth participants fruit and vegetable consumption combined

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	66

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Consuming fruits and vegetables are a important part of a healthy lifestyle. MyPlate and Dietary Guidelines emphasis consuming fruits and vegetables daily.

**What has been done**

Participants were taught lessons on basic nutrition and MyPlate, and the 2015 Dietary Guidelines for Americans

**Results**

65% (11 of 17) 3rd to 5th grade participants improved in their response to :Eat vegetables?

59% (10 of 17) 3 rd to 5th grade participants improved in their responses to Eat fruits?

62% (8 of 13) 6th to 8th grade participants improved in their response to : Yesterday, how many vegetables?

46% (6 of 13) 6th to 8th grade participants improved in their response to Yesterday, how many fruits?

40% (2 of 5) 9th to 12th grade participants improved in their response to: Yesterday how many vegetables

100% 5 of 5) 9th to 12 grade participants improved in their response to; Yesterday, how many fruits?

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #69**

**1. Outcome Measures**

Increase in the #/% of Urban SNAP ED participants that understand basic nutrition concepts

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	1293

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The prevalence of obesity/overweight continues to be an issue of concern within the United States. Although all states are confronted with this issue, 35.6% of adult Alabamians reported being obese (2015, BRFSS). Youth rates are also of concern, 16.3% of 2-4 year old WIC participants were considered obese, likewise, 16.7% of high school students were obese (<http://stateofobesity.org/states/al/>).

**What has been done**

Adult participants were taught a series of 10 lessons from the Wise Eating for a LifeTime of Health Curriculum (WEALTH). USNAP-Ed Program Assistants teach participants about basic nutrition, food safety, meal preparation, food resource management, and the importance of physical activity.

Youth participants were taught an adapted version of the Power of Choice curriculum. During the 10 lessons, topics include, basic nutrition, importance of physical activity, healthy snacking, controlling emotional eating and food safety.

**Results**

AMMU Extension The percentage of adult participants who clearly understand the concept of nutrition increased from 52% to 76% resulting in a 24 percent increase.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

#### Outcome #70

##### 1. Outcome Measures

Increase in #/% of Urban SNAP Ed participants who increased physical activity

##### 2. Associated Institution Types

- 1890 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	4869

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

1 in 4 (27.6%) Alabama adults reported having no leisure physical activity. Similarly, 1 in 4 (24.8) of Alabama youth reported being physically active every day (2013 BRFSS/YBRFSS)

###### **What has been done**

Youth and adult participants were taught the importance of physical activity, instructed on the physical activity recommendations of how much physical activity is needed daily, given suggestions on how to incorporate physical activity into daily routine, and examples of physical activity.

###### **Results**

The percentage of adult participants who engaged in some type of physical activity each day, such as walking, jogging, or swimming increased from 53% to 76%, a 23 percent increase. The percentage of youth participants who engaged in physical activity each day increased from 49% to 69%, a 20 percent increase.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

#### Outcome #71

##### 1. Outcome Measures

Increase in #/% of Urban SNAP ED participants that follow MyPlate/Dietary Guidelines recommendations

##### 2. Associated Institution Types

- 1890 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	4869

##### 3c. Qualitative Outcome or Impact Statement

###### Issue (Who cares and Why)

The prevalence of obesity/overweight continues to be an issue of concern within the United States. Although all states are confronted with this issue, 35.6% of adult Alabamians reported being obese (2015, BRFSS). Youth rates are also of concern, 16.3% of 2-4 year old WIC participants were considered obese, likewise, 16.7% of high school students were obese (<http://stateofobesity.org/states/al/>).

###### What has been done

As part of the nutrition education classes, participants were instructed on the current food guidance systems, MyPlate and 2015 Dietary Guidelines for Americans.

###### Results

The percentage of YOUTH participants who eat the recommended number of servings of:

?grains per day increased from 32% to 52%, resulting in a 20 percent increase.

?dairy each day increased from 35% to 53%, resulting in a 18 percent increase.

?protein a day increased from 44% to 64%, resulting in a 20 percent increase.

The percentage of youth participants who choose foods based on MyPlate increased from 29% to 61%, resulting in a 32 percent increase.

The percentage of ADULT participants who the recommended servings of:

?grain each day increased from 24% to 53%, resulting in a 29 percent increase.

?protein per day increased from 64% to 86%, resulting in a 22 percent increase.

The percentage of adult participants who eat fat, oils and sugar sparingly increased from 58% to 80%, resulting in a 22 percent increase.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle

**Outcome #72**

**1. Outcome Measures**

Increase in the #/% of Urban SNAP ED participants who plan meals based on whats on hand, on sale, and in season

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	1293

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Low income families/individuals must spend their food dollars wisely in order to have enough food to last until the next pay cycle while also including healthy foods into their diets.

**What has been done**

Adult participants were taught how to create a shopping list and plan meals based on what is on sale, on hand and in season

**Results**

The percentage of adult participants who plan meals based on what foods were on hand, in season, or on sale, increased from 50% to 67%, resulting in a 27 percent increase.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle

**Outcome #73**

**1. Outcome Measures**

#/% of participants who increased fruit and vegetable consumption after participating in USNAP-Ed Community Gardens

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	49

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Almost 1 in 2 (46%) of Alabama Adults and Youth (46.5%) reported eating less than one piece of fruit a day (2013 BRFSS/YBRFSS)

**What has been done**

Participants took part in the USNAP-Ed community garden project by learning how to and building raised bed gardens, planting seeds, tending the garden during the growing season and harvesting the produce.

**Results**

51% of garden participants reported eating more than one TYPE of fruit a day after participating in the garden.

59% of garden participants reported eating more than one TYPE of vegetable a day after participating in the garden

49% of garden participants reported increasing the number of SERVINGS of fruits they consumed each day after participating in the garden.

57% of garden participants reported increasing the number of SERVINGS of vegetables they consumed each day after participating in the garden project.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle



**Outcome #74**

**1. Outcome Measures**

Increase in the #/% of Urban SNAP Ed participants who read food labels when purchasing food.

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	1293

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The prevalence of obesity/overweight continues to be an issue of concern within the United States. Although all states are confronted with this issue, 35.6% of adult Alabamians reported being obese (2015, BRFSS). Youth rates are also of concern, 16.3% of 2-4 year old WIC participants were considered obese, likewise, 16.7% of high school students were obese (<http://stateofobesity.org/states/al/>). Reading food labels helps consumers to understand the food choices they are making and equip them to make better food selections while shopping.

**What has been done**

Participants were taught the importance of and how to read food labels

**Results**

The percentage of adult participants who Use food labels for information on serving size, nutrient content, and listing of ingredients when buying food increased from 16% to 45%, resulting in a 33 percent increase.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle

## **Outcome #75**

### **1. Outcome Measures**

Number of respondents that reported improving fruit/vegetable consumption after seeing billboard promoting eating fruits and vegetables

### **2. Associated Institution Types**

- 1890 Extension

### **3a. Outcome Type:**

Change in Action Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	18

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

Almost 1 in 2 (46%) of Alabama Adults and Youth (46.5%) reported eating less than one piece of fruit a day (2013 BRFSS/YBRFSS)

#### **What has been done**

As part of our Policy, System and Environment (PSE) efforts, Urban SNAP-ed through ALabama A&M University participated in a statewide social marketing campaign with Auburn University and the Alabama Department of Public Health. 73 billboards were placed throughout the state, in 53 counties. Alabama A&M USNAP-Ed placed 18 of those billboards. A telephone survey was conducted with participants who lived near the billboard locations.

#### **Results**

AAMU Extension 1 in 3 people who recalled seeing a billboard reported that they ate more fruits and vegetables after seeing the billboard.

### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle

**Outcome #76**

**1. Outcome Measures**

The number of young children who eat more fruits

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	398

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Between 2011 -2014 the prevalence of obesity was 8.9% among 2- to 5-year-olds

**What has been done**

Human Nutrition Diet and Health Regional Extension Agents delivered Color Me Healthy nutrition education classes in several counties across Alabama. Color Me Healthy is a 6 week series focused on increasing healthy behaviors and physical activity among four and five year olds.

**Results**

Of the 455 children who participated 398 increased the consumption of fruits

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #77**

**1. Outcome Measures**

The number of children who increased the consumption of vegs

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	371

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Between 2011 -2014 the prevalence of obesity was 8.9% among 2- to 5-year-olds.

**What has been done**

Human Nutrition Diet and Health Regional Extension Agents delivered Color Me Healthy nutrition education classes in several counties across Alabama. Color Me Healthy is a 6 week series focused on increasing healthy behaviors and physical activity among four and five year olds.

**Results**

Of the 455 children who participated 371 increased the consumption of vegetables

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #78**

**1. Outcome Measures**

The number of youth children you increased physical activity

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	398

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Between 2011 -2014 the prevalence of obesity was 8.9% among 2- to 5-year-olds.

**What has been done**

Human Nutrition Diet and Health Regional Extension Agents delivered Color Me Healthy nutrition education classes in several counties across Alabama. Color Me Healthy is a 6 week series focused on increasing healthy behaviors and physical activity among four and five year olds

**Results**

Of the 455 children who participated 398 increased physical activity.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

## **Outcome #79**

### **1. Outcome Measures**

The mean increase of participants from pre to post who eat foods with 2-3 grams of fiber

### **2. Associated Institution Types**

- 1862 Extension

### **3a. Outcome Type:**

Change in Action Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	494

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

?25.8 million people, or 8.3% of the U.S. population, have diabetes. Of those, 7 million people don't know they have it. Alabama has the highest rate of diabetes in the United States. ?Diabetes is the seventh leading cause of death in the United States. ?Diabetes is the sixth leading cause of death for Alabamians. ?Diabetes is the leading cause of adult blindness in the country. ?Diabetes is the leading cause of kidney failure in the country. ?Diabetes is the leading cause of non-traumatic amputations in the country. ?People with diabetes are at the same risk for heart attacks as people who have already suffered a heart attack.

#### **What has been done**

The Right Bite Diabetes Cooking School showed people affected by diabetes how to enjoy healthy food while controlling their diabetes. It provided excellent information that will help anyone preparing food to control diabetes, high blood pressure or any other chronic disease. Participants learn about Portion control, Label reading, Use of various sweeteners, Choosing carbohydrate wisely, Increasing fiber, Choosing the right fats and Control of high blood pressure.

#### **Results**

Of the 514 people who participated 494 increased the consumption of foods with 2-3 grams of fiber from pre to post.

PRE-MEAN 2.8 POST-MEAN 3.0

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

#### Outcome #80

##### 1. Outcome Measures

The number of people who decreased salting food at the table.

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	461

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

?25.8 million people, or 8.3% of the U.S. population, have diabetes. Of those, 7 million people don't know they have it. Alabama has the highest rate of diabetes in the United States. ?Diabetes is the seventh leading cause of death in the United States. ?Diabetes is the sixth leading cause of death for Alabamians. ?Diabetes is the leading cause of adult blindness in the country. ?Diabetes is the leading cause of kidney failure in the country. ?Diabetes is the leading cause of non-traumatic amputations in the country. ?People with diabetes are at the same risk for heart attacks as people who have already suffered a heart attack.

###### **What has been done**

The Right Bite Diabetes Cooking School showed people affected by diabetes how to enjoy healthy food while controlling their diabetes. It provided excellent information that will help anyone preparing food to control diabetes, high blood pressure or any other chronic disease. Participants learn about Portion control, Label

reading, Use of various sweeteners, Choosing carbohydrate wisely, Increasing fiber, Choosing the right fats and Control of high blood pressure.

**Results**

Of the 514 people who participated 461 indicated they decreased how often they salt their foods at the table before eating. PRE MEAN 2.0 POST MEAN 1.7

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #81**

**1. Outcome Measures**

The number of participants who increased the consumption of 8 glasses of water a day

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	461

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

?25.8 million people, or 8.3% of the U.S. population, have diabetes. Of those, 7 million people don't know they have it. Alabama has the highest rate of diabetes in the United States. ?Diabetes is the seventh leading cause of death in the United States. ?Diabetes is the sixth leading cause of death for Alabamians. ?Diabetes is the leading cause of adult blindness in the country. ?Diabetes is the leading cause of kidney failure in the country. ?Diabetes is the leading cause of non-traumatic amputations in the country. ?People with diabetes are at the same risk for heart attacks as people who have already suffered a heart attack.



**What has been done**

The Right Bite Diabetes Cooking School showed people affected by diabetes how to enjoy healthy food while controlling their diabetes. It provided excellent information that will help anyone preparing food to control diabetes, high blood pressure or any other chronic disease. Participants learn about Portion control, Label reading, Use of various sweeteners, Choosing carbohydrate wisely, Increasing fiber, Choosing the right fats and Control of high blood pressure.

**Results**

Of the 514 people who participated 461 indicated they increase in the amount of water they drink to more than 8 glasses per day. PRE MEAN 2.7 POST MEAN 3.1

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #82**

**1. Outcome Measures**

Food Insecurity

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	759

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Limited-resource families often do not have enough nutritious food to eat. To reduce the likelihood of running out of food before the end of the month, there is a need to increase ability of EFNEP clients to get food directly, get food

from assistance programs, and identify ways to better manage food resources.

**What has been done**

In 2016, 34 peer educators in 30 Alabama counties taught heads of households how to choose foods with the most nutrition at the lowest cost and how to better utilize food resources (WIC, SNAP Benefits, dollars, gardens) to not run out of money for food before the end of the month.

**Results**

Using menu planning, food budgeting, MyPlate, and grocery store lists helped 39% of EFNEP graduates to less often run out of food before the end of the month.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior

**Outcome #83**

**1. Outcome Measures**

Reducing Infant Mortality

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	839

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

In Alabama, EFNEP is committed to reducing the infant mortality rate. One way to guard against the death of a baby before his first birthday is to collaborate with partners such as the health department, doctor's offices, and other health care providers to help impoverished moms-to-be maintain healthy diets and weight during pregnancy

**What has been done**

In 2016, EFNEP Educators taught 839 moms-to-be how to combine healthy eating and physical activity for a more comfortable pregnancy, easier delivery, and healthier baby

**Results**

At program exit, 96% of Today's Mom graduates showed a positive change in at least one food group. Maintaining a healthy diet and weight increases the likelihood of successful birth outcomes

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #84**

**1. Outcome Measures**

Childhood Obesity

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	5013

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Childhood obesity is one of the greatest and most pressing child health issues in Alabama. Children of limited resource families are at particular risk.

**What has been done**

Through school enrichment, short-term programs, and after school programming, 5013 Alabama children and youth, in grades kindergarten and 4-8, participated in CATCH (Coordinated Approach to Child Health) to increase nutrition education and physical activity levels.

**Results**

After 1674 lessons and more than 30,000 contacts, 87 % of children and youth improved their abilities to choose foods according to Federal Dietary Recommendations or gained knowledge while 48% improved their physical activity practice. Making wise nutrition choices and increasing physical activity helps to prevent childhood obesity

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #85**

**1. Outcome Measures**

Handle Food Safely

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	2154

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Bacteria can grow everywhere ? in the air, on hands, and in food. You can?t see them, smell them, or taste them. Some bacteria can be helpful and some can be harmful. Some bacteria, when allowed to grow in food, may cause food-borne illness. It is easy to mistake food-borne illness for stomach flu because symptoms are similar (nausea, vomiting, stomach cramps, diarrhea). Simple precautions when buying, storing, preparing, cooking, and preserving food can prevent foodborne illness.

**What has been done**

In 2016, EFNEP Educators taught 1947 heads of households how to keep food clean and safe to eat to prevent foodborne illness

**Results**

As a result of participation in EFNEP, 54% of adult clients always followed the recommended practice of not allowing meat and dairy foods to sit out for more than two hours plus 58% more often followed the recommended practices of not thawing foods at room temperature.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #86**

**1. Outcome Measures**

Number/% of treatment group participants who increased fruit and vegetable consumption through the School Lunch Program at post-assessment compared to control group participants

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	2364

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Nineteen percent of Alabama's children ages 10-17 are obese. Dietary patterns begin in childhood making child nutrition education and early intervention critical. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. An associated risk factor for obesity and chronic disease is low fruit and vegetable consumption. Currently, Alabama children do not reach federal recommendations for fruit and vegetable consumption. Reaching children in low-income communities through SNAP-Ed is a key strategy for tackling Alabama obesity and health issues.

**What has been done**

Body Quest is a childhood obesity prevention program for elementary youth, particularly third graders in schools with

50% or more of students receiving free or reduced meals. Third graders across the state are empowered to make healthier choices during a 15-week impact evaluation intervention. In FY16, each SNAP-Ed Extension, full-time nutrition educator (n=32) worked with a minimum of 10 classes designated as either treatment or control. Treatment students were in different schools from control students. Schools were randomly assigned with one to five classes per school. Students were recruited using standardized scripts; parents of participating third graders signed an informed consent. An Institutional Review Board approved this study.

**Results**

Based on pre- and post-assessment data analyzed by t-test: Body Quest treatment group students (n=2,364) reported a significant increase in vegetable consumption through the School Lunch Program compared to control group students (n=1,940) at post-assessment (t=3.85, p<.001).

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #87**

**1. Outcome Measures**

Number/% of treatment group participants who increased fruit consumption from pre- to post-assessment and as compared to control group participants

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	4912

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Nineteen percent of Alabama's children ages 10-17 are obese. Dietary patterns begin in childhood making child nutrition education and early intervention critical. Alabama has among the highest obesity rates

and obesity-related disease rates in the nation. An associated risk factor for obesity and chronic disease is low fruit and vegetable consumption. Currently, Alabama children do not reach federal recommendations for fruit and vegetable consumption. Reaching children in low-income communities through SNAP-Ed is a key strategy for tackling Alabama obesity and health issues.

**What has been done**

Body Quest is a childhood obesity prevention program for elementary youth, particularly third graders in schools with 50% or more of students receiving free or reduced meals. Third graders across the state are empowered to make healthier choices during a 15-week impact evaluation intervention. In FY16, each SNAP-Ed Extension, full-time nutrition educator (n=32) worked with a minimum of 10 classes designated as either treatment or control. Treatment students were in different schools from control students. Schools were randomly assigned with one to five classes per school. Students were recruited using standardized scripts; parents of participating third graders signed an informed consent. An Institutional Review Board approved this study.

**Results**

Based on pre- and post-assessment data analyzed by t-tests: Body Quest treatment group students (n=2,715) reported a significant increase (t=6.88, p<.001) in the number of times fruits were eaten each day compared to control group students (n=2,197). Body Quest treatment group students (n=2,715) reported a significant increase (t=9.87, p<.001) in the number of time fruits were eaten each day at post-assessment compared to before Body Quest.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #88**

**1. Outcome Measures**

Number/% of treatment group participants who increased vegetable consumption from pre- to post-assessment and as compared to control group participants.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	4913

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Nineteen percent of Alabama's children ages 10-17 are obese. Dietary patterns begin in childhood making child nutrition education and early intervention critical. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. An associated risk factor for obesity and chronic disease is low fruit and vegetable consumption. Currently, Alabama children do not reach federal recommendations for fruit and vegetable consumption. Reaching children in low-income communities through SNAP-Education is a key strategy for tackling Alabama obesity and health issues.

**What has been done**

Body Quest is a childhood obesity prevention program for elementary youth, particularly third graders in schools with 50% or more of students receiving free or reduced meals. Third graders across the state are empowered to make healthier choices during a 15-week impact evaluation intervention. In FY16, each SNAP-Education Extension, full-time nutrition educator (n=32) worked with a minimum of 10 classes designated as either treatment or control. Treatment students were in different schools from control students. Schools were randomly assigned with one to five classes per school. Students were recruited using standardized scripts; parents of participating third graders signed an informed consent. An Institutional Review Board approved this study.

**Results**

Based on pre- and post-assessment data analyzed by t-tests: Body Quest treatment group students (n=2,712) reported a significant increase (t=7.88, p<.001) in the number of times vegetables were eaten each day compared to control group students (n=2,201). Body Quest treatment group students (n=2,712) reported a significant increase (t=9.39, p<.001) in the number of time vegetables were eaten each day at post-assessment compared to before



Body Quest.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #89**

**1. Outcome Measures**

Number/% of treatment group participants who decreased sugar sweetened beverage consumption from pre- to post-assessment and as compared to control group participants

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	4921

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Nineteen percent of Alabama's children ages 10-17 are obese. Dietary patterns begin in childhood making child nutrition education and early intervention critical. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. An associated risk factor for obesity and chronic disease is low fruit and vegetable consumption. Currently, Alabama children do not reach federal recommendations for fruit and vegetable consumption. Reaching children in low-income communities through SNAP-Education is a key strategy for tackling Alabama obesity and health issues.

**What has been done**

Body Quest is a childhood obesity prevention program for elementary youth, particularly third graders in schools with 50% or more of students receiving free or reduced meals. Third graders across the state are empowered to make healthier choices during a 15-week impact evaluation intervention. In FY16, each SNAP-Education Extension, full-time

nutrition educator (n=32) worked with a minimum of 10 classes designated as either treatment or control. Treatment students were in different schools from control students. Schools were randomly assigned with one to five classes per school. Students were recruited using standardized scripts; parents of participating third graders signed an informed consent. An Institutional Review Board approved this study.

**Results**

Based on pre- and post-assessment data analyzed by t-tests: Body Quest treatment group students (n=2,718) reported a significant decrease (t=14.11, p<.001) in consumption of sugar sweetened beverages at post-assessment as compared to control group students (n=2,203). Body Quest treatment group students (n=2,718) reported a significant decrease (t=-12.69, p<.001) in consumption of sugar sweetened beverages at post-assessment compared to before Body Quest.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #90**

**1. Outcome Measures**

Number/% of treatment group participants who increased physical activity from pre- to post-assessment and as compared to control group participants

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	4918

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Nineteen percent of Alabama's children ages 10-17 are obese. Dietary patterns begin in childhood making child nutrition education and early intervention critical. Alabama has among the highest obesity rates and obesity-related

disease rates in the nation. An associated risk factor for obesity and chronic disease is low fruit and vegetable consumption. Currently, Alabama children do not reach federal recommendations for fruit and vegetable consumption. Reaching children in low-income communities through SNAP-Ed is a key strategy for tackling Alabama obesity and health issues

**What has been done**

Body Quest is a childhood obesity prevention program for elementary youth, particularly third graders in schools with 50% or more of students receiving free or reduced meals. Third graders across the state are empowered to make healthier choices during a 15-week impact evaluation intervention. In FY16, each SNAP-Ed Extension, full-time nutrition educator (n=32) worked with a minimum of 10 classes designated as either treatment or control. Treatment students were in different schools from control students. Schools were randomly assigned with one to five classes per school. Students were recruited using standardized scripts; parents of participating third graders signed an informed consent. An Institutional Review Board approved this study.

**Results**

Based on pre- and post-assessment data analyzed by t-tests: Body Quest treatment group students (n=2,716) reported a significant increase (t=10.31, p<.001) in general physical activity at post-assessment as compared to control group students (n=2,202). Body Quest treatment group students (n=2,716) reported a significant increase (t=15.67, p<.001) in general physical activity at post-assessment compared to before Body Quest.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #91**

**1. Outcome Measures**

Number/% of treatment group participants who increased physical activity and decreased screen time from pre- to post-assessment and as compared to control group participants

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	5565

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Nineteen percent of Alabama's children ages 10-17 are obese. Dietary patterns begin in childhood making child nutrition education and early intervention critical. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. An associated risk factor for obesity and chronic disease is low fruit and vegetable consumption. Currently, Alabama children do not reach federal recommendations for fruit and vegetable consumption. Reaching children in low-income communities through SNAP-Ed is a key strategy for tackling Alabama obesity and health issues.

**What has been done**

Body Quest is a childhood obesity prevention program for elementary youth, particularly third graders in schools with 50% or more of students receiving free or reduced meals. Third graders across the state are empowered to make healthier choices during a 15-week impact evaluation intervention. In FY16, each SNAP-Ed Extension, full-time nutrition educator (n=32) worked with a minimum of 10 classes designated as either treatment or control. Treatment students were in different schools from control students. Schools were randomly assigned with one to five classes per school. Students were recruited using standardized scripts; parents of participating third graders signed an informed consent. An Institutional Review Board approved this study.

**Results**

Based on pre- and post-assessment data analyzed by chi-square tests: For Body Quest treatment group students (n=3,090), television watching decreased at a significantly greater rate than for control group students (n=2,475) ( $\chi^2(1)=13.80, p<.001$ ) At post-assessment, more Body Quest treatment group students (n=3,090) reported being physically active after school and fewer treatment group students reported watching television after school compared to control group students (n=2,475) ( $\chi^2(1)=22.60, p<.001$ ).

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #92**

**1. Outcome Measures**

Number/% of treatment group parents who increased healthy shopping behaviors from pre- to post-assessment

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	1905

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Nineteen percent of Alabama's children ages 10-17 are obese. Dietary patterns begin in childhood making child nutrition education and early intervention critical. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. An associated risk factor for obesity and chronic disease is low fruit and vegetable consumption. Currently, Alabama children do not reach federal recommendations for fruit and vegetable consumption. Reaching children in low-income communities through SNAP-Ed is a key strategy for tackling Alabama's obesity and health issues. One critical strategy is to influence parents to improve children's home environment by making it more fruit and vegetable friendly.

**What has been done**

Body Quest is a childhood obesity prevention program for elementary youth, particularly third graders in schools with 50% or more of students receiving free or reduced meals. Third graders across the state are empowered to make healthier choices during a 15-week impact evaluation intervention. Accompanying school-based education for

students, a parent initiative recruited parents to participate as recipe testers. Parents were asked to prepare provided recipes in the home and received action-oriented text messaging. Parents were randomly assigned to treatment and control groups paralleling their student's assignment. Students were recruited using standardized scripts; parents of participating third graders signed an informed consent. An Institutional Review Board approved this study.

**Results**

Based on data analyzed by increased frequency from pre- to post-assessment: 80% increased meal planning. 80% increased shopping with a grocery list. 80% increased comparing prices before buying food. 29% increased buying foods with less salt. 26% increased buying low-fat dairy products. 23% increased buying foods with less sugar.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior

**Outcome #93**

**1. Outcome Measures**

Number/% of treatment group parents who increased vegetable consumption from pre- to post-assessment

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	1017

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Nineteen percent of Alabama's children ages 10-17 are obese. Dietary patterns begin in childhood making child nutrition education and early intervention critical. Alabama has among the highest obesity rates and obesity-related

disease rates in the nation. An associated risk factor for obesity and chronic disease is low fruit and vegetable consumption. Currently, Alabama children do not reach federal recommendations for fruit and vegetable consumption. Reaching children in low-income communities through SNAP-Ed is a key strategy for tackling Alabama's obesity and health issues. One critical strategy is to influence parents to improve children's home environment by making it more fruit and vegetable friendly.

**What has been done**

Body Quest is a childhood obesity prevention program for elementary youth, particularly third graders in schools with 50% or more of students receiving free or reduced meals. Third graders across the state are empowered to make healthier choices during a 15-week impact evaluation intervention. Accompanying school-based education for students, a parent initiative recruited parents to participate as recipe testers. Parents were asked to prepare provided recipes in the home and received action-oriented text messaging. Parents were randomly assigned to treatment and control groups paralleling their student's assignment. Students were recruited using standardized scripts; parents of participating third graders signed an informed consent. An Institutional Review Board approved this study.

**Results**

Based on pre- and post-assessment data analyzed by t-tests: Body Quest treatment group parents (n=1,017) reported a significant increase (t=5.88, p<.001) in daily vegetable intake at post-assessment compared to before Body Quest.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #94**

**1. Outcome Measures**

Number/% of treatment group parents who increased fruit and vegetables consumption as snacks from pre- to post assessment and as compared to control group parents

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	1884

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Nineteen percent of Alabama's children ages 10-17 are obese. Dietary patterns begin in childhood making child nutrition education and early intervention critical. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. An associated risk factor for obesity and chronic disease is low fruit and vegetable consumption. Currently, Alabama children do not reach federal recommendations for fruit and vegetable consumption. Reaching children in low-income communities through SNAP-Ed is a key strategy for tackling Alabama's obesity and health issues. One critical strategy is to influence parents to improve children's home environment by making it more fruit and vegetable friendly.

**What has been done**

Body Quest is a childhood obesity prevention program for elementary youth, particularly third graders in schools with 50% or more of students receiving free or reduced meals. Third graders across the state are empowered to make healthier choices during a 15-week impact evaluation intervention. Accompanying school-based education for students, a parent initiative recruited parents to participate as recipe testers. Parents were asked to prepare provided recipes in the home and received action-oriented text messaging. Parents were randomly assigned to treatment and control groups paralleling their student's assignment. Students were recruited using standardized scripts; parents of participating third graders signed an informed consent. An Institutional Review Board approved this study.

**Results**

Based on pre- and post-assessment data analyzed by t-tests: Body Quest treatment group parents (n=1,017) reported a significant increase (t=4.32, p<.001) in eating fruits and vegetables as snacks at post-assessment



as compared to control group parents (n=867). Body Quest treatment group parents (n=1,017) reported a significant increase (t=3.48, p<.001) in eating fruits and vegetables as snacks at post-assessment compared to before Body Quest.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #95**

**1. Outcome Measures**

Number/% of treatment group parents who increased family physical activity from pre- to post-assessment

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	1012

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Nineteen percent of Alabama's children ages 10-17 are obese. Dietary patterns begin in childhood making child nutrition education and early intervention critical. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. An associated risk factor for obesity and chronic disease is low fruit and vegetable consumption. Currently, Alabama children do not reach federal recommendations for fruit and vegetable consumption. Reaching children in low-income communities through SNAP-Ed is a key strategy for tackling Alabama's obesity and health issues. One critical strategy is to influence parents to improve children's home environment by making it more fruit and vegetable friendly.

**What has been done**

Body Quest is a childhood obesity prevention program for elementary youth, particularly third graders in schools with

50% or more of students receiving free or reduced meals. Third graders across the state are empowered to make healthier choices during a 15-week impact evaluation intervention. Accompanying school-based education for students, a parent initiative recruited parents to participate as recipe testers. Parents were asked to prepare provided recipes in the home and received action-oriented text messaging. Parents were randomly assigned to treatment and control groups paralleling their student's assignment. Students were recruited using standardized scripts; parents of participating third graders signed an informed consent. An Institutional Review Board approved this study.

**Results**

Based on pre- and post-assessment data analyzed by chi-square tests: Body Quest treatment group parents (n=1,012) reported a significant increase in family physical activity at post-assessment compared to before Body Quest ( $\chi^2(1)=21.504, p<.001$ ).

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #96**

**1. Outcome Measures**

Number/% of Body Quest parents participating in text messaging survey who reported enjoying the text messages

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	198

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Nineteen percent of Alabama's children ages 10-17 are obese. Dietary patterns begin in childhood making child nutrition education and early intervention critical. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. An associated risk factor for obesity and chronic disease is low fruit and vegetable consumption. Currently, Alabama children do not reach federal recommendations for fruit and vegetable consumption. Reaching children in low-income communities through SNAP-Education is a key strategy for tackling Alabama's obesity and health issues. One critical strategy is to influence parents to improve children's home environment by making it more fruit and vegetable friendly.

**What has been done**

Body Quest is a childhood obesity prevention program for elementary youth, particularly third graders in schools with 50% or more of students receiving free or reduced meals. Third graders across the state are empowered to make healthier choices during a 15-week impact evaluation intervention. Accompanying school-based education for students, a parent initiative recruited parents to participate as recipe testers. Parents were asked to prepare provided recipes in the home and received action-oriented text messaging. Parents were randomly assigned to treatment and control groups paralleling their student's assignment. Students were recruited using standardized scripts; parents of participating third graders signed an informed consent. An Institutional Review Board approved this study.

**Results**

Based on data analyzed by frequency at post-assessment: 96% of parents participating in a text message post survey reported enjoying receiving the action-oriented text message prompts throughout the Body Quest initiative

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #97**

**1. Outcome Measures**

Number/% of Body Quest parents participating in a text messaging survey who reported buying more vegetables after Body Quest education

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	127

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Nineteen percent of Alabama's children ages 10-17 are obese. Dietary patterns begin in childhood making child nutrition education and early intervention critical. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. An associated risk factor for obesity and chronic disease is low fruit and vegetable consumption. Currently, Alabama children do not reach federal recommendations for fruit and vegetable consumption. Reaching children in low-income communities through SNAP-Ed is a key strategy for tackling Alabama's obesity and health issues. One critical strategy is to influence parents to improve children's home environment by making it more fruit and vegetable friendly.

**What has been done**

Body Quest is a childhood obesity prevention program for elementary youth, particularly third graders in schools with 50% or more of students receiving free or reduced meals. Third graders across the state are empowered to make healthier choices during a 15-week impact evaluation intervention. Accompanying school-based education for students, a parent initiative recruited parents to participate as recipe testers. Parents were asked to prepare provided recipes in the home and received action-oriented text messaging. Parents were randomly assigned to

treatment and control groups paralleling their student's assignment. Students were recruited using standardized scripts; parents of participating third graders signed an informed consent. An Institutional Review Board approved this study.

**Results**

Based on data analyzed by frequency at post-assessment: 80% of parents participating in a text message post survey reported buying more vegetables after Body Quest education

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior

**Outcome #98**

**1. Outcome Measures**

Number/% of Body Quest parents participating in a text messaging survey who reported eating more vegetables after Body Quest education

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	136

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Nineteen percent of Alabama's children ages 10-17 are obese. Dietary patterns begin in childhood making child nutrition education and early intervention critical. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. An associated risk factor for obesity and chronic disease is low fruit and vegetable consumption. Currently, Alabama children do not reach federal recommendations for fruit and vegetable consumption. Reaching children in low-income communities through SNAP-Ed is a key strategy for tackling

Alabama's obesity and health issues. One critical strategy is to influence parents to improve children's home environment by making it more fruit and vegetable friendly.

**What has been done**

Body Quest is a childhood obesity prevention program for elementary youth, particularly third graders in schools with 50% or more of students receiving free or reduced meals. Third graders across the state are empowered to make healthier choices during a 15-week impact evaluation intervention. Accompanying school-based education for students, a parent initiative recruited parents to participate as recipe testers. Parents were asked to prepare provided recipes in the home and received action-oriented text messaging. Parents were randomly assigned to treatment and control groups paralleling their student's assignment. Students were recruited using standardized scripts; parents of participating third graders signed an informed consent. An Institutional Review Board approved this study.

**Results**

Based on data analyzed by frequency at post-assessment: 74% of parents participating in a text message post survey reported eating more vegetables after Body Quest education.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #99**

**1. Outcome Measures**

Number/% of Body Quest parents participating in a text messaging survey who reported having been asked by their child to buy more vegetables after Body Quest education

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
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### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Nineteen percent of Alabama's children ages 10-17 are obese. Dietary patterns begin in childhood making child nutrition education and early intervention critical. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. An associated risk factor for obesity and chronic disease is low fruit and vegetable consumption. Currently, Alabama children do not reach federal recommendations for fruit and vegetable consumption. Reaching children in low-income communities through SNAP-Ed is a key strategy for tackling Alabama's obesity and health issues. One critical strategy is to influence parents to improve children's home environment by making it more fruit and vegetable friendly.

#### What has been done

Body Quest is a childhood obesity prevention program for elementary youth, particularly third graders in schools with 50% or more of students receiving free or reduced meals. Third graders across the state are empowered to make healthier choices during a 15-week impact evaluation intervention. Accompanying school-based education for students, a parent initiative recruited parents to participate as recipe testers. Parents were asked to prepare provided recipes in the home and received action-oriented text messaging. Parents were randomly assigned to treatment and control groups paralleling their student's assignment. Students were recruited using standardized scripts; parents of participating third graders signed an informed consent. An Institutional Review Board approved this study.

#### Results

Based on data analyzed by frequency at post-assessment: 89% of parents participating in a text message post survey reported having been asked by their child to buy more vegetables after Body Quest education

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

**Outcome #100**

**1. Outcome Measures**

Number/% of Body Quest parents participating in a text messaging survey who reported their child eating more vegetables after Body Quest education

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	147

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Nineteen percent of Alabama's children ages 10-17 are obese. Dietary patterns begin in childhood making child nutrition education and early intervention critical. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. An associated risk factor for obesity and chronic disease is low fruit and vegetable consumption. Currently, Alabama children do not reach federal recommendations for fruit and vegetable consumption. Reaching children in low-income communities through SNAP-Ed is a key strategy for tackling Alabama's obesity and health issues. One critical strategy is to influence parents to improve children's home environment by making it more fruit and vegetable friendly.

**What has been done**

Body Quest is a childhood obesity prevention program for elementary youth, particularly third graders in schools with 50% or more of students receiving free or reduced meals. Third graders across the state are empowered to make healthier choices during a 15-week impact evaluation intervention. Accompanying school-based education for students, a parent initiative recruited parents to participate as recipe testers. Parents were asked to prepare provided recipes in the home and received action-oriented text messaging. Parents were randomly assigned to



treatment and control groups paralleling their student's assignment. Students were recruited using standardized scripts; parents of participating third graders signed an informed consent. An Institutional Review Board approved this study.

**Results**

Based on data analyzed by frequency at post-assessment: 80% of parents participating in a text message post survey reported their child eating more vegetables after Body Quest education

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior

**Outcome #101**

**1. Outcome Measures**

Number/% of Body Quest parents participating in a text messaging survey who reported reducing sugar sweetened beverage consumption after Body Quest education

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	167

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Nineteen percent of Alabama's children ages 10-17 are obese. Dietary patterns begin in childhood making child nutrition education and early intervention critical. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. An associated risk factor for obesity and chronic disease is low fruit and vegetable consumption. Currently, Alabama children do not reach federal recommendations for fruit and vegetable consumption. Reaching children in low-income communities through SNAP-Education is a key strategy for tackling

Alabama's obesity and health issues. One critical strategy is to influence parents to improve children's home environment by making it more fruit and vegetable friendly.

**What has been done**

Body Quest is a childhood obesity prevention program for elementary youth, particularly third graders in schools with 50% or more of students receiving free or reduced meals. Third graders across the state are empowered to make healthier choices during a 15-week impact evaluation intervention. Accompanying school-based education for students, a parent initiative recruited parents to participate as recipe testers. Parents were asked to prepare provided recipes in the home and received action-oriented text messaging. Parents were randomly assigned to treatment and control groups paralleling their student's assignment. Students were recruited using standardized scripts; parents of participating third graders signed an informed consent. An Institutional Review Board approved this study.

**Results**

Based on data analyzed by frequency at post-assessment: 82% of parents participating in a text message post survey reported reducing sugar sweetened beverage consumption after Body Quest education.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #102**

**1. Outcome Measures**

Number/% of Body Quest parents participating in a text messaging survey who reported engaging in more physical activity with their child after Body Quest education

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
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### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Nineteen percent of Alabama's children ages 10-17 are obese. Dietary patterns begin in childhood making child nutrition education and early intervention critical. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. An associated risk factor for obesity and chronic disease is low fruit and vegetable consumption. Currently, Alabama children do not reach federal recommendations for fruit and vegetable consumption. Reaching children in low-income communities through SNAP-Ed is a key strategy for tackling Alabama's obesity and health issues. One critical strategy is to influence parents to improve children's home environment by making it more fruit and vegetable friendly.

#### What has been done

Body Quest is a childhood obesity prevention program for elementary youth, particularly third graders in schools with 50% or more of students receiving free or reduced meals. Third graders across the state are empowered to make healthier choices during a 15-week impact evaluation intervention. Accompanying school-based education for students, a parent initiative recruited parents to participate as recipe testers. Parents were asked to prepare provided recipes in the home and received action-oriented text messaging. Parents were randomly assigned to treatment and control groups paralleling their student's assignment. Students were recruited using standardized scripts; parents of participating third graders signed an informed consent. An Institutional Review Board approved this study.

#### Results

Based on data analyzed by frequency at post-assessment: 81% of parents participating in a text message post survey reported increased engagement in physical activity with their child after Body Quest education

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

**Outcome #103**

**1. Outcome Measures**

Increase in the # of people reached with healthy foods and beverages through vending machines

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	100

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama has among the highest obesity rates and obesity-related disease rates in the nation.

Environmental

barriers, such as limited access to healthy food and physical activity opportunities, make it difficult to achieve lasting

change. Limited-resource individuals, such as Supplemental Nutrition Assistance Program (SNAP) recipients are

disproportionately affected by these barriers. A key strategy for tackling obesity and health issues in Alabama is

reaching the SNAP population through SNAP-Ed

**What has been done**

SNAP-Ed educators identified areas of need for creating access to healthy food and beverage options. By partnering

with a SNAP office and a Boys and Girls Club, changes were made in on-site vending to increase healthy food and

beverage options. Good Choice messaging from partner, Alabama Department of Public Health, was used to help

customers identify healthy choices.

**Results**

Two additional locations were identified for improving local vending machines with healthy food and beverage options.

Improved choices in vending options were made allowing 100 customers increased access to healthy food and

beverages.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

#### Outcome #104

##### 1. Outcome Measures

Increase in the # of people reached through a healthy retail initiative in convenience stores to increase access and appeal for healthy foods and beverages

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	5800

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

Alabama has among the highest obesity rates and obesity-related disease rates in the nation.

Environmental

barriers, such as limited access to healthy food and physical activity opportunities, make it difficult to achieve lasting

change. Limited-resource individuals, such as Supplemental Nutrition Assistance Program (SNAP) recipients are

disproportionately affected by these barriers. A key strategy for tackling obesity and health issues in Alabama is

reaching the SNAP population through SNAP-Ed.

###### **What has been done**

Convenience stores may hold the key to improving healthy food access in rural Alabama. SNAP-Ed educators

approached convenience store owners with ideas for stocking shelves with more appealing and healthier options.

The goal was to make it easy for consumers to make good choices. Food assessments were completed for stores

and several items were found that met the Good Choice designation from the Alabama Department of Public Health.

In response, new signage indicating healthy choices and attractive display racks were provided. A kick-off event was

held to raise community awareness of this initiative

**Results**

Convenience stores improved access and appeal for healthy foods and beverages in areas with limited options. Access and appeal were created through new signage indicating location of healthy options. Attractive displays were implemented in the checkout area to encourage healthy choices for impulse purchases. All efforts to rearrange and restock the stores were designed to make healthy choices easier and more attractive for consumers. Improved choices in convenience stores were made allowing 5,800 customers increased access to healthy food and beverages.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior

**Outcome #105**

**1. Outcome Measures**

Increase in the # of people reached through a healthy retail initiative in grocery stores to increase access and appeal for healthy foods and beverages

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	8830

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama has among the highest obesity rates and obesity-related disease rates in the nation. Environmental barriers, such as limited access to healthy food and physical activity opportunities, make it difficult to achieve lasting change. Limited-resource individuals, such as Supplemental Nutrition Assistance Program (SNAP) recipients are disproportionately affected by these barriers. A key strategy for tackling obesity and health issues

in Alabama is reaching the SNAP population through SNAP-Ed.

**What has been done**

SNAP-Ed educators approached grocery store owners with ideas for stocking shelves with more appealing and healthier options. The goal was to make it easy for consumers to make good choices. Food assessments were completed for stores and several items were found that met the Good Choice designation from the Alabama Department of Public Health. In response, new signage indicating healthy choices and attractive display racks were provided. A kick-off event was held to raise community awareness of this initiative.

**Results**

Grocery stores improved access and appeal for healthy foods and beverages in areas with limited options. Access and appeal were created through new signage indicating location of healthy options. Attractive displays were implemented in the checkout area to encourage healthy choices for impulse purchases. All efforts to rearrange and restock the stores were designed to make healthy choices easier and more attractive for consumers. Improved choices in ten grocery stores were made allowing 8,830 customers increased access to healthy food and beverages.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #106**

**1. Outcome Measures**

Increase in the # of people reached through a healthy retail initiative in concession areas to increase access and appeal for healthy foods and beverages

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	415

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Alabama has among the highest obesity rates and obesity-related disease rates in the nation.

Environmental

barriers, such as limited access to healthy food and physical activity opportunities, make it difficult to achieve lasting

change. Limited-resource individuals, such as Supplemental Nutrition Assistance Program (SNAP) recipients are

disproportionately affected by these barriers. A key strategy for tackling obesity and health issues in Alabama is

reaching the SNAP population through SNAP-Ed

#### What has been done

SNAP-Ed educators approached concession owners with ideas for healthy menu options. The goal was to make it

easy for consumers to make good choices. Food assessments were completed for concessions and a few items

were found that met the Good Choice designation from the Alabama Department of Public Health.

In response, new

signage indicating healthy choices and menu options were provided.

#### Results

Concession areas improved access and appeal for healthy foods and beverages in areas with limited options. Access

and appeal were created through new signage indicating healthy options. Improved choices in five concessions were

made allowing 415 customers increased access to healthy food and beverages.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

#### Outcome #107

##### 1. Outcome Measures

Increase in the #/% of people reached through a community garden/emergency food setting partnership to increase access and appeal for healthy foods

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Condition Outcome Measure



**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	1560

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama has among the highest obesity rates and obesity-related disease rates in the nation. Environmental barriers, such as limited access to healthy food and physical activity opportunities, make it difficult to achieve lasting change. Limited-resource individuals, such as Supplemental Nutrition Assistance Program (SNAP) recipients, are disproportionately affected by these barriers. A key strategy for tackling obesity and health issues in Alabama is reaching the SNAP population through SNAP-Ed.

**What has been done**

While recipients of the Help Center food pantry in Lauderdale County benefit from emergency food, the opportunity to have fresh fruits and vegetables was minimal. A SNAP-Ed educator recognized the need and created access for fresh produce at the pantry through partnerships. First, the educator recruited the local Farmers Market director to work with farmers to provide the pantry with any fresh produce surplus. Second, the educator partnered with the Lauderdale Extension Community Garden to provide fresh produce to the pantry directly from the garden.

**Results**

1,560 people were reached through this environmental change with the opportunity to receive fresh produce. In two summer months, the garden donated 25 pounds of fresh vegetables to those seeking emergency food. Stakeholders have been engaged to create a sustainable and practical improvement at the food pantry in the form of more fresh food options

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #108**

**1. Outcome Measures**

Increase in the #/% of people reached through school and community garden initiatives

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	4962

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama has among the highest obesity rates and obesity-related disease rates in the nation. Environmental barriers, such as limited access to healthy food and physical activity opportunities, make it difficult to achieve lasting change. Limited-resource individuals, such as Supplemental Nutrition Assistance Program (SNAP) recipients, are disproportionately affected by these barriers. A key strategy for tackling obesity and health issues in Alabama is reaching the SNAP population through SNAP-Ed.

**What has been done**

Environmental changes were adopted by partnering with local champions in communities, housing districts for limited resource families and seniors, emergency food assistance sites, healthcare systems, summer camps, early childcare centers, elementary schools and high schools. These changes included establishing new gardens, reinvigorating current gardens and maintaining existing garden efforts. Produce was distributed across multiple avenues, including provision to residents or volunteers, preparation for individuals served by the setting and donation to emergency food assistance sites.

**Results**

School and community gardens improved access and appeal for healthy foods in areas with limited options. Access and

appeal were created through establishing, reinvigorating and maintaining garden efforts.  
Improved healthy food access  
was made through 37 gardens, reaching 4,962 individuals.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #109**

**1. Outcome Measures**

Increase in the # of locations providing physical activity opportunities with walking trails

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	8

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama has among the highest obesity rates and obesity-related disease rates in the nation. Environmental barriers, such as limited access to healthy food and physical activity opportunities, make it difficult to achieve lasting change. Limited-resource individuals, such as Supplemental Nutrition Assistance Program (SNAP) recipients, are disproportionately affected by these barriers. A key strategy for tackling obesity and health issues in Alabama is reaching the SNAP population through SNAP-Ed.

**What has been done**

1) Signage was placed along walking trails to create appeal for physical activity. 2) Improvements were made along walking trails to increase safety.

**Results**

Eight walking trails were established or improved to increase access and appeal for physical activity.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

#### Outcome #110

##### 1. Outcome Measures

Increase in the # of school wellness committees partnering with SNAP-Ed to improve school environment

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	12

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

Alabama has among the highest obesity rates and obesity-related disease rates in the nation.

Environmental

barriers, such as limited access to healthy food and physical activity opportunities, make it difficult to achieve lasting

change. Limited-resource individuals, such as Supplemental Nutrition Assistance Program (SNAP) recipients, are

disproportionately affected by these barriers. A key strategy for tackling obesity and health issues in Alabama is

reaching the SNAP population through SNAP-Ed.

###### **What has been done**

Schools and school district personnel, parents and students in low-income communities partnered with SNAP-Ed

educators in the creation and maintenance of school wellness committees. These committees are charged with

implementing current school health and wellness policies and developing new policy where needed.

###### **Results**

Twelve school wellness committees were established or improved to increase access and appeal for healthy foods and

physical activity in the school environment.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #111**

**1. Outcome Measures**

Increase in the # of people reached through farmers markets

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	5600

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama has among the highest obesity rates and obesity-related disease rates in the nation. Environmental barriers, such as limited access to healthy food and physical activity opportunities, make it difficult to achieve lasting change. Limited-resource individuals, such as Supplemental Nutrition Assistance Program (SNAP) recipients, are disproportionately affected by these barriers. A key strategy for tackling obesity and health issues in Alabama is reaching the SNAP population through SNAP-Ed.

**What has been done**

SNAP-Ed educators partnered with local farmers markets to implement policy changes, including addition of locations, adaptation to locations and improvements in days and hours of operation to increase access of healthy foods. They also impacted system changes by implementing trainings to support vendor acceptance of SNAP benefits. Lastly, promotional changes included installation of signage, food demonstrations and family-friendly

education materials.

**Results**

SNAP-Ed educators facilitated adoption of 37 farmers market initiatives reaching 5,600 residents each week. This initiative resulted in an expansion of the number of vendors accepting SNAP at farmers markets, an increased awareness of the addition of vendors accepting SNAP benefits and an increased awareness of preparation and uses of fresh produce.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #112**

**1. Outcome Measures**

Increase in the # of people reached with healthy food initiative at emergency food assistance sites

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	12620

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama has among the highest obesity rates and obesity-related disease rates in the nation. Environmental barriers, such as limited access to healthy food and physical activity opportunities, make it difficult to achieve lasting change. Limited-resource individuals, such as Supplemental Nutrition Assistance Program (SNAP) recipients, are disproportionately affected by these barriers. A key strategy for tackling obesity and health issues in Alabama is reaching the SNAP population through SNAP-Ed.

**What has been done**

Promotional changes were adopted by SNAP-Ed educators partnering with local champions providing emergency food assistance through food pantries, soup kitchens, emergency backpacks, summer feeding and after school feeding. Promotional changes included point-of-distribution prompts, such as food demonstrations and family friendly education materials and recipes

**Results**

SNAP-Ed educators facilitated adoption of 58 emergency food assistance site initiatives reaching 12,620 residents. Promotional changes increased awareness of preparation and uses of healthy items provided at emergency food assistance sites.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #113**

**1. Outcome Measures**

Number of participants who decreased weight by more than 10 pounds

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	185

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama is one the top five states for many obesity-related health outcomes such as diabetes and high blood pressure. More than one-third of adult Alabamians are obese. This is a major health and economical crisis for Alabama.

**What has been done**

Scale Back Alabama (SBA) is a free statewide weight loss program sponsored by the Alabama Department of Public Health, the Alabama Hospital Association, and Blue Cross Blue Shield of Alabama. SBA is meant to encourage participants to lose 10 lbs. in a 10-week period. Various groups of Extension professionals partnered together (NEP, EFNEP, HNDH REAs, CECs, and administrative associates) to facilitate weigh in and weigh out sites. Although most of the sites were at the local county Extension office, some sites were hosted at alternate locations (schools, senior centers, churches, and city halls).

**Results**

Based on frequency data, 185 adults lost more than 10 pounds.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #114**

**1. Outcome Measures**

Number of pounds lost through SBA

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	4661

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama is one the top five states for many obesity-related health outcomes such as diabetes and high blood pressure. More than one-third of adult Alabamians are obese. This is a major health and economical crisis for



**What has been done**

Scale Back Alabama (SBA) is a free statewide weight loss program sponsored by the Alabama Department of Public Health, the Alabama Hospital Association, and Blue Cross Blue Shield of Alabama. SBA is meant to encourage participants to lose 10 lbs. in a 10-week period. Various groups of Extension professionals partnered together (NEP, EFNEP, HNDH REAs, CECs, and administrative associates) to facilitate weigh in and weigh out sites. Although most of the sites were at the local county Extension office, some sites were hosted at alternate locations (schools, senior centers, churches, and city halls).

**Results**

Based on frequency data, a total of 4661 pounds were lost in SBA.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle

**Outcome #115**

**1. Outcome Measures**

Increase in grant funds obtained and in-kind donations utilized by leveraging resources from ALProHealth

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	963318

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

While more than one-third of adults in Alabama are obese, rates of obesity and related illnesses are

disproportionately higher among rural and limited resource individuals. Characteristics of the community, such as the access to healthy food sources and physical activity sites, can play a key role in influencing obesity-related behaviors. Rural southern populations experience disadvantageous environments that contribute to increased obesity rates. Understanding which characteristics of the community have the heaviest impact on obesity in rural Alabama is critical to developing an appropriate intervention strategy.

**What has been done**

ALProHealth is an obesity-prevention program for residents of Alabama's fourteen counties with adult obesity rates of greater than forty percent. Coalitions consisting of community champions were formed in all fourteen counties. Through policy, systems, and environmental changes, Community Coalitions provided guidance on the implementation of nutrition education opportunities, increased access to healthy food options and created safe, affordable places for physical activity.

**Results**

The counties of Pickens (\$751,000), Wilcox (\$11,000), Bibb (\$89,318), Crenshaw (\$5,000), Barbour (\$2,500), Coosa (\$68,000) and Cullman (\$36,500) were able to leverage their funds from the ALProHealth initiative to obtain additional grant funds and in-kind contributions in the form of installation of equipment, donation of utilities, supplies, and volunteer hours worked.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle

**Outcome #116**

**1. Outcome Measures**

Increase in number of statewide partners educated on the priorities of the ALProHealth initiative

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2016	2

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

While more than one-third of adults in Alabama are obese, rates of obesity and related illnesses are disproportionately higher among rural and limited resource individuals. Characteristics of the community, such as the access to healthy food sources and physical activity sites, can play a key role in influencing obesity-related behaviors. Rural southern populations experience disadvantageous environments that contribute to increased obesity rates. Understanding which characteristics of the community have the heaviest impact on obesity in rural Alabama is critical to developing an appropriate intervention strategy.

#### What has been done

ALProHealth is an obesity-prevention program for residents of Alabama's fourteen counties with adult obesity rates of greater than forty percent. Coalitions consisting of community champions were formed in all fourteen counties. Through policy, systems, and environmental changes, Community Coalitions provided guidance on the implementation of nutrition education opportunities, increased access to healthy food options and created safe, affordable places for physical activity

#### Results

In 2015, state partners attended a Summit to learn about the organization of the project within the fourteen counties and how they could support the effort of community coalitions. In 2016, two additional statewide partners were invited to join in aiding in the success of the project to bring the total to 27 statewide partners. This list of new partners now includes AARP of Alabama and the Alabama Hiking Trail Society.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #117**

**1. Outcome Measures**

Increase in number of Community Coalition members educated on evidence-based strategies to combat obesity

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	8

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

While more than one-third of adults in Alabama are obese, rates of obesity and related illnesses are disproportionately higher among rural and limited resource individuals. Characteristics of the community, such as the access to healthy food sources and physical activity sites, can play a key role in influencing obesity-related behaviors. Rural southern populations experience disadvantageous environments that contribute to increased obesity rates. Understanding which characteristics of the community have the heaviest impact on obesity in rural Alabama is critical to developing an appropriate intervention strategy.

**What has been done**

ALProHealth is an obesity-prevention program for residents of Alabama's fourteen counties with adult obesity rates of greater than forty percent. Coalitions consisting of community champions were formed in all fourteen counties. Through policy, systems, and environmental changes, Community Coalitions provided guidance on the implementation of nutrition education opportunities, increased access to healthy food options and created safe, affordable places for physical activity.

**Results**

Across the fourteen ALProHealth counties, there are a total of 191 members of Community Coalitions. The Coalition

members were educated by the ALProHealth Program Management Team on the evidence-based strategies to prevent and reduce obesity. The total of 191 Community Coalition members is up from last year's number of 183.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #118**

**1. Outcome Measures**

Number of individuals completing Scale Back Alabama, a 10-week weight loss program encouraging adult participants to lose 10 pounds

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	102

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

While more than one-third of adults in Alabama are obese, rates of obesity and related illnesses are disproportionately higher among rural and limited resource individuals. Characteristics of the community, such as the access to healthy food sources and physical activity sites, can play a key role in influencing obesity-related behaviors. Rural southern populations experience disadvantageous environments that contribute to increased obesity rates. Understanding which characteristics of the community have the heaviest impact on obesity in rural Alabama is critical to developing an appropriate intervention strategy

**What has been done**

ALProHealth is an obesity-prevention program for residents of Alabama's fourteen counties with adult obesity rates of greater than forty percent. Coalitions consisting of community champions were formed in all fourteen counties.

Through policy, systems, and environmental changes, Community Coalitions provided guidance on the implementation of nutrition education opportunities, increased access to healthy food options and created safe, affordable places for physical activity.

**Results**

Scale Back Alabama (SBA) is a free statewide weight loss program sponsored by the Alabama Department of Public Health, the Alabama Hospital Association, and Blue Cross Blue Shield of Alabama. SBA is meant to encourage participants to lose 10 lbs. in a 10-week period. Various groups of Extension professionals partnered together (NEP, EFNEP, HNDH REAs, CECs, and administrative associates) to facilitate weigh in and weigh out sites. Although most of the sites were at the local county Extension office, some sites were hosted at alternate locations (schools, senior centers, churches, and city halls). Seven ALProHealth counties (Coosa, Cullman, Escambia, Greene, Macon, Pickens, and Sumter) reported SBA weight data. 91 teams of two individuals (182 people total) participated in the initial weigh in. Of the 91 teams that weighed in, 51 teams participated in the final weigh out 10 weeks later (56% retention). Of the 102 individuals participating, a weight loss of 836 total lbs. was reported, which was a 2.9% weight loss. Of the 102 individuals, 27 were successful in losing 10 lbs. or more during the program (26.5%).

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle

**Outcome #119**

**1. Outcome Measures**

The number of community members impacted through installation of signage promoting healthy lifestyle choices

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
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### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

While more than one-third of adults in Alabama are obese, rates of obesity and related illnesses are disproportionately higher among rural and limited resource individuals. Characteristics of the community, such as the access to healthy food sources and physical activity sites, can play a key role in influencing obesity-related behaviors. Rural southern populations experience disadvantageous environments that contribute to increased obesity rates. Understanding which characteristics of the community have the heaviest impact on obesity in rural Alabama is critical to developing an appropriate intervention strategy

#### What has been done

ALProHealth is an obesity-prevention program for residents of Alabama's fourteen counties with adult obesity rates of greater than forty percent. Coalitions consisting of community champions were formed in all fourteen counties. Through policy, systems, and environmental changes, Community Coalitions provided guidance on the implementation of nutrition education opportunities, increased access to healthy food options and created safe, affordable places for physical activity.

#### Results

Banners and other large signage were installed throughout seven ALProHealth counties that promoted the benefits of eating more fruits and vegetables, being more physically active, and cooking meals together as a family. The artwork for the banners was used in a statewide SNAP-Ed billboard campaign

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

#### Outcome #120

##### 1. Outcome Measures

Number of community members with increased access to fresh, locally grown produce through enhancement or establishment of a Farmers Market

##### 2. Associated Institution Types

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	55301

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

While more than one-third of adults in Alabama are obese, rates of obesity and related illnesses are disproportionately higher among rural and limited resource individuals. Characteristics of the community, such as the access to healthy food sources and physical activity sites, can play a key role in influencing obesity-related behaviors. Rural southern populations experience disadvantageous environments that contribute to increased obesity rates. Understanding which characteristics of the community have the heaviest impact on obesity in rural Alabama is critical to developing an appropriate intervention strategy.

**What has been done**

ALProHealth is an obesity-prevention program for residents of Alabama's fourteen counties with adult obesity rates of greater than forty percent. Coalitions consisting of community champions were formed in all fourteen counties. Through policy, systems, and environmental changes, Community Coalitions provided guidance on the implementation of nutrition education opportunities, increased access to healthy food options and created safe, affordable places for physical activity.

**Results**

The cities of Brent, Centreville, Clayton, Cullman, Eufaula, Gainesville, Lafayette, Rockford, Tuskegee, and Union Springs established new or enhanced existing Farmers Markets. Enhancements were accomplished through marketing, purchasing of shade structures and tables, creation of food displays, and monetary incentives for market managers

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle



**Outcome #121**

**1. Outcome Measures**

Number of residents with increased impact involving marketing of healthy food and beverage choices at grocery and convenience stores

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	35580

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

While more than one-third of adults in Alabama are obese, rates of obesity and related illnesses are disproportionately higher among rural and limited resource individuals. Characteristics of the community, such as the access to healthy food sources and physical activity sites, can play a key role in influencing obesity-related behaviors. Rural southern populations experience disadvantageous environments that contribute to increased obesity rates. Understanding which characteristics of the community have the heaviest impact on obesity in rural Alabama is critical to developing an appropriate intervention strategy.

**What has been done**

ALProHealth is an obesity-prevention program for residents of Alabama's fourteen counties with adult obesity rates of greater than forty percent. Coalitions consisting of community champions were formed in all fourteen counties. Through policy, systems, and environmental changes, Community Coalitions provided guidance on the implementation of nutrition education opportunities, increased access to healthy food options and created safe, affordable places for physical activity.

**Results**

The communities of Aliceville, Boligee, Brent, Centreville, Eutaw, Fort Deposit, Geiger, Gold Hill, Notasulga, Pine Hill, Tuskegee, and Union Springs were each involved with interventions involving healthy food and

beverage choices at grocery stores and/or convenience stores. These communities actively work with store owners to improve the food choices available to community members and to promote those healthy choices.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #122**

**1. Outcome Measures**

Number of individuals with increased emergency food preparedness through the enhancement of local food banks

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	50264

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

While more than one-third of adults in Alabama are obese, rates of obesity and related illnesses are disproportionately higher among rural and limited resource individuals. Characteristics of the community, such as the access to healthy food sources and physical activity sites, can play a key role in influencing obesity-related behaviors. Rural southern populations experience disadvantageous environments that contribute to increased obesity rates. Understanding which characteristics of the community have the heaviest impact on obesity in rural Alabama is critical to developing an appropriate intervention strategy.

**What has been done**

ALProHealth is an obesity-prevention program for residents of Alabama's fourteen counties with adult obesity rates of greater than forty percent. Coalitions consisting of community champions were formed in all fourteen counties.

Through policy, systems, and environmental changes, Community Coalitions provided guidance on the implementation of nutrition education opportunities, increased access to healthy food options and created safe, affordable places for physical activity.

**Results**

Food banks in the cities of Aliceville, Brantley, Cullman, Eufaula, Fort Deposit, Luverne, Rockford, and Union Springs were provided with new equipment to expand the ability to process and store greater amounts of food donations. Food banks will often receive large quantities of fresh produce that they are unable to disperse. Equipment such as refrigeration, freezer, and dehydration units allow food banks to process and store the food until distributions occur.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle

**Outcome #123**

**1. Outcome Measures**

Number of people with increased access to outdoor exercise or fitness equipment

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	39245

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

While more than one-third of adults in Alabama are obese, rates of obesity and related illnesses are disproportionately higher among rural and limited resource individuals. Characteristics of the community, such as the access to healthy food sources and physical activity sites, can play a key role in influencing obesity-related

behaviors. Rural southern populations experience disadvantageous environments that contribute to increased obesity rates. Understanding which characteristics of the community have the heaviest impact on obesity in rural Alabama is critical to developing an appropriate intervention strategy.

**What has been done**

ALProHealth is an obesity-prevention program for residents of Alabama's fourteen counties with adult obesity rates of greater than forty percent. Coalitions consisting of community champions were formed in all fourteen counties. Through policy, systems, and environmental changes, Community Coalitions provided guidance on the implementation of nutrition education opportunities, increased access to healthy food options and created safe, affordable places for physical activity

**Results**

39,245 community members ages 10 and older in the communities of Aliceville, Boligee, Brent, Cullman, Eufaula, Fort Deposit, Lafayette, Pine Hill, and Union Springs have increased access to outdoor exercise and fitness equipment. The equipment pieces are located in local parks and around local trails. This allows for public access free of charge on a schedule that is convenient to the user.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #124**

**1. Outcome Measures**

Number of people with increased access to a new or enhanced indoor fitness facility

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	9664

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

While more than one-third of adults in Alabama are obese, rates of obesity and related illnesses are disproportionately higher among rural and limited resource individuals. Characteristics of the community, such as the access to healthy food sources and physical activity sites, can play a key role in influencing obesity-related behaviors. Rural southern populations experience disadvantageous environments that contribute to increased obesity rates. Understanding which characteristics of the community have the heaviest impact on obesity in rural Alabama is critical to developing an appropriate intervention strategy

#### What has been done

ALProHealth is an obesity-prevention program for residents of Alabama's fourteen counties with adult obesity rates of greater than forty percent. Coalitions consisting of community champions were formed in all fourteen counties. Through policy, systems, and environmental changes, Community Coalitions provided guidance on the implementation of nutrition education opportunities, increased access to healthy food options and created safe, affordable places for physical activity.

#### Results

9,664 community members ages 10 and older in the communities of Atmore, Gainesville, Mt. Hebron, and Panola now have access to an indoor fitness facility. Each community manages their facility differently. However, the common theme is that these facilities are low-cost or free to use (as opposed to a traditional gym membership). This allows for people to access fitness equipment who would previously be restricted by the cost of a gym membership.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

#### Outcome #125

##### 1. Outcome Measures

Number of children with increased access to playground equipment at local parks

##### 2. Associated Institution Types

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	4225

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

While more than one-third of adults in Alabama are obese, rates of obesity and related illnesses are disproportionately higher among rural and limited resource individuals. Characteristics of the community, such as the access to healthy food sources and physical activity sites, can play a key role in influencing obesity-related behaviors. Rural southern populations experience disadvantageous environments that contribute to increased obesity rates. Understanding which characteristics of the community have the heaviest impact on obesity in rural Alabama is critical to developing an appropriate intervention strategy.

**What has been done**

ALProHealth is an obesity-prevention program for residents of Alabama's fourteen counties with adult obesity rates of greater than forty percent. Coalitions consisting of community champions were formed in all fourteen counties. Through policy, systems, and environmental changes, Community Coalitions provided guidance on the implementation of nutrition education opportunities, increased access to healthy food options and created safe, affordable places for physical activity.

**Results**

4,225 children ages 14 and younger in the communities of Eufaula, Pine Hill, Rockford, Union Springs, and West Blocton now have access to new playgrounds or access to playgrounds with enhancements made possible through the efforts of ALProHealth. Playgrounds are an important piece of the obesity-prevention puzzle as they provide safe and free places for children to participate in physical activity.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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**Outcome #126**

**1. Outcome Measures**

Number of community members with increased access to parks or walking trails with improved aesthetics and amenities

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	42380

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

While more than one-third of adults in Alabama are obese, rates of obesity and related illnesses are disproportionately higher among rural and limited resource individuals. Characteristics of the community, such as the access to healthy food sources and physical activity sites, can play a key role in influencing obesity-related behaviors. Rural southern populations experience disadvantageous environments that contribute to increased obesity rates. Understanding which characteristics of the community have the heaviest impact on obesity in rural Alabama is critical to developing an appropriate intervention strategy.

**What has been done**

ALProHealth is an obesity-prevention program for residents of Alabama's fourteen counties with adult obesity rates of greater than forty percent. Coalitions consisting of community champions were formed in all fourteen counties. Through policy, systems, and environmental changes, Community Coalitions provided guidance on the implementation of nutrition education opportunities, increased access to healthy food options and created safe, affordable places for physical activity.

**Results**

42,380 community members in the communities of Aliceville, Brent, Centreville, Cullman, Fort Deposit, Geiger, Lafayette, Panola, Rockford, and West Blocton now have access to local parks and trails with improved aesthetics and amenities.

This includes the addition of features such as water fountains, trash cans, rest benches, restrooms, and shade trees

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #127**

**1. Outcome Measures**

Number of community members with increased access to a new or renovated walking trail

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	47089

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

While more than one-third of adults in Alabama are obese, rates of obesity and related illnesses are disproportionately higher among rural and limited resource individuals. Characteristics of the community, such as the access to healthy food sources and physical activity sites, can play a key role in influencing obesity-related behaviors. Rural southern populations experience disadvantageous environments that contribute to increased obesity rates. Understanding which characteristics of the community have the heaviest impact on obesity in rural Alabama is critical to developing an appropriate intervention strategy.

**What has been done**

ALProHealth is an obesity-prevention program for residents of Alabama's fourteen counties with adult obesity rates



of greater than forty percent. Coalitions consisting of community champions were formed in all fourteen counties. Through policy, systems, and environmental changes, Community Coalitions provided guidance on the implementation of nutrition education opportunities, increased access to healthy food options and created safe, affordable places for physical activity

**Results**

47,089 community members in the communities of Cullman, Eufaula, Geiger, Lafayette, Panola, Pine Hill, Rockford, and Union Springs have access to new or enhanced walking trails providing an opportunity for individuals of all ages to participate in free physical activity.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #128**

**1. Outcome Measures**

Number of senior citizens participating in a community wellness program

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	297

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

While more than one-third of adults in Alabama are obese, rates of obesity and related illnesses are disproportionately higher among rural and limited resource individuals. Characteristics of the community, such as the access to healthy food sources and physical activity sites, can play a key role in influencing obesity-related behaviors. Rural southern populations experience disadvantageous environments that contribute

to increased obesity rates. Understanding which characteristics of the community have the heaviest impact on obesity in rural Alabama is critical to developing an appropriate intervention strategy

**What has been done**

ALProHealth is an obesity-prevention program for residents of Alabama's fourteen counties with adult obesity rates of greater than forty percent. Coalitions consisting of community champions were formed in all fourteen counties. Through policy, systems, and environmental changes, Community Coalitions provided guidance on the implementation of nutrition education opportunities, increased access to healthy food options and created safe, affordable places for physical activity.

**Results**

The communities of Brent, Centreville, Clayton, Eufaula, and Rockford developed and established a wellness program for senior citizens in the communities. This includes exercise classes as well as nutrition education programs targeting senior citizens

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #129**

**1. Outcome Measures**

Number of students attending schools that have participated in creating safer routes to school for children who walk or bike

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	937

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

While more than one-third of adults in Alabama are obese, rates of obesity and related illnesses are disproportionately higher among rural and limited resource individuals. Characteristics of the community, such as the access to healthy food sources and physical activity sites, can play a key role in influencing obesity-related behaviors. Rural southern populations experience disadvantageous environments that contribute to increased obesity rates. Understanding which characteristics of the community have the heaviest impact on obesity in rural Alabama is critical to developing an appropriate intervention strategy.

**What has been done**

ALProHealth is an obesity-prevention program for residents of Alabama's fourteen counties with adult obesity rates of greater than forty percent. Coalitions consisting of community champions were formed in all fourteen counties. Through policy, systems, and environmental changes, Community Coalitions provided guidance on the implementation of nutrition education opportunities, increased access to healthy food options and created safe, affordable places for physical activity.

**Results**

In the communities of Cullman and Fort Deposit, two elementary schools are taking measures to ensure that students who must walk or bike to school have a safe route to do so. Walking or biking to school becomes a source of active transportation for children, ultimately providing physical activity multiple times per week for students who must walk or bike to school. This is particularly important in the city of Cullman, which does not have a bus system for its city school system.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle

**Outcome #130**

**1. Outcome Measures**

Number of community members who participated in health screenings at local schools or faith-based organizations

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	3737

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

While more than one-third of adults in Alabama are obese, rates of obesity and related illnesses are disproportionately higher among rural and limited resource individuals. Characteristics of the community, such as the access to healthy food sources and physical activity sites, can play a key role in influencing obesity-related behaviors. Rural southern populations experience disadvantageous environments that contribute to increased obesity rates. Understanding which characteristics of the community have the heaviest impact on obesity in rural Alabama is critical to developing an appropriate intervention strategy

**What has been done**

ALProHealth is an obesity-prevention program for residents of Alabama's fourteen counties with adult obesity rates of greater than forty percent. Coalitions consisting of community champions were formed in all fourteen counties. Through policy, systems, and environmental changes, Community Coalitions provided guidance on the implementation of nutrition education opportunities, increased access to healthy food options and created safe, affordable places for physical activity.

**Results**

The Extension offices within the counties of Bibb, Coosa, and Cullman all were actively involved with providing health screenings at local schools and faith-based organizations for community members who wish to receive information about their health. Schools in Bibb provided this service during Parents'/Grandparents' Day, offering an opportunity for family members of students to participate.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
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**Outcome #131**

**1. Outcome Measures**

Number of students impacted by school gardens established or enhanced through the ALProHealth initiative

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	5095

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

While more than one-third of adults in Alabama are obese, rates of obesity and related illnesses are disproportionately higher among rural and limited resource individuals. Characteristics of the community, such as the access to healthy food sources and physical activity sites, can play a key role in influencing obesity-related behaviors. Rural southern populations experience disadvantageous environments that contribute to increased obesity rates. Understanding which characteristics of the community have the heaviest impact on obesity in rural Alabama is critical to developing an appropriate intervention strategy.

**What has been done**

ALProHealth is an obesity-prevention program for residents of Alabama's fourteen counties with adult obesity rates of greater than forty percent. Coalitions consisting of community champions were formed in all fourteen counties. Through policy, systems, and environmental changes, Community Coalitions provided guidance on the implementation of nutrition education opportunities, increased access to healthy food options and created safe, affordable places for physical activity.

**Results**

Multiple Elementary and Middle schools in the counties of Barbour, Bibb, Bullock, Coosa, Cullman, Macon, and Sumter have established school gardens or used funds to enhance existing school gardens. These gardens provide younger children the opportunity to learn about growing and harvesting food, as well as providing them an opportunity to consume fresh produce. Some schools have begun the process to have these foods served for lunches, and Year 3 of the ALProHealth initiative will provide the opportunity to further expand this effort.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #132**

**1. Outcome Measures**

Number of community members with the opportunity to participate in a community garden established or enhanced through the ALProHealth initiative

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	32989

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

While more than one-third of adults in Alabama are obese, rates of obesity and related illnesses are disproportionately higher among rural and limited resource individuals. Characteristics of the community, such as the access to healthy food sources and physical activity sites, can play a key role in influencing obesity-related behaviors. Rural southern populations experience disadvantageous environments that contribute to increased obesity rates. Understanding which characteristics of the community have the heaviest impact on obesity in rural Alabama is critical to developing an appropriate intervention strategy.

**What has been done**

ALProHealth is an obesity-prevention program for residents of Alabama's fourteen counties with adult obesity rates of greater than forty percent. Coalitions consisting of community champions were formed in all fourteen counties. Through policy, systems, and environmental changes, Community Coalitions provided guidance on the implementation of nutrition education opportunities, increased access to healthy food options and created safe, affordable places for physical activity.

**Results**

The communities of Brantley, Eufaula, Geiger, Lafayette, Luverne, Tuskegee, and Union Springs have used funds to create or enhance community gardens. These gardens provide an opportunity for community members to grow and harvest fresh produce in a conducive atmosphere. Growing techniques and demonstrations provide members of the community garden an opportunity to learn techniques that will maximize harvesting output.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle

**Outcome #133**

**1. Outcome Measures**

Number of 3rd graders participating in Body Quest classes in the 14 ALProHealth counties

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	1407

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

While more than one-third of adults in Alabama are obese, rates of obesity and related illnesses are disproportionately higher among rural and limited resource individuals. Characteristics of the community, such as the access to healthy food sources and physical activity sites, can play a key role in influencing obesity-related behaviors. Rural southern populations experience disadvantageous environments that contribute to increased obesity rates. Understanding which characteristics of the community have the heaviest impact on obesity in rural Alabama is critical to developing an appropriate intervention strategy.

**What has been done**

ALProHealth is an obesity-prevention program for residents of Alabama’s fourteen counties with adult obesity rates of greater than forty percent. Coalitions consisting of community champions were formed in all fourteen counties. Through policy, systems, and environmental changes, Community Coalitions provided guidance on the implementation of nutrition education opportunities, increased access to healthy food options and created safe, affordable places for physical activity.

**Results**

A total of 1407 third graders participated in the SNAP-Ed Body Quest classes in ALProHealth counties. Body Quest is a childhood obesity prevention program in schools with 50 percent or more students receiving free or reduced-price lunch.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle

**Outcome #134**

**1. Outcome Measures**

Number of parents participating in Body Quest Parent classes in the 14 ALProHealth counties

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure



**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	1195

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

While more than one-third of adults in Alabama are obese, rates of obesity and related illnesses are disproportionately higher among rural and limited resource individuals. Characteristics of the community, such as the access to healthy food sources and physical activity sites, can play a key role in influencing obesity-related behaviors. Rural southern populations experience disadvantageous environments that contribute to increased obesity rates. Understanding which characteristics of the community have the heaviest impact on obesity in rural Alabama is critical to developing an appropriate intervention strategy.

**What has been done**

ALProHealth is an obesity-prevention program for residents of Alabama's fourteen counties with adult obesity rates of greater than forty percent. Coalitions consisting of community champions were formed in all fourteen counties. Through policy, systems, and environmental changes, Community Coalitions provided guidance on the implementation of nutrition education opportunities, increased access to healthy food options and created safe, affordable places for physical activity.

**Results**

A total of 1195 parents of third graders participated in SNAP-Ed Body Quest Parent as recipe tasters in ALProHealth counties. Accompanying school-based education for students, a parent initiative recruited parents to participate as recipe tasters. Parents prepared provided recipes in the home. Body Quest is a childhood obesity prevention program in schools with 50 percent or more of students receiving free or reduced-price lunch.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle

**Outcome #135**

**1. Outcome Measures**

Number of impressions from a social marketing billboard campaign

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	5818656

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

While more than one-third of adults in Alabama are obese, rates of obesity and related illnesses are disproportionately higher among rural and limited resource individuals. Characteristics of the community, such as the access to healthy food sources and physical activity sites, can play a key role in influencing obesity-related behaviors. Rural southern populations experience disadvantageous environments that contribute to increased obesity rates. Understanding which characteristics of the community have the heaviest impact on obesity in rural Alabama is critical to developing an appropriate intervention strategy

**What has been done**

ALProHealth is an obesity-prevention program for residents of Alabama's fourteen counties with adult obesity rates of greater than forty percent. Coalitions consisting of community champions were formed in all fourteen counties. Through policy, systems, and environmental changes, Community Coalitions provided guidance on the implementation of nutrition education opportunities, increased access to healthy food options and created safe, affordable places for physical activity

**Results**

Thirteen of the fourteen ALProHealth counties had a series of two billboard messages for a 12-week period for a total of

5,818,656 impressions.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle

**Outcome #136**

**1. Outcome Measures**

Number/% of treatment group participants who increase understanding of recommended daily fruit and vegetable servings from pre- to post-assessment and as compared to control group.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	1564

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Nineteen percent of Alabama's children ages 10-17 are obese. Dietary patterns begin in childhood making child nutrition education and early intervention critical.

**What has been done**

Body Quest is a childhood obesity prevention program for elementary youth. particularly 3rd graders in schools with 50% or more of students receiving free or reduced meals.

**Results**

Based on pre- and post-assessment data analyzed by t-test (within) and ANOVA (between): 1) Body Quest treatment group students (n=2,300) reported a significant increase in understanding of recommended daily fruit and vegetable servings from pre- to post-assessment (t=16.75, p<.001). 2) Body Quest treatment group students (n=2,300) reported a significant increase in understanding of recommended daily fruit and vegetable servings compared to control group students (n=1,780) at post-assessment (F(1,230)=71.93, p<.001).

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

#### V(H). Planned Program (External Factors)

##### External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)
- Other (catastrophic food poisoning)

##### Brief Explanation

{No Data Entered}

#### V(I). Planned Program (Evaluation Studies)

##### Evaluation Results

**Teens'** increased nutrition, nutrients, sports nutrition and chronic diseases knowledge from pre (n=869)- 22% to post (n=774)- 53%. The total number of steps at endline was over 1 million. The average calories burned per teen was 420. Teens' consumption of food groups: Vegetables- pre (26%), post (36%), Fruits- pre (70%), post (75%), Whole grains- pre (29%), post (40%), Proteins- pre (73%), post (66%), Dairy- pre (55%), post (49%), High Fat Foods- pre (58%), post (37%). Teenagers increased physical activity to 60 minutes per day: pre (60%) and post (68%).

**Urban SNAP-Ed-** 119 of 165 more often thought about healthy food choices when deciding what to feed their families. 77 of 165 more often prepared foods without adding salt. 55 of 165 reported their children ate breakfast more often, 32 of 165 less often ran out of food before the end of the month.

**AU Obesity and Diabetes Program:** Research identified mechanisms of glucose transport into fat muscles and dietary practices for managing obesity and diabetes.

**AU Sleep Research:** Research results suggest that African American students have higher propensity for sleep problems than European American students.

**AU Intelligent Agent Technology for Seniors:** Virtual pharmacist (VP) assisted 50 seniors in account sign up, prescription refill order and reminder set up, and to perform searches for drug information. The presence of intelligent agent aids in an e-pharmacy significantly impacted seniors' e-pharmacy literacy outcomes and psychological outcome.

**Right Bite-** Of the 514 people who participated 494 increased the consumption of foods with 2-3 grams of fiber from pre to post. 461 indicated they decreased how often they salt their foods at the table before eating. 461 indicated an increase in the amount of water they drink to more than 8 glasses per day.

**Scale Back Alabama** - Alabama Extension personnel (NEP educators, EFNEP educators, CECs, HNDH REAs and Administrative Assistants) reported SBA weight data. 497 two individuals (994 people total) participated in the initial weigh in. Of the 497 teams that weighed in, 262 teams participated in the final weigh out 10 weeks later (53% retention). Of the 524 individuals participating, a weight loss of 4661 total lbs. was reported. Of the 524 individuals, 185 were successful in losing 10 lbs. or more during the program (35%).

**Extension Food Nutrition Education Program Eating Smart Being Active:** Positive change in any food group (98%): [from FY 2016 Outcomes: Consumption of more fruits (48%), vegetables (43%), whole grains (23%) and more dairy products (44%)] More physical activity (62%): Improvement in nutrition practices (99%), food resource management (99%) and food safety practices (98%)

**Childhood Obesity Prevention:** This pilot project has established a need for a preventative obesity intervention among low-income residents of North Alabama. Additionally, the project has identified (1) limited accessibility to nutrient-dense foods in the local consumer nutrition environment (2) limited sidewalk accessibility and (3) parents misclassification of the weight status of their children are barriers to healthy food choices, physical activity among children and parents perceptions; respectively

**Integrated Approach to Youth Obesity Prevention-** results indicated that of children in Lowndes County 45% were overweight ( 85 percentile) and 45% obese ( 95th percentile) pre intervention. Post intervention revealed a decreased from 45% 36% among those who were obese (9.0% reduction). Obesity rate among boys decreased from 31% to 25% and among girls from 50% to 44%. Similar trend was observed for Green County where overweight ( 85 percentile) decreased from 38% to 30% and 50% to 38% for boys and girls respectively. Obesity ( 95th percentile) decreased from 50% to 25% among girls, with only a 1% decrease among obese boys.

**Let's Move with Soccer** Through the use of post project survey results and direct observations, all the youth demonstrated better soccer skills, 80% of participants expressed that they were eating healthier and using the 3210 program indicators, 30% reported eating more vegetables, 40% reported drinking less sodas and more water, 20% reported less TV time and 30% demonstrated increase in endurance and physical stamina. Over 33,000 healthy meals served after school at 5 sites in Macon County.

**Color Me Healthy-** Of the 455 children who participated 398 increased the consumption of fruits; 371 increased the consumption of vegetables and 398 increased physical activity.

## Key Items of Evaluation

**Teens'** increased nutrition, nutrients, sports nutrition and chronic diseases knowledge from pre (n=869)- 22% to post (n=774)- 53%. The total number of steps at endline was over 1 million. The average calories burned per teen was 420. Teens' consumption of food groups: Vegetables- pre (26%), post (36%), Fruits- pre (70%), post (75%), Whole grains- pre (29%), post (40%), Proteins- pre (73%), post (66%), Dairy- pre (55%), post (49%), High Fat Foods- pre (58%), post (37%). Teenagers increased physical activity to 60 minutes per day: pre (60%) and post (68%).

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**V(A). Planned Program (Summary)**

**Program # 5**

**1. Name of the Planned Program**

Sustainable Energy

Reporting on this Program

**V(B). Program Knowledge Area(s)**

**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources	10%	0%	0%	0%
102	Soil, Plant, Water, Nutrient Relationships	20%	0%	5%	5%
125	Agroforestry	0%	0%	5%	10%
201	Plant Genome, Genetics, and Genetic Mechanisms	0%	0%	5%	10%
202	Plant Genetic Resources	0%	0%	5%	10%
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%	0%	5%	5%
205	Plant Management Systems	0%	0%	15%	10%
211	Insects, Mites, and Other Arthropods Affecting Plants	0%	0%	5%	5%
212	Pathogens and Nematodes Affecting Plants	0%	0%	5%	5%
216	Integrated Pest Management Systems	20%	0%	10%	10%
402	Engineering Systems and Equipment	20%	0%	5%	0%
403	Waste Disposal, Recycling, and Reuse	20%	0%	0%	0%
405	Drainage and Irrigation Systems and Facilities	0%	0%	5%	0%
601	Economics of Agricultural Production and Farm Management	0%	50%	10%	10%
603	Market Economics	10%	0%	5%	5%
605	Natural Resource and Environmental Economics	0%	0%	10%	10%
607	Consumer Economics	0%	50%	5%	5%
	<b>Total</b>	100%	100%	100%	100%

**V(C). Planned Program (Inputs)**

**1. Actual amount of FTE/SYs expended this Program**

Year: 2016	Extension		Research	
	1862	1890	1862	1890

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<b>Plan</b>	1.0	8.4	10.0	9.0
<b>Actual Paid</b>	2.0	1.6	22.3	6.0
<b>Actual Volunteer</b>	0.0	0.0	0.0	0.0

**2. Institution Name:** Auburn University

**Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
29196	0	395954	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
45050	0	399600	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
233460	0	1643567	0

**2. Institution Name:** Alabama A&M University

**Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	3696	0	104697
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	3696	0	91782
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	4968	0	0

**2. Institution Name:** Tuskegee University

**Actual dollars expended in this Program (includes Carryover Funds from previous years)**



Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	99792	0	329942
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	81318	0	284348
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

## V(D). Planned Program (Activity)

### 1. Brief description of the Activity

**AU Biomass Production and Conversion Research:** Research is being conducted on preprocessing, preparation and conversion of one of Alabama's most abundant resources, pine trees, and other biomass and algal feedstocks into fuel, chemical and products using gasification, pyrolysis and hydrothermal processes. Metabolic engineering studies are also being carried to increase the efficiency of biobutanol fermentation production from crude glycerol, and on the development of sweet and forage sorghum production system in Alabama. Gasification is carried out at temperatures of 800 to 1000oC in the presence of limited oxygen to yield syngas (which is a mixture of CO, H2, CO2 and CH4). The syngas produced is then transformed into liquid fuels through Fisher-Tropsch . Similarly, research is being conducted to optimize the growth of algae which is then converted into biodiesel fuel. Using 3-D printing the optimal substrate texture for growing different species of algae is being quantified.

**AAMU Circles of Sustainability:** Integration of Food and Renewable Energy the objectives to be carried out will integrate canola production from experimental plots (3-5 acres), post-harvest extraction of oil from canola seeds, conversion of the oil to biodiesel, manufacturing of fish feed from the canola meal and applying waste from the fish as fertilizer for the production of canola. This closed-loop system will provide clean renewable energy, production of protein in the form of fish production and organic fertilizer for continued production of winter canola. The system will also be used as an educational tool for both students and the community.

**TU Alternate Bioenergy/Fiber Crops-**To identify alternate fiber and bioenergy crops as cost efficient and ecologically sustainable sources of feedstocks for ethanol production and sustainable approaches to educate SHD farmers, youth, and communities to adopt the use and production of bioenergy and fiber.

**TU Household Energy Efficiency-** The goal was to identify the current household energy consumption and identify the potential to introduce energy efficient technologies that will reduce household energy consumption and expenditure.

**TU Sustainable Energy, Energy** efficiency and audits of farm business and family households-Several program activities such as educational workshops and one-on -one meeting with farmers took place to better educate and communicate the various governmental , state and county programs that can be utilized once a farm energy audit has been completed.

PROPAGATION, PRODUCTION AND PRODUCT DEVELOPMENT OF ALTERNATE BIOENERGY AND FIBER CROPS FOR THE ALABAMA FARMING COMMUNITY - Both laboratory and pilot-scale experiments were conducted to (1) estimate the potential ethanol production from sweet sorghum, sugarcane, and sweetpotato by comparing ethanol concentrations among species and (2) determine the feasibility of continuous ethanol production using multiple feedstocks. A randomized complete block design with three replications was used.

**2. Brief description of the target audience**

**AU Biomass Production and Conversion Research:** Practicing engineers, students, biofuel start-up companies, policy makers and general public.

**TU ALTERNATE BIOENERGY AND FIBER CROPS** Disadvantaged farmers in the Black Belt region, underserved minority students and the general

**Household Energy Efficiency-** residents of the Black Belt counties; farm households, and non-farm households.

**Sustainable Energy, Energy efficiency and audits** of farm business and family households. Agriculture producers in Alabama Black Belt counties and Cherokee Tribe of North East Alabama (CTNEA).

**3. How was eXtension used?**

N/A

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	2897	1906511	1295	190542

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

Year: 2016

Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2016	Extension	Research	Total
<b>Actual</b>	0	19	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Number of publications  
Not reporting on this Output for this Annual Report

**Output #2**

**Output Measure**

- Number of rural well owners trained to improve the quality of their private wells  
Not reporting on this Output for this Annual Report

**Output #3**

**Output Measure**

- Number of homeowners trained to improve the use of energy in their homes  
Not reporting on this Output for this Annual Report

**Output #4**

**Output Measure**

- Number of homeowners trained to improve the use of energy in their farms  
Not reporting on this Output for this Annual Report

**Output #5**

**Output Measure**

- Number of homeowners trained to improve the use of energy in their businesses  
Not reporting on this Output for this Annual Report

**Output #6**

**Output Measure**

- Number of children in the Black Belt educated on natural resource management  
Not reporting on this Output for this Annual Report

**Output #7**

**Output Measure**

- Number of parents trained in responsible environmental stewardship  
Not reporting on this Output for this Annual Report

**Output #8**

**Output Measure**

- Number of volunteers trained in responsible environmental stewardship  
Not reporting on this Output for this Annual Report

**Output #9**

**Output Measure**

- Number of community leaders trained in responsible environmental stewardship

Not reporting on this Output for this Annual Report

**Output #10**

**Output Measure**

- Number of Development of alternate bioenergy and fiber crops Publications:

Not reporting on this Output for this Annual Report

**Output #11**

**Output Measure**

- Number of Development of alternate bioenergy and fiber crops Thesis completed

<b>Year</b>	<b>Actual</b>
2016	2

**Output #12**

**Output Measure**

- Number of Development of alternate bioenergy and fiber crops Students

<b>Year</b>	<b>Actual</b>
2016	3

**Output #13**

**Output Measure**

- The number of Black Belt resident energy audits conducted

<b>Year</b>	<b>Actual</b>
2016	3

**Output #14**

**Output Measure**

- The number of feasibility studies conducted for Black Belt homeowners

<b>Year</b>	<b>Actual</b>
2016	5

**Output #15**

**Output Measure**

- The number of Energy efficiency and audits of farm, business and family households workshops

conducted

<b>Year</b>	<b>Actual</b>
2016	3

**Output #16**

**Output Measure**

- Research is being conducted on gasification which converts one of Alabama's most abundant resources, pine trees, into a gas that can be used to produce gasoline and other liquid fuels

<b>Year</b>	<b>Actual</b>
2016	1

**Output #17**

**Output Measure**

- The number of research projects conducted on gasification which converts one of Alabama's most abundant resources, pine trees, into a gas that can be used to produce gasoline and other liquid fuels.

<b>Year</b>	<b>Actual</b>
2016	1

**Output #18**

**Output Measure**

- The number of AU research projects conducted to optimize the growth of algae which can be converted into biodiesel fuel.

<b>Year</b>	<b>Actual</b>
2016	1

**Output #19**

**Output Measure**

- The number of research projects conducted on preprocessing, preparation and conversion of pine trees, and other biomass and algal feedstocks into fuel, chemical and products using gasification, pyrolysis and hydrothermal processes.

<b>Year</b>	<b>Actual</b>
2016	1

**Output #20**

**Output Measure**

- The number of AU Metabolic engineering studies carried to increase the efficiency of biobutanol fermentation production from crude glycerol,

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<b>Year</b>	<b>Actual</b>
2016	1

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Increased percentage of bioenergy in the overall consumption of energy
2	Development and demonstration of logistics for bioenergy production
3	Knowledge gained
4	Recommendations adopted.
5	Energy saved and produced
6	Youth participants will acquire knowledge, skills, and awareness regarding well head protection, point/non-point source pollution, environmental stewardship, management of natural resources and water conservation, as well as climate change and sustainable energy. Adult participants will incorporate skills/knowledge and change behavior related to: pollution prevention, management of water resources, litter disposal and waste management, conservation and recycling of natural resources and safe and effective use of fertilizers and pesticides. Awareness will be acquired in climate change and sustainable energy.
7	Identify molecular markers linked to bioenergy traits in Miscanthus
8	Percent increase of ethanol in pilot scale
9	Percentage of reduced Black Belt household energy consumption
10	Research on the formulas for canola based aquaculture feed

### **Outcome #1**

#### **1. Outcome Measures**

Increased percentage of bioenergy in the overall consumption of energy

Not Reporting on this Outcome Measure

### **Outcome #2**

#### **1. Outcome Measures**

Development and demonstration of logistics for bioenergy production

#### **2. Associated Institution Types**

- 1862 Research

#### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

#### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	3

#### **3c. Qualitative Outcome or Impact Statement**

##### **Issue (Who cares and Why)**

Research is needed that improves the economics and efficiency of deploying biomass feedstock at sufficient quantities and with predictable composition such that the input specifications for various conversion processes are met.

##### **What has been done**

Auburn researchers are working on quantifying the properties of softwood and hardwood biomass that are important to storage, preprocessing and transportation.

##### **Results**

Analyses were carried out on their ultimate and proximate composition, calorific value, decomposition rate (using TGA) and thermal degradation energy (using DSC). Results obtained were compared to the results obtained for unseparated whole tree. In general, the properties of bark were significantly different from ( $P < 0.05$ ) those of the stemwood and whole tree but not significantly different from limbs/foilage. Due to the relatively large proportion of stemwood (83% by mass) in the whole tree, the ash, energy and volatile contents of stemwood were not significantly different from that of whole tree. Bark and stemwood had the highest (1.48%) and the lowest (0.33%) ash contents respectively while their corresponding volatile contents were 70.4% and 89.2%. TGA decomposition rate data confirmed the ultimate and proximate composition data



of the samples with the stemwood having the lowest percentage of residues after the samples were heated in nitrogen and air atmospheres from 30C to 900C. Energy required for thermal decomposition of bark was 350.9 kJ/kg and was about 250% higher than the energy required for thermal decomposition of limbs/foliage, stemwood or whole tree. In summary, our results showed that the presence of bark and limbs/foliage slightly lower the bioenergy potential of loblolly pine biomass.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
125	Agroforestry
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
402	Engineering Systems and Equipment
405	Drainage and Irrigation Systems and Facilities
601	Economics of Agricultural Production and Farm Management
603	Market Economics
605	Natural Resource and Environmental Economics
607	Consumer Economics

#### Outcome #3

##### 1. Outcome Measures

Knowledge gained

##### 2. Associated Institution Types

- 1862 Research

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	2

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

The third generation biofuels are derived from algal biomass. The main merit of using algae is that it provides much higher yields of biomass and fuels, and can be grown under conditions,

which are unsuitable for conventional crops production. In addition, algal production relieves food-versus-fuel pressure on agricultural lands.

**What has been done**

The development of various biofuels and bioproducts from algal biomass grown in wastewater is on-going, The overall goal is for algal biorefinery economically and technologically sustainable. Specifically, we are interested in developing novel processes that lead to development of high-value chemicals and products from aqueous phases and solids produced from HTL processes. Another goal is to develop an understanding on how algal biomass grown in wastewater is differed from those that are grown in fresh water.

**Results**

Biocrude obtained from algae was treated with four metal catalysts (platinum, ruthenium, nickel and cobalt) supported on activated carbon in the presence of high-pressure hydrogen and at temperature of 350oC. Overall, hydrogen treatment was effective in improving the quality of the biocrude produced from algae grown in wastewater with a corresponding decrease in BET surface area of the spent catalysts.

Bio-oil aqueous phase generated during liquefaction of algae was pretreated with granular activated carbon followed by biogas production. The initial COD (67%) of aqueous phase was reduced using the combination of both carbon treatment and biogas production. This study shows that bio-oil aqueous phase could be utilized for methane production.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
101	Appraisal of Soil Resources
102	Soil, Plant, Water, Nutrient Relationships
216	Integrated Pest Management Systems
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
603	Market Economics

**Outcome #4**

**1. Outcome Measures**

Recommendations adopted.

Not Reporting on this Outcome Measure

**Outcome #5**

**1. Outcome Measures**

Energy saved and produced

Not Reporting on this Outcome Measure

**Outcome #6**

**1. Outcome Measures**

Youth participants will acquire knowledge, skills, and awareness regarding well head protection, point/non-point source pollution, environmental stewardship, management of natural resources and water conservation, as well as climate change and sustainable energy. Adult participants will incorporate skills/knowledge and change behavior related to: pollution prevention, management of water resources, litter disposal and waste management, conservation and recycling of natural resources and safe and effective use of fertilizers and pesticides. Awareness will be acquired in climate change and sustainable energy.

Not Reporting on this Outcome Measure

**Outcome #7**

**1. Outcome Measures**

Identify molecular markers linked to bioenergy traits in Miscanthus

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	1

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Year-round availability of sweetpotato, sweet sorghum and sugarcane as feedstocks for ethanol production is among potential challenges for the bio-refinery industry. All three can be grown and

processed complementarily which would ensure a steady supply, thereby helping to extend the number of days an ethanol plant could operate. Miscanthus (Miscanthus spp.) offers an opportunity to diversify the sources of bioenergy feedstock because of its huge biomass output, fast growth rate, ability to grow on marginal lands and a wide range of soil types, and low inputs of water and fertilizer.

**What has been done**

Both laboratory and pilot-scale experiments were conducted to (1) estimate the potential ethanol production from sweet sorghum, sugarcane, and sweetpotato by comparing ethanol concentrations among species and (2) determine the feasibility of continuous ethanol production using multiple feedstocks. A randomized complete block design with three replications was used. Five SS cultivars (K.N. Morris, Dale, MSIE, Della, Sugar Drip), three SC cultivars (TU White, TU Blue, TU Green), singly or as mixed feedstocks were analyzed for Brix%, dry matter, total sugars and ethanol concentration. Biomass data production of several miscanthus lines were collected and samples evaluated for presence of biofuel marker traits.

**Results**

TU Research and Extension - molecular markers linked to bioenergy traits in Miscanthus were identified and compared to phenotypic observations which will help to target and identify desired breeds, to increase further biofuel production in the US.

Results showed that students improved their knowledge level in horticulture, biochemistry, analytical chemistry, engineering and predictive modeling.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
202	Plant Genetic Resources

**Outcome #8**

**1. Outcome Measures**

Percent increase of ethanol in pilot scale

**2. Associated Institution Types**

- 1890 Extension
- 1862 Research
- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	27

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Year-round availability of sweetpotato, sweet sorghum and sugarcane as feedstocks for ethanol production is among potential challenges for the bio-refinery industry. All three can be grown and processed complementarily which would ensure a steady supply, thereby helping to extend the number of days an ethanol plant could operate. Miscanthus (*Miscanthus* spp.) offers an opportunity to diversify the sources of bioenergy feedstock because of its huge biomass output, fast growth rate, ability to grow on marginal lands and a wide range of soil types, and low inputs of water and fertilizer.

#### What has been done

Both laboratory and pilot-scale experiments were conducted to (1) estimate the potential ethanol production from sweet sorghum, sugarcane, and sweetpotato by comparing ethanol concentrations among species and (2) determine the feasibility of continuous ethanol production using multiple feedstocks. A randomized complete block design with three replications was used. Five SS cultivars (K.N. Morris, Dale, MSIE, Della, Sugar Drip), three SC cultivars (TU White, TU Blue, TU Green), singly or as mixed feedstocks were analyzed for Brix%, dry matter, total sugars and ethanol concentration. Biomass data production of several miscanthus lines were collected and samples evaluated for presence of biofuel marker traits.

#### Results

TU Research and Extension Ethanol production was 27% higher at pilot scale but as single feedstocks, sugar cane was consistent regardless of scale while sweet sorghum and sweetpotato varied.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms
211	Insects, Mites, and Other Arthropods Affecting Plants

### Outcome #9

#### 1. Outcome Measures

Percentage of reduced Black Belt household energy consumption

#### 2. Associated Institution Types

- 1890 Extension
- 1890 Research

#### 3a. Outcome Type:

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	20

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

- Literature review and data collection from several sources to identify on household energy consumption and energy efficient appliances was done. Data covered detailed household energy use by type, what it was used for, and expenditure. This was a background for a case study that will take place in Macon and Green counties. Households are identified and in the process of identifying energy auditing company

**What has been done**

] Research and/or Extension Actual Endeavors- This round of the research was mainly compiling data and interpretation to evaluate the household energy consumption in Alabama as background for a household energy survey. The main output of the period was a document on Alabama household energy profile. Two fact sheets were developed from the profile: the pattern of household energy consumption, and the energy efficient household technologies, which will be disseminated to households through workshops in 2017.

**Results**

TU Research and Extension The use of Energy Star appliances and air conditioning units will reduce household energy consumption consequently expenditure by 10-20%.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
607	Consumer Economics

**Outcome #10**

**1. Outcome Measures**

Research on the formulas for canola based aquaculture feed

**2. Associated Institution Types**

- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
------	--------

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

The United States currently uses 55 billion gallons of petroleum-diesel per year, while only an insignificant percentage of biodiesel is produced mostly from cultivated crops such as soybean and canola. Therefore, being able to demonstrate the feasibility and practicability of producing a viable feedstock for biofuels from winter canola, a non-traditional crop in this region is an important undertaking. The acceptance of winter-canola rising in the southeastern states and farmers including the crop in their winter rotation season, when most cultivated lands traditionally are left fallow. Additional benefits of using the extracted oil for biodiesel and the resulting meal for aquaculture increase the paybacks of growing winter canola.

#### What has been done

During the period of this project, the objectives to be carried out will integrate canola production from experimental plots (3-5 acres), post-harvest extraction of oil from canola seeds, conversion of the oil to biodiesel, manufacturing of fish feed from the canola meal and applying waste from the fish as fertilizer for the production of canola. This closed-loop system will provide clean renewable energy, production of protein in the form of fish production and organic fertilizer for continued production of winter canola. The system will also be used as an educational tool for both students and the community.

#### Results

AAMU Researchers Completed outcomes include different formulas for canola based aquaculture feed as well as publications detailing the feed formulas and the response of hybrid bluegill and largemouth bass to canola based feeds. We are currently, and are expected to continue, offering tours and workshops as part of outreach to the public and dissemination of information. Systems will also be used to train undergraduate students in STEM concepts. We also expect to contribute to the training, support, and advisement of one graduate student

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

### V(H). Planned Program (External Factors)

#### External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

#### Brief Explanation

## V(I). Planned Program (Evaluation Studies)

### Evaluation Results

**AU Biomass Production and Conversion Research:** The yield and quality of syngas (e.g., energy content, composition) per unit mass of biomass feedstocks (e.g., pine and switchgrass) gasified was used to evaluate the effectiveness of the gasification process for each biomass feedstock. The AU gasification systems are used to train undergraduate and graduate students (at least 50 per year) in conversion of renewable resources to fuels, chemicals and products.

**AAMU Circles of Sustainability** -Completed outcomes include different formulas for canola based aquaculture feed as well as publications detailing the feed formulas and the response of hybrid bluegill and largemouth bass to canola based feeds. We are currently, and are expected to continue, offering tours and workshops as part of outreach to the public and dissemination of information. Systems will also be used to train undergraduate students in STEM concepts. We also expect to contribute to the training, support, and advisement of one graduate student.

**TU Alternate Bioenergy/Fiber CROPS Ethanol** production was 27% higher at pilot scale but as single feedstocks, sugar cane was consistent regardless of scale while sweet sorghum and sweet potato varied.

**Household Energy Efficiency** - Result showed that electricity is the main type of energy that is mainly used for space heating and cooling. About 38 % of the energy expenditure was for space heating and air conditioning, while all other household appliances such as refrigerators, cooking appliances, clothes washers, dryers, dishwashers, televisions, and small electronic accounted for 47% of the expenditure and 15% for water heating. Space heating and cooling is associated with the age and construction of the houses and to some extent the heating and cooling units. The use of Energy Star appliances and air conditioning units will reduce household energy consumption consequently expenditure by 10-20

**Sustainable Energy, Energy efficiency and audits of farm business and family households.**

There was a total of three farm energy audits completed. Site evaluations to verify if there farms would qualify for various irrigation systems, renewable energy technology systems through a grant program being offered were conducted.

PROPAGATION, PRODUCTION AND PRODUCT DEVELOPMENT OF ALTERNATE BIOENERGY AND FIBER CROPS FOR THE ALABAMA FARMING COMMUNITY-- Ethanol production was 27% higher at pilot scale but as single feedstocks, sugar cane was consistent regardless of scale while sweet sorghum and sweetpotato varied. Four (4) molecular markers linked to bioenergy traits in Miscanthus were identified and compared to phenotypic observations which will help to target and identify desired breeds, to increase further biofuel production in the US

### Key Items of Evaluation

**AU Biomass Production and Conversion Research:** The yield and quality of syngas (e.g., energy content, composition) per unit mass of biomass feedstocks (e.g., pine and switchgrass) gasified was used to evaluate the effectiveness of the gasification process for each biomass feedstock. The AU gasification systems are used to train undergraduate and graduate students (at least 50 per year) in conversion of renewable resources to fuels, chemicals and products.

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response of hybrid bluegill and largemouth bass to canola based feeds. We are currently, and are expected to continue, offering tours and workshops as part of outreach to the public and dissemination of information. Systems will also be used to train undergraduate students in STEM concepts. We also expect to contribute to the training, support, and advisement of one graduate student.

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**V(A). Planned Program (Summary)**

**Program # 6**

**1. Name of the Planned Program**

Community Development

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
601	Economics of Agricultural Production and Farm Management	0%	20%	0%	0%
605	Natural Resource and Environmental Economics	15%	10%	0%	0%
608	Community Resource Planning and Development	70%	50%	0%	0%
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	10%	10%	0%	0%
805	Community Institutions, Health, and Social Services	5%	10%	0%	0%
	<b>Total</b>	100%	100%	0%	0%

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2016	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	62.9	13.8	0.0	0.0
<b>Actual Paid</b>	29.8	13.0	1.7	1.0
<b>Actual Volunteer</b>	0.0	0.0	0.0	0.0

2. Institution Name: Auburn University

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
431901	0	26290	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
511338	0	26790	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1850283	0	355533	0

**2. Institution Name:** Alabama A&M University

**Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	587713	0	397849
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	587713	0	348770
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	926191	0	0

**2. Institution Name:** Tuskegee University

**Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	257529	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	209852	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

**The Volunteer Income Tax Assistance Program (VITA)** offers free income tax preparation to people who generally make \$60,000 or less, persons with disabilities and limited English speaking taxpayers who need assistance in preparing their own tax returns and claiming certain non-refundable credits.

Additionally, training and certifying volunteers to provide free basic income tax return preparation, with electronic filing, to qualified individuals.

**Value-Added Leadership for Strengthening Extension Personnel and Citizens:** The value-added leadership project used seminar, workshop, and roundtable formats to engage 144 community residents, including local and emerging leaders, in leadership and community development. The participants gained knowledge and skills in leadership and community development. The project seeks to expand leadership development training programs to improve the leadership skills of selected stakeholders, primarily, in 12 Black Belt Counties of Alabama.

**Entrepreneurship and Small Business Start-ups and Education:** The workshops covered varied business topics including Business Structures, Licensing, Business Taxation, Liability & Insurance, Employees, Bookkeeping/Accounting, Marketing, Profitability, and Business Assessment.

**Agricultural and Rural Policy Program** -Thorough historical research was conducted of the first 80 years of the Farm Bill and its reverberating impact on African American communities. Two students were trained in historical policy analysis, while one student was trained in contemporary policy analysis while providing an assessment of the 2014 Farm Bill. Three workshops/listening sessions were held with technical assistance providers, landowners, and professionals in the area of agriculture in the Black Belt to assess potential needs for the next farm bill. A public presentation was made of findings.

## 2. Brief description of the target audience

**The Volunteer Income Tax Assistance Program (VITA)** limited resource families in Alabama Black Belt counties

**Value-Added Leadership for Strengthening Extension Personnel and Citizens:** Community residents, emerging leaders, elected and appointed leaders, as well as volunteers; ancillary target audience: students

**Agricultural and Rural Policy Program** -The target audience is underserved and/or limited resource non-industrial forest and agricultural landowners, students, and the general public.

**Agricultural and Rural Policy Program** -The program brings together university-based experts with elected officials (local, state and national levels), advocacy groups, community-based organizations, and students to forge a solid base for representing African Americans in the rural South in the nation's political dialogue.

## 3. How was eXtension used?

N/A

## V(E). Planned Program (Outputs)

### 1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	823190	195340	706120	190209

**2. Number of Patent Applications Submitted (Standard Research Output)**  
**Patent Applications Submitted**

Year: 2016  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2016	Extension	Research	Total
Actual	0	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Number of Study circles and/or deliberative forums focused on education and workforce development conducted.  
 Not reporting on this Output for this Annual Report

**Output #2**

**Output Measure**

- Number of individuals enrolled in economic development certification program  
 Not reporting on this Output for this Annual Report

**Output #3**

**Output Measure**

- Number of career exploration and education planning workshops conducted  
 Not reporting on this Output for this Annual Report

**Output #4**

**Output Measure**

- Number of employment simulations skills assessment conducted

Not reporting on this Output for this Annual Report

**Output #5**

**Output Measure**

- Number of Regional Workforce Development Boards conducted and partnerships created  
Not reporting on this Output for this Annual Report

**Output #6**

**Output Measure**

- Number of individuals trained in leadership skills development,  
Not reporting on this Output for this Annual Report

**Output #7**

**Output Measure**

- Number of individuals trained in business management  
Not reporting on this Output for this Annual Report

**Output #8**

**Output Measure**

- Number of sessions conducted on how to access loans, employment, managing credit, and other resources  
Not reporting on this Output for this Annual Report

**Output #9**

**Output Measure**

- Number of individuals enrolled in entrepreneurship training programs  
Not reporting on this Output for this Annual Report

**Output #10**

**Output Measure**

- Number of Entrepreneurship workshops, conferences, seminars conducted  
Not reporting on this Output for this Annual Report

**Output #11**

**Output Measure**

- Number of Entrepreneurship training modules developed  
Not reporting on this Output for this Annual Report

**Output #12**

**Output Measure**

- Number of Extension e-bulletins and fact sheets  
Not reporting on this Output for this Annual Report

**Output #13**

**Output Measure**

- Number of refereed publications  
Not reporting on this Output for this Annual Report

**Output #14**

**Output Measure**

- Number of Requests for Technical Assistance  
Not reporting on this Output for this Annual Report

**Output #15**

**Output Measure**

- Number of workshops and or trainings on heir property and estate planning  
Not reporting on this Output for this Annual Report

**Output #16**

**Output Measure**

- Number of workshops and or trainings and conferences on leadership  
Not reporting on this Output for this Annual Report

**Output #17**

**Output Measure**

- Number of workshops and or trainings and conferences on volunteerism  
Not reporting on this Output for this Annual Report

**Output #18**

**Output Measure**

- Number VITA tax returns completed

<b>Year</b>	<b>Actual</b>
2016	210

**Output #19**

**Output Measure**

- Tax preparation dollars saved

<b>Year</b>	<b>Actual</b>
2016	42000

**Output #20**

**Output Measure**

- Refundable credits claimed

<b>Year</b>	<b>Actual</b>
2016	156697

**Output #21**

**Output Measure**

- Number of career exploration and education planning surveys completed

<b>Year</b>	<b>Actual</b>
2016	5707

**Output #22**

**Output Measure**

- Number of Volunteer Leadership Development workshops and/or trainings and conferences on leadership

<b>Year</b>	<b>Actual</b>
2016	11

**Output #23**

**Output Measure**

- Number of Volunteer Leadership Development Extension e-bulletins and fact sheets

<b>Year</b>	<b>Actual</b>
2016	11

**Output #24**

**Output Measure**

- Number of Black Belt residents individuals receiving income tax filing assistance

<b>Year</b>	<b>Actual</b>
2016	133

**Output #25**

**Output Measure**

- Number of TU sessions conducted on Personal Financial Planning

<b>Year</b>	<b>Actual</b>
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2016 6

**Output #26**

**Output Measure**

- Number of Black Belt individuals receiving one-on-one Personal Financial Counseling

<b>Year</b>	<b>Actual</b>
2016	23

**Output #27**

**Output Measure**

- Number of Entrepreneurship and Small Business Start-ups and Education individuals trained in business management

<b>Year</b>	<b>Actual</b>
2016	12

**Output #28**

**Output Measure**

- Number of sessions conducted on how to access loans, employment, managing credit, and other resources Entrepreneurship and Small Business Start-ups and Education

<b>Year</b>	<b>Actual</b>
2016	4

**Output #29**

**Output Measure**

- Number of individuals enrolled in Entrepreneurship and Small Business Start-ups and Education entrepreneurship training programs

<b>Year</b>	<b>Actual</b>
2016	61

**Output #30**

**Output Measure**

- Number of Agricultural and Rural Policy Program workshops/focus group discussions

<b>Year</b>	<b>Actual</b>
2016	3

**Output #31**

**Output Measure**

- Number of Agricultural and Rural Policy Program Student Interns Trained

<b>Year</b>	<b>Actual</b>
2016	3

**Output #32**

**Output Measure**

- Number of Agricultural and Rural Policy Program Submitted Abstracts

<b>Year</b>	<b>Actual</b>
2016	4

**Output #33**

**Output Measure**

- Number of Agricultural and Rural Policy Program bulletins

<b>Year</b>	<b>Actual</b>
2016	2

**Output #34**

**Output Measure**

- Number of Agricultural and Rural Policy Program grants submitted

<b>Year</b>	<b>Actual</b>
2016	3

**Output #35**

**Output Measure**

- Number of Agricultural and Rural Policy Program grants funded

<b>Year</b>	<b>Actual</b>
2016	1

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Percentage / number of program participants who demonstrate an increased knowledge in the strategies and tactics of community economic development
2	Percentage / number of program participants who demonstrate an increased knowledge on tools and resources for small business creation and development
3	Percentage / number of program participants who demonstrate an increased knowledge in the strategies and tactics of nonprofit creation and leadership
4	Percentage/ number of program participants who demonstrate and increased knowledge on checking, savings, and or budgeting
5	Percentage / number of program participants who complete a career and or education plan
6	Percentage / number of individuals who study habits and or grades improve
7	Percentage / number of program participants who seek post-secondary education
8	Number of people completing financial management education programs who decrease consumer credit debt, and or increase investing/savings/assets
9	Number of program participants that demonstrated and increase knowledge on debit reduction and or building wealth
10	Number of people completing financial management education programs who take steps toward developing a retirement plan
11	Number of program participants who start and or expand a business
12	Percentage / number of program participants who demonstrate an increased knowledge on how to engage in entrepreneurship
13	Number of program participants who develop a business plan
14	Number of program participants who develop new jobs skills and or secure new employment
15	Number of program participants who obtain personal and or business loans to start or expand their business
16	Number of program participants that demonstrate an increased knowledge of heir property and or estate planning
17	Number of requests for legal instruments and guidance to protect home and other property assets

18	Number of program participants that demonstrate and increased knowledge on volunteerism
19	Number of program participants that demonstrate an increase in community and organization volunteering
20	The number of Black Belt resident who gained knowledge and skills in ways of enhancing community development.
21	The number of Black Belt participants who gained knowledge in leadership and community development issues.
22	The number of Black Belt participants who adopted financial management best practices
23	Average cost savings as a result of participating in the workshop series and Tuskegee University VITA program
24	Number of Black Belt program participants who start a business
25	Number of TU program participants who demonstrate an increased knowledge on how to engage in entrepreneurship
26	The number of TU participants who received loans to start or expand/strengthen their business operations
27	The percentage of Black Belt residents who received information that that helped interpret the Farm Bill

**Outcome #1**

**1. Outcome Measures**

Percentage / number of program participants who demonstrate an increased knowledge in the strategies and tactics of community economic development

Not Reporting on this Outcome Measure

**Outcome #2**

**1. Outcome Measures**

Percentage / number of program participants who demonstrate an increased knowledge on tools and resources for small business creation and development

Not Reporting on this Outcome Measure

**Outcome #3**

**1. Outcome Measures**

Percentage / number of program participants who demonstrate an increased knowledge in the strategies and tactics of nonprofit creation and leadership

Not Reporting on this Outcome Measure

**Outcome #4**

**1. Outcome Measures**

Percentage/ number of program participants who demonstrate and increased knowledge on checking, savings, and or budgeting

Not Reporting on this Outcome Measure

**Outcome #5**

**1. Outcome Measures**

Percentage / number of program participants who complete a career and or education plan

Not Reporting on this Outcome Measure

**Outcome #6**

**1. Outcome Measures**

Percentage / number of individuals who study habits and or grades improve

Not Reporting on this Outcome Measure

**Outcome #7**

**1. Outcome Measures**

Percentage / number of program participants who seek post-secondary education

Not Reporting on this Outcome Measure

**Outcome #8**

**1. Outcome Measures**

Number of people completing financial management education programs who decrease consumer credit debt, and or increase investing/savings/assets

Not Reporting on this Outcome Measure

**Outcome #9**

**1. Outcome Measures**

Number of program participants that demonstrated and increase knowledge on debit reduction and or building wealth

Not Reporting on this Outcome Measure

**Outcome #10**

**1. Outcome Measures**

Number of people completing financial management education programs who take steps toward developing a retirement plan

Not Reporting on this Outcome Measure

**Outcome #11**

**1. Outcome Measures**

Number of program participants who start and or expand a business

Not Reporting on this Outcome Measure

**Outcome #12**

**1. Outcome Measures**

Percentage / number of program participants who demonstrate an increased knowledge on how to engage in entrepreneurship

Not Reporting on this Outcome Measure

**Outcome #13**

**1. Outcome Measures**

Number of program participants who develop a business plan

Not Reporting on this Outcome Measure

**Outcome #14**

**1. Outcome Measures**

Number of program participants who develop new jobs skills and or secure new employment

Not Reporting on this Outcome Measure

**Outcome #15**

**1. Outcome Measures**

Number of program participants who obtain personal and or business loans to start or expand their business

Not Reporting on this Outcome Measure

**Outcome #16**

**1. Outcome Measures**

Number of program participants that demonstrate an increased knowledge of heir property and or estate planning

Not Reporting on this Outcome Measure

**Outcome #17**

**1. Outcome Measures**

Number of requests for legal instruments and guidance to protect home and other property assets

Not Reporting on this Outcome Measure

**Outcome #18**

**1. Outcome Measures**

Number of program participants that demonstrate and increased knowledge on volunteerism

Not Reporting on this Outcome Measure

**Outcome #19**

**1. Outcome Measures**

Number of program participants that demonstrate an increase in community and organization volunteering

Not Reporting on this Outcome Measure

**Outcome #20**

**1. Outcome Measures**

The number of Black Belt resident who gained knowledge and skills in ways of enhancing community development.

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	144

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Rural counties are faced with challenges that require a unique combination of leadership skills to add value to the community. Efforts to provide leadership development skills to Black Belt County residents in particular have not been realized on a large scale, because of a number of reasons. Chief among them is a lack of training programs for Extension specialists and field staffs to enable them to acquire the knowledge and skills needed to train citizens in value-added leadership skills in order to enhance community development.

**What has been done**



-One hundred forty-four (144) contacts, comprising appointed, elected and emerging leaders as well as community residents, participated in 11 seminars, workshops, roundtables county leadership series workshops, and selected assessments. For the seminars the contacts were 25; for the workshops, the contacts were 96; for roundtables, the contacts were 23; for the selective assessments, the numbers varied. One (1) student assisted with these efforts.

### Results

TU- Research and Extension -One hundred forty-four (144) contacts gained knowledge and skills in ways of enhancing community development. Specifically, 16 in county leadership refresher seminar; 9 in county leadership series follow-up seminar; 96 in leadership for economic development, and 23 in leadership circle roundtables. Also, one (1) student gained knowledge and skills in leadership and community development as well as research. Particularly, nine (9) participants are making a difference in their community (from follow-up assessment from the County Leadership Series participants): indicated taking initiative and becoming more involved in community activities. The pre-test-post-test for the Eutaw, Greene County, participants also showed a highly significant ( $p = 0.000$ ) gain in knowledge in leadership and community development issues.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

#### Outcome #21

##### 1. Outcome Measures

The number of Black Belt participants who gained knowledge in leadership and community development issues.

##### 2. Associated Institution Types

- 1890 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	0

##### 3c. Qualitative Outcome or Impact Statement

###### Issue (Who cares and Why)

Rural counties are faced with challenges that require a unique combination of leadership skills to add value to the community. Efforts to provide leadership development skills to Black Belt County

residents in particular have not been realized on a large scale, because of a number of reasons. Chief among them is a lack of training programs for Extension specialists and field staffs to enable them to acquire the knowledge and skills needed to train citizens in value-added leadership skills in order to enhance community development.

**What has been done**

-One hundred forty-four (144) contacts, comprising appointed, elected and emerging leaders as well as community residents, participated in 11 seminars, workshops, roundtables county leadership series workshops, and selected assessments. For the seminars the contacts were 25; for the workshops, the contacts were 96; for roundtables, the contacts were 23; for the selective assessments, the numbers varied. One (1) student assisted with these efforts.

**Results**

TU Research and Extension The pre-test-post-test for the Eutaw, Greene County, participants also showed a highly significant (p = 0.000) gain in knowledge in leadership and community development issues.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
608	Community Resource Planning and Development

**Outcome #22**

**1. Outcome Measures**

The number of Black Belt participants who adopted financial management best practices

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	58

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Many low-income households are eligible for the earned income tax credit (EITC) and other tax credits but do not apply for the annual refunds because they are unaware of their existence. In

Alabama, more than 490,000 families claim an estimated \$1 billion through the federal EITC annually. However, with more than 75% of EITC recipients in Alabama paying a commercial preparer to complete their taxes and due to the lack of basic financial management skills, Alabama families lose more than \$78 million annually to tax preparation and refund anticipation loan costs. And yet most Americans would love to learn more about money matters and secure resources for home repairs or ownership.

**What has been done**

More than two hundred and twenty (220 contacts) low-income taxpayers and the elderly from Macon, Dallas, Barbour and Greene Counties participated in personal finance management and education workshop series and/or accepted the voluntary income tax assistance (VITA) and services. Topics covered included tax planning, budgeting, credit monitoring and repair, home purchase finance, recordkeeping, Social Security benefits, Medicare, insurances, and investments..

**Results**

TU -It is anticipated that at least 70% of 84 contacts (i.e., 58 contacts) will utilize information (knowledge and skills) acquired through participation in the workshops, and consequently, manage their finances better

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
608	Community Resource Planning and Development
805	Community Institutions, Health, and Social Services

**Outcome #23**

**1. Outcome Measures**

Average cost savings as a result of participating in the workshop series and Tuskegee University VITA program

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	225612

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Many low-income households are eligible for the earned income tax credit (EITC) and other tax credits but do not apply for the annual refunds because they are unaware of their existence. In Alabama, more than 490,000 families claim an estimated \$1 billion through the federal EITC annually. However, with more than 75% of EITC recipients in Alabama paying a commercial preparer to complete their taxes and due to the lack of basic financial management skills, Alabama families lose more than \$78 million annually to tax preparation and refund anticipation loan costs. And yet most Americans would love to learn more about money matters and secure resources for home repairs or ownership.

**What has been done**

More than two hundred and twenty (220 contacts) low-income taxpayers and the elderly from Macon, Dallas, Barbour and Greene Counties participated in personal finance management and education workshop series and/or accepted the voluntary income tax assistance (VITA) and services. Topics covered included tax planning, budgeting, credit monitoring and repair, home purchase finance, recordkeeping, Social Security benefits, Medicare, insurances, and investments..

**Results**

TU-Out of 133 taxes filed, the total refund was \$152,316.  
-The total Earned Income Tax Credit (EITC) was \$73,296.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
608	Community Resource Planning and Development

**Outcome #24**

**1. Outcome Measures**

Number of Black Belt program participants who start a business

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	6

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Economic development in smaller and particularly rural communities most often occurs as a result of entrepreneurs and the small businesses they develop. In order for an Entrepreneur to organize their business efforts, a business plan should be developed in order to assess the challenge, evaluate risks and opportunities, determine the course of actions necessary to launch the business. The entrepreneur cares because the business plan gives him/her an outline of the business and course to follow. Potential investors and financial institutions care because they want a clear picture of the business and the possibilities for success. Communities care because of the potential jobs created and developed.

#### What has been done

Several workshops and training sessions were provided on topics relating to Entrepreneurship and the skills, resources, and best practices deemed important to success. In addition to workshops that provided information and opportunity for questions and answers, one-on-one counseling sessions were conducted to personalize the technical assistance to the individual entrepreneurs and new/recent start-up businesses to strengthen their business operations and develop business plans for short- term and long-term planning to focus on business sustainability. Six businesses were started or expanded.

#### Results

TU Extension and Research Six businesses were started or expanded.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

#### Outcome #25

##### 1. Outcome Measures

Number of TU program participants who demonstrate an increased knowledge on how to engage in entrepreneurship

##### 2. Associated Institution Types

- 1890 Extension
- 1890 Research

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2016	80

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

-Communities care because increased knowledge can enable more budding entrepreneurs to become successful businesspersons. Economic development in smaller and particularly rural communities most often occurs as a result of entrepreneurs and the small businesses they develop. The entrepreneur cares because the business plan gives him/her an outline of the business and course to follow. Potential investors and financial institutions care because they want a clear picture of the business and the possibilities for success. Communities also care because of the potential number of jobs created and developed.

#### What has been done

Several workshops and training sessions were provided on topics relating to Entrepreneurship and the skills, resources, and best practices deemed important to success. In addition to workshops that provided information and opportunity for questions and answers, one-on-one counseling sessions were conducted to personalize the technical assistance to the individual entrepreneurs and new/recent start-up businesses to strengthen their business operations and develop business plans for short- term and long-term planning to focus on business sustainability.

#### Results

over 80% or 121 individuals acknowledged a gain in knowledge on How to Engage Entrepreneurship and were motivated to continue forward with action plans on developing businesses;

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

### Outcome #26

#### 1. Outcome Measures

The number of TU participants who received loans to start or expand/strengthen their business operations

#### 2. Associated Institution Types

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	2

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Economic development in smaller and particularly rural communities most often occurs as a result of entrepreneurs and the small businesses they develop. In order for an Entrepreneur to organize their business efforts, a business plan should be developed in order to assess the challenge, evaluate risks and opportunities, determine the course of actions necessary to launch the business. The entrepreneur cares because the business loan(s) gives him/her an outline of the business and course to follow. Potential investors and financial institutions care because they want a clear picture of the business and the possibilities for success. Communities care because of the potential jobs created and developed

**What has been done**

Several workshops and training sessions were provided on topics relating to Entrepreneurship and the skills, resources, and best practices deemed important to success. In addition to workshops that provided information and opportunity for questions and answers, one-on-one counseling sessions were conducted to personalize the technical assistance to the individual entrepreneurs and new/recent start-up businesses to strengthen their business operations and develop business plans for short- term and long-term planning to focus on business sustainability. Six businesses were started or expanded.

**Results**

Two of four businesses that applied received loans to start or expand/strengthen their business operations

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
608	Community Resource Planning and Development

**Outcome #27**

**1. Outcome Measures**

The percentage of Black Belt residents who received information that that helped interpret the Farm Bill

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	80

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Partly as a result of national farm policy, agriculture has become dominated by agribusinesses producing large quantities of subsidized commodity crops with few employees and heavy dependence on equipment and chemicals. Small farmers in these communities are finding it increasingly difficult to support their families, and their descendants, seeing the lack of opportunities, are less willing to continue farming or hold onto the land. Farm policy often serves to perfect the business climate for a style of agriculture that relies on large areas of monoculture, a high degree of mechanization, government subsidies, and heavy use of chemicals to control every natural process.

**What has been done**

80 years of the Farm Bill and its reverberating impact on African American communities. Two students were trained in historical policy analysis, while one student was trained in contemporary policy analysis while providing an assessment of the 2014 Farm Bill. Three workshops/listening sessions were held with technical assistance providers, landowners, and professionals in the area of agriculture in the Black Belt to assess potential needs for the next farm bill. A public presentation was made of findings.

**Results**

Tuskegee Research and Extension Agricultural and Rural Policy Program All of the students regarded the experience as enhancing their knowledge about policy issues. More specifically the two students conducting the historical research stated that their ability to understand agricultural issues was markedly increased, while the student giving the modern policy analysis is now applying for graduate studies in Rural Policy and Development. The results of the focus group meetings include two documents: one which is a bulleting in parochial language about the outputs of the 2014 Farm Bill in a way that is accessible to farmers and other stakeholders; and another which is a document containing 6 policy recommendations for the 2018 Farm Bill to be circulated in legislative circles. In the public presentation, 80% of respondents indicated that they received information that informed them of policy issues that would better help them interpret the Farm Bill.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics



## V(H). Planned Program (External Factors)

### External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

### Brief Explanation

## V(I). Planned Program (Evaluation Studies)

### Evaluation Results

**The Volunteer Income Tax Assistance Program (VITA)** More than 133 clients, low income and elderly, taxpayers from Macon, Bullock, Dallas, and Barbour counties and neighboring counties received assistance through the VITA Program while 87 received personal finance education through periodic workshops and one-on-one counseling sessions. Of the 87 participants attending the workshops and counseling sessions, 83 indicated that the sessions were "very helpful" and added to their knowledge and understanding of personal finance. Of that group of 83, 70% or at least 58 expressed plans to immediately begin using some of the information gained in their personal financial planning. Relative to the 133 tax filings, the total refunds amounted to \$152,316 and the Earned Income Tax Credit (EITC) was \$73,296. On the average participants saved about \$110 each in tax preparation fees totaling more than \$14,000. While most of those receiving refunds, 119, indicated that they had immediate uses for the amounts received, about 16% stated they would put certain amounts in savings accounts.

**Value-Added Leadership for Strengthening Extension Personnel and Citizens** - pre-test-post-test for the Eutaw, Greene County, participants also showed a highly significant ( $p = 0.000$ ) gain in knowledge in leadership and community development issues. Moreover, one (1) student gained knowledge and skills in leadership and community development as well as research. As a result of the above gains, it is feasible to enhance community development in the Alabama Black Belt if the appropriate knowledge and skills are gained.

**Start-up Business Technical Assistance and Education** - Of the 152 people who attended, over 80% gained knowledge regarding new business operations. The workshops also provided opportunity for business to business exchange of information and ideas for 20% of participants. In addition to workshops that provided information and opportunity for questions and answers, one-on-one counseling sessions were conducted to personalize the technical assistance to the individual entrepreneurs and new/recent start-up businesses to strengthen their business operations and develop business plans for short- term and long-

term planning to focus on business sustainability. A significant number of the 152+ attendees, 40% or 61 began some action to initiate formal business practices not previously conducted.

Bookkeeping/Accounting practices initiated by at least 16 and business plan development initiated by more than 20. At least 6 participants acknowledged a Change in Action by starting or expanding their business, while 12 participants Change in Action resulted in the development of Business Plans, and 2 entrepreneurial participants acknowledged a Change in Condition when they obtained a loan to strengthen their business.

**Agricultural and Rural Policy Program** all of the students regarded the experience as enhancing their knowledge about policy issues. More specifically the two students conducting the historical research stated that their ability to understand agricultural issues was markedly increased, while the student giving the modern policy analysis is now applying for graduate studies in Rural Policy and Development. The results of the focus group meetings include two documents: one which is a bulleting in parochial language about the outputs of the 2014 Farm Bill in a way that is accessible to farmers and other stakeholders; and another which is a document containing 6 policy recommendations for the 2018 Farm Bill to be circulated in legislative circles.

## Key Items of Evaluation

**The Volunteer Income Tax Assistance Program (VITA)** More than 133 clients, low income and elderly, taxpayers from Macon, Bullock, Dallas, and Barbour counties and neighboring counties received assistance through the VITA Program while 87 received personal finance education through periodic workshops and one-on-one counseling sessions. Of the 87 participants attending the workshops and counseling sessions, 83 indicated that the sessions were "very helpful" and added to their knowledge and understanding of personal finance. Of that group of 83, 70% or at least 58 expressed plans to immediately begin using some of the information gained in their personal financial planning. Relative to the 133 tax filings, the total refunds amounted to \$152,316 and the Earned Income Tax Credit (EITC) was \$73,296. On the average participants saved about \$110 each in tax preparation fees totaling more than \$14,000. While most of those receiving refunds, 119, indicated that they had immediate uses for the amounts received, about 16% stated they would put certain amounts in savings accounts.

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**V(A). Planned Program (Summary)**

**Program # 7**

**1. Name of the Planned Program**

Family, Home, 4-H and Youth Development

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
602	Business Management, Finance, and Taxation	10%	10%	0%	0%
607	Consumer Economics	10%	10%	0%	0%
801	Individual and Family Resource Management	20%	20%	0%	0%
802	Human Development and Family Well-Being	20%	20%	0%	0%
806	Youth Development	40%	40%	0%	0%
	<b>Total</b>	100%	100%	0%	0%

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2016	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	58.5	20.6	0.0	0.0
<b>Actual Paid</b>	144.8	12.6	0.0	0.0
<b>Actual Volunteer</b>	0.0	0.0	0.0	0.0

2. Institution Name: Auburn University

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
2359874	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
2533432	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
12104183	0	0	0

**2. Institution Name:** Alabama A&M University

**Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	534721	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	534721	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	985143	0	0

**2. Institution Name:** Tuskegee University

**Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	283282	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	230836	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

**TMI** is a series of five interactive lessons on character education, health and physical fitness, etiquette, career focus and civic education.

**Promoting Readiness for Employment Possibilities (PREP)** is a curriculum focused on preparing individuals for conducting a successful job search. The program consisted of four lessons: resume writing, completing job applications, interview skills, and appropriate dress.

**BeSafe- Safe, Affirming, and Fair Environments (Olsen & Pace, 2013)** is a classroom-based bullying prevention program that targets peer groups, rather than individual bullies or victims.

**4HLeadership**-In the 2016 4-H club year 881 youth had an opportunity to participate in a variety of leadership programs to increase their knowledge, skills, and conditions in leadership and citizenship.

**STEAM Skills Enhancement** consisted of a series of age-appropriate experiential learning activities for K-12 youth in underserved areas of the Alabama Black Belt.

**Development and the Nurturing of Youth in Science Education**-Participation in high-quality positive youth development STEAM programs culminating to the 4-H National Youth Science Day offers the opportunity to engage in scientific exploration to build the next generation scientists, engineers and mathematicians

**Enhancing Problem Solving Skills in Youth**-Through mathematics and mathematics-related education scenarios, we exposed targeted population to the methodologies of problem solving as they relate to various types of challenges in logical reasoning and/or mathematics

**Money Management for High School Youth in Dallas County**- A combined course was taught teaching students the right principles on which money is earned. Scenarios allowed students to choose career paths with the potential of earning substantial salaries upon graduation

## 2. Brief description of the target audience

**TMI**- underserved youth ages 9-18

**PREP**- Approximately 67% of the participants were adults and 33% were youth. The majority of the participants (94%) were from urban areas in the state. A little more than two thirds of the participants were female (68%). African Americans made up 88% of the participant while White Americans made up roughly 11%. All other ethnic group combined made up 1% of the program participants.

**BESAFE**-Youth ages 11-15 across the state of Alabama.

**4HLeadership**-youth ages 12-18 years old

**STEAM** Youth in middle and high school ages 8 to 16 years in the underserved populations of the black belt counties were enrolled to participate in the program.

**Let's Move Soccer**- students in grades 5-9

**Development and the Nurturing of Youth in Science Education** -- youth ages 8 to 16 from underserved populations in the Black Belt area of Alabama

**Money Management for High School Youth in Dallas County**- High School Seniors

## 3. How was eXtension used?

N/A

## V(E). Planned Program (Outputs)

### 1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	103972	202334	143576	208604

**2. Number of Patent Applications Submitted (Standard Research Output)**  
**Patent Applications Submitted**

Year: 2016  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2016	Extension	Research	Total
Actual	17	15	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Number of partnerships  
 Not reporting on this Output for this Annual Report

**Output #2**

**Output Measure**

- Number of publications  
 Not reporting on this Output for this Annual Report

**Output #3**

**Output Measure**

- Number of newsletters  
 Not reporting on this Output for this Annual Report

**Output #4**

**Output Measure**

- Number of articles  
 Not reporting on this Output for this Annual Report

**Output #5**

**Output Measure**

- Number of business plans  
Not reporting on this Output for this Annual Report

**Output #6**

**Output Measure**

- Number of volunteers  
Not reporting on this Output for this Annual Report

**Output #7**

**Output Measure**

- Number of success stories  
Not reporting on this Output for this Annual Report

**Output #8**

**Output Measure**

- Number of testimonies  
Not reporting on this Output for this Annual Report

**Output #9**

**Output Measure**

- Number of grants and contracts submitted and/or awarded.  
Not reporting on this Output for this Annual Report

**Output #10**

**Output Measure**

- Number of support groups.  
Not reporting on this Output for this Annual Report

**Output #11**

**Output Measure**

- Number of technology- based resources.  
Not reporting on this Output for this Annual Report

**Output #12**

**Output Measure**

- Number of times research-based professional expertise engaged.  
Not reporting on this Output for this Annual Report



**Output #13**

**Output Measure**

- Number of curriculum utilized.  
Not reporting on this Output for this Annual Report

**Output #14**

**Output Measure**

- Number of participants in Citizenship Education Tours  
Not reporting on this Output for this Annual Report

**Output #15**

**Output Measure**

- Number of participants in 4-H Clubs

<b>Year</b>	<b>Actual</b>
2016	42323

**Output #16**

**Output Measure**

- Number of participants in 4-H After-school

<b>Year</b>	<b>Actual</b>
2016	3055

**Output #17**

**Output Measure**

- Number of participants in Tech Academies Social Media Education  
Not reporting on this Output for this Annual Report

**Output #18**

**Output Measure**

- Number of participants in Entrepreneurship  
Not reporting on this Output for this Annual Report

**Output #19**

**Output Measure**

- Number of participants in Youth Gardens  
Not reporting on this Output for this Annual Report

**Output #20**

**Output Measure**

- Number of participants in Youth Animal

<b>Year</b>	<b>Actual</b>
2016	1140

**Output #21**

**Output Measure**

- Number of participants in Group discussions  
Not reporting on this Output for this Annual Report

**Output #22**

**Output Measure**

- Number of participants in Summer Camps

<b>Year</b>	<b>Actual</b>
2016	3995

**Output #23**

**Output Measure**

- Number of participants in Enrichment Programs

<b>Year</b>	<b>Actual</b>
2016	101896

**Output #24**

**Output Measure**

- Number of military clubs

<b>Year</b>	<b>Actual</b>
2016	20

**Output #25**

**Output Measure**

- Number of participants in Activities  
Not reporting on this Output for this Annual Report

**Output #26**

**Output Measure**

- Number of participants in Special Events

Not reporting on this Output for this Annual Report

**Output #27**

**Output Measure**

- Number of participants in 4-H Special Interest Clubs

Not reporting on this Output for this Annual Report

**Output #28**

**Output Measure**

- Number of participants in 4-H In-school clubs

<b>Year</b>	<b>Actual</b>
2016	58711

**Output #29**

**Output Measure**

- Number of 4-H/STEM and Health volunteers

<b>Year</b>	<b>Actual</b>
2016	7756

**Output #30**

**Output Measure**

- Number of 4-H/STEM and Health technology- based resources

<b>Year</b>	<b>Actual</b>
2016	10

**Output #31**

**Output Measure**

- Number of participants in 4-H/STEM and Health Citizenship Education Tours

<b>Year</b>	<b>Actual</b>
2016	47

**Output #32**

**Output Measure**

- Number of Alabama Outdoor Classroom participants in Activities

<b>Year</b>	<b>Actual</b>
2016	70000

**Output #33**

**Output Measure**

- Number of Alabama Outdoor Classroom grants and contracts submitted and/or awarded

<b>Year</b>	<b>Actual</b>
2016	15

**Output #34**

**Output Measure**

- Number of Leadership and Citizenship surveys completed

<b>Year</b>	<b>Actual</b>
2016	881

**Output #35**

**Output Measure**

- Number of 4-H Club Officers surveys completed

<b>Year</b>	<b>Actual</b>
2016	100

**Output #36**

**Output Measure**

- Number of Making Money County participants in Activities

<b>Year</b>	<b>Actual</b>
2016	6218

**Output #37**

**Output Measure**

- Number of Making Money County surveys completed

<b>Year</b>	<b>Actual</b>
2016	13

**Output #38**

**Output Measure**

- Number of Making Money County activities

<b>Year</b>	<b>Actual</b>
2016	133

**Output #39**

**Output Measure**

- Number of Making Money County credit reports completed and submitted

<b>Year</b>	<b>Actual</b>
2016	351

**Output #40**

**Output Measure**

- Number of Making Money County participants trained to use debt management software

<b>Year</b>	<b>Actual</b>
2016	303

**Output #41**

**Output Measure**

- Number of Youth Learning About Money Management Skills workshops conducted

<b>Year</b>	<b>Actual</b>
2016	6

**Output #42**

**Output Measure**

- Number of Promoting Readiness for Employment Possibilities (PREP) participants in activities

<b>Year</b>	<b>Actual</b>
2016	1352

**Output #43**

**Output Measure**

- Number of Promoting Readiness for Employment Possibilities (PREP) surveys completed

<b>Year</b>	<b>Actual</b>
2016	388

**Output #44**

**Output Measure**

- Number of Promoting Readiness for Employment Possibilities (PREP) activities

<b>Year</b>	<b>Actual</b>
2016	86

**Output #45**

**Output Measure**

- Number of Grandparents and Relatives as Parents Program participants in activities

<b>Year</b>	<b>Actual</b>
2016	675

**Output #46**

**Output Measure**

- Number of Grandparents and Relatives as Parents Program surveys developed

<b>Year</b>	<b>Actual</b>
2016	13

**Output #47**

**Output Measure**

- Number of Grandparents and Relatives as Parents Program surveys completed

<b>Year</b>	<b>Actual</b>
2016	133

**Output #48**

**Output Measure**

- Number of Grandparents and Relatives as parents Program activities

<b>Year</b>	<b>Actual</b>
2016	47

**Output #49**

**Output Measure**

- Number of Successful Aging Initiative participants in activities

<b>Year</b>	<b>Actual</b>
2016	8986

**Output #50**

**Output Measure**

- Number of Successful Aging Initiative surveys developed

<b>Year</b>	<b>Actual</b>
2016	13

**Output #51**

**Output Measure**

- Number of Successful Aging Initiative surveys completed

<b>Year</b>	<b>Actual</b>
2016	368

**Output #52**

**Output Measure**

- Number of Successful Aging Initiative program activities

<b>Year</b>	<b>Actual</b>
2016	129

**Output #53**

**Output Measure**

- Number of Successful Aging Initiative Pro Bono Clinics on Creating Wills

<b>Year</b>	<b>Actual</b>
2016	6

**Output #54**

**Output Measure**

- Number of Estate Planning Basics Workshop Participants

<b>Year</b>	<b>Actual</b>
2016	435

**Output #55**

**Output Measure**

- Number of Wills developed in Successful Aging Initiative

<b>Year</b>	<b>Actual</b>
2016	92

**Output #56**

**Output Measure**

- Number of Advance Directives created in the Successful Aging Initiative

<b>Year</b>	<b>Actual</b>
2016	196

**Output #57**

**Output Measure**

- Number of Estate Planning Seminars Implemented

<b>Year</b>	<b>Actual</b>
2016	17

**Output #58**

**Output Measure**

- Number of Family Advocacy through Caring Engagement Strategies participants in activities

<b>Year</b>	<b>Actual</b>
2016	1822

**Output #59**

**Output Measure**

- Number of Family Advocacy through Caring Engagement Strategies surveys developed

<b>Year</b>	<b>Actual</b>
2016	13

**Output #60**

**Output Measure**

- Number of Family Advocacy through Caring Engagement Strategies surveys completed

<b>Year</b>	<b>Actual</b>
2016	368

**Output #61**

**Output Measure**

- Number of Family Advocacy through Caring Engagement Strategies program activities

<b>Year</b>	<b>Actual</b>
2016	168

**Output #62**

**Output Measure**

- Number of Reality Check partnerships

<b>Year</b>	<b>Actual</b>
2016	163



**Output #63**

**Output Measure**

- Number of Reality Check volunteers

<b>Year</b>	<b>Actual</b>
2016	1850

**Output #64**

**Output Measure**

- Number of Reality Check participants in activities

<b>Year</b>	<b>Actual</b>
2016	13289

**Output #65**

**Output Measure**

- Number of curriculum utilized for Reality Check

<b>Year</b>	<b>Actual</b>
2016	1

**Output #66**

**Output Measure**

- Number of Making Money County financial classes taught

<b>Year</b>	<b>Actual</b>
2016	113

**Output #67**

**Output Measure**

- Number of Making Money County financial workshops conducted

<b>Year</b>	<b>Actual</b>
2016	30

**Output #68**

**Output Measure**

- Number of Making Money County credit report applications given and completed

<b>Year</b>	<b>Actual</b>
2016	514

**Output #69**

**Output Measure**

- Number of Job Search Preparation participants in activities

<b>Year</b>	<b>Actual</b>
2016	2300

**Output #70**

**Output Measure**

- Number of curriculum utilized in Job Search Preparation

<b>Year</b>	<b>Actual</b>
2016	1

**Output #71**

**Output Measure**

- Number of Job Search preparation surveys completed

<b>Year</b>	<b>Actual</b>
2016	500

**Output #72**

**Output Measure**

- Number of Job Search Preparation partnerships

<b>Year</b>	<b>Actual</b>
2016	30

**Output #73**

**Output Measure**

- Number of Job Search Preparation Career Fairs

<b>Year</b>	<b>Actual</b>
2016	3

**Output #74**

**Output Measure**

- Value of 4-H Volunteer Contribution

<b>Year</b>	<b>Actual</b>
2016	2300000

**Output #75**

**Output Measure**

- Number of 4-H Volunteers trained

<b>Year</b>	<b>Actual</b>
2016	1794

**Output #76**

**Output Measure**

- Number of surveys completed for the Dale/Geneva Counties Community Index

<b>Year</b>	<b>Actual</b>
2016	847

**Output #77**

**Output Measure**

- Number of Anti-Bullying Program Initiative participants in activities

<b>Year</b>	<b>Actual</b>
2016	3382

**Output #78**

**Output Measure**

- Number of curriculum utilized in Anti-Bullying Program Initiative

<b>Year</b>	<b>Actual</b>
2016	1

**Output #79**

**Output Measure**

- Number of participants in the Natural Resources and Environmental Education enrichment programs

<b>Year</b>	<b>Actual</b>
2016	5945

**Output #80**

**Output Measure**

- Number of Natural Resources and Environmental Education volunteers

<b>Year</b>	<b>Actual</b>
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2016 63

**Output #81**

**Output Measure**

- Number of Natural Resources and Environmental Education grants and contracts submitted and/or awarded

<b>Year</b>	<b>Actual</b>
2016	10

**Output #82**

**Output Measure**

- Number of Natural Resources and Environmental Education articles

<b>Year</b>	<b>Actual</b>
2016	12

**Output #83**

**Output Measure**

- Number of Volunteer in Urban Programs (VIP) volunteers

<b>Year</b>	<b>Actual</b>
2016	301

**Output #84**

**Output Measure**

- Number of Volunteer in Urban Programs (VIP) Leadership Conferences

<b>Year</b>	<b>Actual</b>
2016	1

**Output #85**

**Output Measure**

- Number of Access and Visitation grants and contracts submitted and/or awarded

<b>Year</b>	<b>Actual</b>
2016	1

**Output #86**

**Output Measure**

- Number of Alabama 4-h Health Rocks! participants in activities

<b>Year</b>	<b>Actual</b>
2016	3055

**Output #87**

**Output Measure**

- Number of STEAM Exploration participants in activities

<b>Year</b>	<b>Actual</b>
2016	1427

**Output #88**

**Output Measure**

- Number of curriculum utilized in SHIFT Program

<b>Year</b>	<b>Actual</b>
2016	10

**Output #89**

**Output Measure**

- Number of participants in SHIFT Program Enrichment Programs

<b>Year</b>	<b>Actual</b>
2016	998

**Output #90**

**Output Measure**

- Number of SHIFT Program participants in Special Events

<b>Year</b>	<b>Actual</b>
2016	2500

**Output #91**

**Output Measure**

- Number of Elmore Coosa Parent Education and Support Program grants and contracts submitted and/or awarded

<b>Year</b>	<b>Actual</b>
2016	1

**Output #92**

**Output Measure**

- Number of Teens Making Impact (TMI) participants in activities

<b>Year</b>	<b>Actual</b>
2016	1065

**Output #93**

**Output Measure**

- Number of Teens Making Impact (TMI)partnerships

<b>Year</b>	<b>Actual</b>
2016	15

**Output #94**

**Output Measure**

- Number of Teens Making Impact (TMI)volunteers

<b>Year</b>	<b>Actual</b>
2016	77

**Output #95**

**Output Measure**

- Number of Teens Making Impact (TMI) participants in TMI Leadership Conference

<b>Year</b>	<b>Actual</b>
2016	95

**Output #96**

**Output Measure**

- The number Just Move Soccer Partnerships

<b>Year</b>	<b>Actual</b>
2016	20

**Output #97**

**Output Measure**

- The number of Just Move Soccer newsletters

<b>Year</b>	<b>Actual</b>
2016	1

**Output #98**

**Output Measure**

- Number of Just Move Soccer articles

<b>Year</b>	<b>Actual</b>
2016	2

**Output #99**

**Output Measure**

- Number of Just Move Soccer Volunteers

<b>Year</b>	<b>Actual</b>
2016	20

**Output #100**

**Output Measure**

- Number of Just Move Soccer Success Stories

<b>Year</b>	<b>Actual</b>
2016	455

**Output #101**

**Output Measure**

- Number of Just Move Soccer testimonies

<b>Year</b>	<b>Actual</b>
2016	12

**Output #102**

**Output Measure**

- The number of Just Move Soccer support groups

<b>Year</b>	<b>Actual</b>
2016	7

**Output #103**

**Output Measure**

- Number of Just Move Soccer technology based resources

<b>Year</b>	<b>Actual</b>
2016	1

**Output #104**

**Output Measure**

- Number of times Just Move Soccer research-based professional expertise engaged.

<b>Year</b>	<b>Actual</b>
2016	2

**Output #105**

**Output Measure**

- Number of Jsut Move Soccer curriculum utilized.

<b>Year</b>	<b>Actual</b>
2016	1

**Output #106**

**Output Measure**

- Number of Just Move Soccer participants in 4-H Clubs

<b>Year</b>	<b>Actual</b>
2016	176

**Output #107**

**Output Measure**

- Number of Just Move Soccer participants in Youth Gardens

<b>Year</b>	<b>Actual</b>
2016	277

**Output #108**

**Output Measure**

- Number of games and partner activities used to emphasize Just Move Soccer objectives.

<b>Year</b>	<b>Actual</b>
2016	10

**Output #109**

**Output Measure**

- Number of Just Move Soccer instructor facilitated measurements and evaluations

<b>Year</b>	<b>Actual</b>
2016	265

**Output #110**

**Output Measure**

- Number of Just Move Soccer activities evidenced through observations and collections of measureable data.



<b>Year</b>	<b>Actual</b>
2016	18

**Output #111**

**Output Measure**

- Number of Just Move Soccer Follow-up reports received from physical education teachers

<b>Year</b>	<b>Actual</b>
2016	6

**Output #112**

**Output Measure**

- The number of Just Move Soccer Follow-up reports received from parents

<b>Year</b>	<b>Actual</b>
2016	122

**Output #113**

**Output Measure**

- Number of sessions on healthy eating practices and promoting the 3210 program held at each site

<b>Year</b>	<b>Actual</b>
2016	24

**Output #114**

**Output Measure**

- Number of sessions on physical aspects of soccer and rules held at each site

<b>Year</b>	<b>Actual</b>
2016	24

**Output #115**

**Output Measure**

- Number of Just Move Soccer participants in Special Events

<b>Year</b>	<b>Actual</b>
2016	30

**Output #116**

**Output Measure**

- Number of participants in Just Move Soccer Activities

<b>Year</b>	<b>Actual</b>
2016	750

**Output #117**

**Output Measure**

- Number of Just Move Soccer participants in Summer Camps

<b>Year</b>	<b>Actual</b>
2016	200

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of participants who develop Life-skills
2	Number of participants who gain knowledge about citizenship, science, health and leadership
3	Number of participants who increased knowledge about starting a business.
4	Number of participants who adopt personal finance skills.
5	Number of dollars saved as a result of estate planning.
6	Number of participants who improved application of life/technical skills related to.
7	The number of participants who increase money management best practices
8	The number of participants who maintained money management best practices at follow up
9	The number of participants who increased knowledge of work force preparation
10	The number of participants who obtained employment 2 months after workforce development training
11	The number of grandparents who increased knowledge of child development
12	The number of grandparents who maintained parenting best practices
13	The number of adults who increased knowledge of food safety
14	The number of senior adults who decreased living expenses
15	The number of parents who increased knowledge of family engagement practices
16	the number of parents who increased family enagement skills
17	The number of people who increase knowledge volunteerism best practices

18	The percentage of urban youth who increased knowledge of STEM concepts
19	The number of urban youth who increased youth development skills
20	The number of TMI participants who increased positive youth developed skills
21	The number of youth who increased knowledge of how to help someone being bullied
22	The number of youth who increased knowledge of healthy relationships
23	The number of adults who increased knowledge of money management best practices
24	The number of adults who maintained money management best practices
25	The number of youth who increased positive youth development skills to manage risk
26	The number of youth who increased knowledge of STEM related workforce opportunities
27	The number of youth who increased skills related to working with adults
28	The number of youth who increased communication skills
29	The number of youth who increased their ability to use differential leadership styles
30	The number of youth who increased their ability to use teamwork to problem solve
31	The number of youth who increased their ability to cooperate with others
32	The number of youth who increased skills in event planning
33	The number of participants who increase natural resource literacy
34	The number of Just Move Soccer Youth who increased physical stamina
35	The number of Just Move Soccer youth who increase healthy eating behaviors
36	The percent increase of physical stamina in Just Move Soccer youth after one year
37	The number of Just Move Soccer youth who increased motor skill development

38	The percentage of Just Move Soccer youth who decreased the consumption of sugar sweetened beverages
39	The number of Just MOve Soccer Youth who increased thier ability to follow multi-step directions
40	Number of students increased problem solving skills as a result of the Tukegee University CAENS Math Infusion Center
41	The number of TU CAENS youth who increase leadership skills
42	The number of TU CAENS youth you recieved top internships
43	The number of TU CAENS youth who increased ability to follow the scientific method
44	Number of TU CAENS students demonstrating the importance of water and other natural resources
45	Number of participants showing increase in knowledge and care of fertilized eggs and baby chicks.
46	The number of youth with more access to healthy foods as a result of TU CAENS
47	The number of TU youth increasing knowledge of raptors and reptiles
48	Number of TU participants who gain knowledge about citizenship, science, health and leadership
49	The number of TU participants who gained knowledge about science,

**Outcome #1**

**1. Outcome Measures**

Number of participants who develop Life-skills

Not Reporting on this Outcome Measure

**Outcome #2**

**1. Outcome Measures**

Number of participants who gain knowledge about citizenship, science, health and leadership

Not Reporting on this Outcome Measure

**Outcome #3**

**1. Outcome Measures**

Number of participants who increased knowledge about starting a business.

Not Reporting on this Outcome Measure

**Outcome #4**

**1. Outcome Measures**

Number of participants who adopt personal finance skills.

Not Reporting on this Outcome Measure

**Outcome #5**

**1. Outcome Measures**

Number of dollars saved as a result of estate planning.

Not Reporting on this Outcome Measure

**Outcome #6**

**1. Outcome Measures**

Number of participants who improved application of life/technical skills related to.

Not Reporting on this Outcome Measure

**Outcome #7**

**1. Outcome Measures**

The number of participants who increase money management best practices

**2. Associated Institution Types**

- 1890 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2016	539

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

American consumers owe approximately \$11.85 trillion in debt of which \$918.5 billion is credit card debt (Chen, 2015). In 2015, 911,086 bankruptcy filings were processed (United States Courts, 2015). In addition to sinking in debt, in 2013 nearly 9.6 million households were unbanked and 24.8 million were underbanked ? those with a bank account but use alternative financial services such as payday loans, title loans, etc. The State of Alabama ranks second among the fifty states in most bankruptcy filings per capita (Seale, 2015) and it has 26.4% of its citizens underbanked and 9.2% unbanked (Cole, 2014).

#### What has been done

Five Urban Regional Agents utilized workshops, classes and software training sessions to increase individuals', especially limited-resource individuals, awareness and knowledge of the impact of decision-making on personal and family finance, utilization of spending plans, techniques and strategies used by alternative credit sources, credit reports, and banking. The Making Money Count Curriculum was implemented as a series of four lessons or as single stand-alone lesson in the urban areas of 15 counties within the state.

#### Results

Alabama A&M Extension-Based on pretest and posttest results, the knowledge of 539 participants increased significantly regarding how to:

- a) use the decision making process (t = -28.48, p = .00)
- b) gather quality information before making major decisions (t = -23.97, p = .00)
- c) include their children in family conversations about money (t = -25.47, p = .00)
- d) make financial decisions less impulsively and more deliberately (t = -26.74, p = .00)
- e) write out their financial goals (t = -30.08, p = .00)
- f) track their spending (t = -14.65, p = .00)
- g) maintain a written spending plan (t = -31.07, p = .00)
- h) include saving within their spending plan (t = -29.47, p = .00)
- i) plan ahead for large yearly expenses (t = -29.47, p = .00)
- j) maintain a checking account (t = -13.66, p = .00)
- l) maintain a saving account (t = -13.42, p = .00)
- p) reduce the use of alternative sources of credit (e.g. pay day loans, cash advances, etc.) (t = -36.95, p = .00)
- q) use the ?Rule of Three? when shopping for expensive items (t = -38.94, p = .00)
- s) use a debt management software (t = -48.59, p = .00)
- v) use PowerPay techniques in helping to manage debt (t = -64.16, p = .00)

### 4. Associated Knowledge Areas

**KA Code**    **Knowledge Area**  
801            Individual and Family Resource Management

**Outcome #8**

**1. Outcome Measures**

The number of participants who maintained money management best practices at follow up

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	186

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

American consumers owe approximately \$11.85 trillion in debt of which \$918.5 billion is credit card debt (Chen, 2015). In 2015, 911,086 bankruptcy filings were processed (United States Courts, 2015). In addition to sinking in debt, in 2013 nearly 9.6 million households were unbanked and 24.8 million were underbanked ? those with a bank account but use alternative financial services such as payday loans, title loans, etc. The State of Alabama ranks second among the fifty states in most bankruptcy filings per capita (Seale, 2015) and it has 26.4% of its citizens underbanked and 9.2% unbanked (Cole, 2014).

**What has been done**

Five Urban Regional Agents utilized workshops, classes and software training sessions to increase individuals?, especially limited-resource individuals, awareness and knowledge of the impact of decision-making on personal and family finance, utilization of spending plans, techniques and strategies used by alternative credit sources, credit reports, and banking. The Making Money Count Curriculum was implemented as a series of four lessons or as single stand-alone lesson in the urban areas of 15 counties within the state.

**Results**

AAMU- Extension Of the 186 respondents and approximately on to three months after participating in the program,

- a)60% included their children in financial decisions
- b)83% made less impulsive financial decisions
- c)72% used a spending plan
- d)79% tracked their spending



- e)51% found ways to reduce their expenses
- f)reduced their spending, on average, by \$45
- g)65% had a savings account
- h)53% had a checking account
- i)30% were using a debt management software for help in managing their debt
- j)59% had reduced their use of alternative sources of credit

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

#### Outcome #9

##### 1. Outcome Measures

The number of participants who increased knowledge of work force preparation

##### 2. Associated Institution Types

- 1890 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	388

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

A substantial number of individuals throughout the United States are either unemployed or underemployed. Alabama's unemployment rate of 6.2% (December, 2016) is significantly higher than the national average of 4.7%. In Alabama many families are struggling because unemployment affects a family's income, stability and child development.

###### **What has been done**

Five Urban Regional Agents utilized workshops, conferences, fairs, classes, expos to increase individuals understanding of how to effectively write resumes, complete written and online job applications, interview, and dress appropriately when seeking employment. The program was implemented as a series of four lessons or as a stand-alone program in urban areas of 14 counties.

###### **Results**

AAMU- EXTension -Pretest and posttest data were collected from 388 participants. After participating in the program,  
 a)the number of participants knowing how to create an adequate resume for employment increased by 73%  
 b)the number of participants knowing how to complete a job application increased by 30%  
 c)the number of participants knowing how to complete online job applications increased by 41%  
 d)the number of participants knowing how to participate in technology assisted interviews increased by 60%

Follow-up data were collected from 81 individuals 1 to 2 months after participating in the program. Based on the results, participants felt significantly more confident in their ability to  
 a)interview (t = -6.01, p =.00)  
 b)choose appropriate dress for an interview (t = -6.32, p=.00)  
 c)do an overall job search (t = -7.65, p=.00)

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
607	Consumer Economics

**Outcome #10**

**1. Outcome Measures**

The number of participants who obtained employment 2 months after workforce development training

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	9

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

A substantial number of individuals throughout the United States are either unemployed or underemployed. Alabama’s unemployment rate of 6.2% (December, 2016) is significantly higher than the national average of 4.7%. In Alabama many families are struggling because unemployment affects a family’s income, stability and child development.

**What has been done**

Five Urban Regional Agents utilized workshops, conferences, fairs, classes, expos to increase individuals understanding of how to effectively write resumes, complete written and online job applications, interview, and dress appropriately when seeking employment. The program was implemented as a series of four lessons or as a stand-alone program in urban areas of 14 counties.

**Results**

AAMU- Extension Based on pre and posttest results, 9% of the participants obtained employment by the end of the program.

Based on post delayed data, within 1 to 2 months after participating in the program,

- a)95% of the participants completed a job application
- b)67% of the participants completed an online job application
- c)40% of the participants participated in a face to face interview
- d)90% of the participants used skills learned in the program to select appropriate dress

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
607	Consumer Economics

**Outcome #11**

**1. Outcome Measures**

The number of grandparents who increased knowledge of child development

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	133

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

For the past few decades, the number of grandparents and relatives having to once again raise a child has been increasing throughout the United States of America. In the State of Alabama, more than 148,000 children under the age of 18 are now living with grandparents or other relatives (Grandfacts, 2012). Forty-five percent (45%) of the 63,529 grandparent householders responsible for their grandchildren are raising their grandchildren without the presence of the

parents in the household.

**What has been done**

Seven Urban Regional Agents utilized workshops, mini-conferences, conferences, family celebrations and support groups to increase parenting grandparents/relatives identify and understand possible ambivalent feelings in their new role, individual differences and temperament, approaches to communicating with adult children/relatives and discipline strategies. The Grandparents and Relatives as Parents Program (Grand RAPP) was implemented as a series of four lessons or as a stand-alone program in urban areas in 18 counties.

**Results**

AAMU-Extension Based on pretest and posttest results, participants' knowledge increased significantly regarding:

- a) various community resources for helping with raising their grandchildren (t = 9.56, p = .00)
- b) various activities that can assist in reducing stress (t = 8.43, p = .00)
- c) stages of development of a child (t = 10.77, p = .00)
- d) how to identify a child's stage of development (t = 10.82, p = .00)
- e) different temperament of a child (t = 10.31, p = .00)
- f) different ways to deal with a grandchild's temperament (t = 12.04, p = .00)
- g) ways to help grandchild accept changes (t = 11.99, p = .00)
- h) difference between discipline and punishment (t = 7.98, p = .00)
- i) how to use logical and natural consequences in disciplining (t = 9.11, p = .00)
- j) how to discipline without use of punishment (t = 8.64, p = .00)
- k) recognize risk behavior in a child (t = 9.48, p = .00)
- l) address risk behavior in a child (t = 10.44, p = .00)
- m) what a child's behavior indicates (t = 11.76, p = .00)
- n) use solution-focused communication (t = 12.39, p = .00)
- o) how to use books and movies to discuss difficult issues with grandchild (t = 12.51, p = .00)

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
802	Human Development and Family Well-Being

**Outcome #12**

**1. Outcome Measures**

The number of grandparents who maintained parenting best practices

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	50

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

For the past few decades, the number of grandparents and relatives having to once again raise a child has been increasing throughout the United States of America. In the State of Alabama, more than 148,000 children under the age of 18 are now living with grandparents or other relatives (Grandfacts, 2012). Forty-five percent (45%) of the 63,529 grandparent householders responsible for their grandchildren are raising their grandchildren without the presence of the parents in the household.

**What has been done**

Seven Urban Regional Agents utilized workshops, mini-conferences, conferences, family celebrations and support groups to increase parenting grandparents/relatives identify and understand possible ambivalent feelings in their new role, individual differences and temperament, approaches to communicating with adult children/relatives and discipline strategies. The Grandparents and Relatives as Parents Program (Grand RAPP) was implemented as a series of four lessons or as a stand-alone program in urban areas in 18 counties.

**Results**

AAMU- Extension Approximately 1 to 2 months after attending the program, participants (based on post delayed survey data) almost always:

- a) maintained consistency in enforcing their rules
- b) taught and guided their grandchild/child more than punished him/her
- c) set clear rules
- d) focused on solutions to their problems and not on the people who caused the problem
- e) stopped talking bad about grandchild's parent
- f) took time to get to truly know their grandchildren
- g) sought various ways of dealing with their grandchildren temperament

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
802	Human Development and Family Well-Being

### **Outcome #13**

#### **1. Outcome Measures**

The number of adults who increased knowledge of food safety

#### **2. Associated Institution Types**

- 1890 Extension

#### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

#### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	368

#### **3c. Qualitative Outcome or Impact Statement**

##### **Issue (Who cares and Why)**

The elderly population in the United States is rapidly expanding. One out of every seven Americans (35 million) is over the age of 65. With the aging of the baby boomers, America's older population will double by 2030 (71.5 million), and will account for 19.6 percent (about 1 in 5) of the population. It is not uncommon for people, as they age, to be concerned about what the future will bring and whether they will be equipped to meet the challenges that lie ahead.

##### **What has been done**

The Seniors Can Curriculum, a wellness program for older adults developed by the University of Nevada Cooperative Extension System, was used as an educational resource and guide. Additionally, An Overview of Elder Law, A Gift for your Family, and LeagalEASE publications, and Estate Planning Basics, A Guide to Life Organization were used. The program was implemented by six Urban Regions Agents throughout urban areas in 18 counties. Classes, workshops, seminars, family day programs, conferences, and support groups were used in the implementation of the program.

##### **Results**

AAMU- Extension Based on pretest and posttest results, participants' knowledge of cross contamination of food increased significantly relative to:

- a) packing foods in plastic bag (t = 2.69, p = .01)
- b) fruits and vegetables (t = 4.79, p = .00)
- c) pasteurized milk (t = 2.21, p = .03)
- d) placement of foods while shopping (t = 2.58, p = .01)
- e) eggs (t = 3.74, p = .00)
- f) transporting food (t = 3.74, p = .00)
- g) use of marinades and coatings (t = 3.79, p = .00)
- h) refrigerators' temperatures for food storage (t = 3.13, p = .00)

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

#### Outcome #14

##### 1. Outcome Measures

The number of senior adults who decreased living expenses

##### 2. Associated Institution Types

- 1890 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	368

##### 3c. Qualitative Outcome or Impact Statement

###### Issue (Who cares and Why)

The elderly population in the United States is rapidly expanding. One out of every seven Americans (35 million) is over the age of 65. With the aging of the baby boomers, America's older population will double by 2030 (71.5 million), and will account for 19.6 percent (about 1 in 5) of the population. It is not uncommon for people, as they age, to be concerned about what the future will bring and whether they will be equipped to meet the challenges that lie ahead.

###### What has been done

The Seniors Can Curriculum, a wellness program for older adults developed by the University of Nevada Cooperative Extension System, was used as an educational resource and guide. Additionally, An Overview of Elder Law, A Gift for your Family, and LeagalEASE publications, and Estate Planning Basics, A Guide to Life Organization were used. The program was implemented by six Urban Regions Agents throughout urban areas in 18 counties. Classes, workshops, seminars, family day programs, conferences, and support groups were used in the implementation of the program.

###### Results

AAMU- Extension Based on pretest and posttest results, participants' knowledge increased significantly regarding resources for older adults relative to:

- a) paid work (t = 7.27, p = .00)
- b) formal volunteer work (t = 6.26, p = .00)
- c) educational opportunities (t = 6.94, p = .00)
- d) organizations (t = 7.94, p = .00)

Based on pretest and posttest results, participants' knowledge increased significantly regarding agencies and organizations that can help older adults with:

- a) medication costs (t = 9.52, p = .00)
- b) food costs (t = 9.06, p = .00)
- c) home expenses (t = 9.17, p = .00)
- d) legal issues (t = 5.07, p = .00)

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

#### Outcome #15

##### 1. Outcome Measures

The number of parents who increased knowledge of family engagement practices

##### 2. Associated Institution Types

- 1890 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	368

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

A direct relationship between the well-being of children, families and communities has been cited by various professionals and organizations. When families are strong and do well, children do well. Likewise, when communities are strong, families are strong. Critical for all families are those attributes that strengthen individuals as well as the family itself.

###### **What has been done**

Six Urban Regional Agents utilized workshops, conferences, fairs and family day celebrations to increase individuals and families' understanding of how to effectively communicate, resolve conflict, manage stress and identify spending habits. The Family Advocacy through Caring Engagement Strategies, a relationship building curriculum, was implemented as a series of four lessons or as a stand-alone program in urban areas of 18 counties.

###### **Results**



- AAMU- Extension Based on pretest and posttest results, 368 participants? knowledge significantly increased regarding:
- a)how to actively listen (t= 13.33, p= .00)
  - b)how to openly communicate with family members (t= 9.29, p=.00)
  - c)the importance of paying attention to family members nonverbal (t= 13.26, p= .00)
  - d)the impact of communication (verbal & nonverbal) on family relationships (t= 11.19, p= .00)
  - e)identification of their family strengths (t= 8.52, p= .00)
  - f)opportunities for strengthening their family (t= 12.36, p= .00)
  - g)how to use negotiation skills (t= 3.48, p= .01)
  - h)how to resolve conflict without anyone feeling hurt or unheard (t= 3.96, p= .00)
  - i)effects of stress on body (t= 11.88, p= .00)
  - j)effects of stress on relationships (t= 14.41, p= .00)
  - k)signs and symptoms of stress (t= 15.69, p= .00)
  - l)different techniques for managing stress (t= 18.36, p= .00)
  - m)how to identify stressors (internal and external) in their life (t= 9.73, p= .00)

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

#### Outcome #16

##### 1. Outcome Measures

the number of parents who increased family enagement skills

##### 2. Associated Institution Types

- 1890 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	162

##### 3c. Qualitative Outcome or Impact Statement

###### Issue (Who cares and Why)

A direct relationship between the well-being of children, families and communities has been cited by various professionals and organizations. When families are strong and do well, children do well. Likewise, when communities are strong, families are strong. Critical for all families are those attributes that strengthen individuals as well as the family itself.

**What has been done**

Six Urban Regional Agents utilized workshops, conferences, fairs and family day celebrations to increase individuals and families' understanding of how to effectively communicate, resolve conflict, manage stress and identify spending habits. The Family Advocacy through Caring Engagement Strategies, a relationship building curriculum, was implemented as a series of four lessons or as a stand-alone program in urban areas of 18 counties.

**Results**

AAMU-Extension Based on the pretest and post delayed test (on average 3 to 4 months after participating in program), frequency of the following actions of the 162 participants increased significantly:

- a)deliberately tried to make their family relationships stronger and healthier (t= 10.76, p= .00)
- b)have open discussion with family members (t= 13.28, p= .00)
- c)practiced active listening (t= 17.29, p= .00)
- d)pay closer attention to their nonverbal messages (t= 15.62, p= .00)
- e)resolve family conflict without anyone feeling hurt or unheard (t= 17.98, p= .00)
- f)use negotiation skills (t= 20.59, p= .00)
- g)practice stress management techniques (t= 13.45, p= .00)
- h)identify stressors in their environment (t= 6.93, p= .00)
- i)pay attention to signs of stress in family members (t= 10.61, p= .00)

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
802	Human Development and Family Well-Being

**Outcome #17**

**1. Outcome Measures**

The number of people who increase knowledge volunteerism best practices

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	26

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Volunteerism can have positive effects for both society and volunteers and without volunteer support many organizations would not have resources and capabilities to sustain. VIPs are a vital asset to ACES and they play an integral role in planning, implementing, and enhancing Urban Program outreach efforts.

**What has been done**

Urban staff members recruited, enrolled and trained 301 youth and adult volunteers. Conducted training series to prepare staff to effectively assign volunteer duties. Conducted background screenings for direct volunteers. Documented and assessed the quantity and quality of work provided through volunteer service. Created a data base of volunteer support to document FTEs and volunteer service hours. Volunteers provided service hours and served as advisory board members, mentors, workshop facilitators, judges, and teen leaders.

**Results**

AAMU- Extension Increased awareness of ACES and Urban Affairs and New Nontraditional Programs Unit; volunteers became better leaders and use the skills to improve their community; Increased knowledge of basic technical, office, and computer skills; improved knowledge of volunteer opportunities with the community.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

**Outcome #18**

**1. Outcome Measures**

The percentage of urban youth who increased knowledge of STEM concepts

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	71

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

All youth should be prepared to think deeply and to think well so that they have the chance to

become the innovators, educators, researchers, and leaders who can solve the most pressing challenges facing our nation and world. Currently, not enough of our youth have access to quality STEM learning opportunities and too few students see these disciplines as springboards for their careers.

**What has been done**

A total of 1427 urban youth participated in a series of hands-on, interactive and engaging STEAM activities that were designed to develop a set of thinking, reasoning, investigative and creative skills that youth can use in all areas of their lives.

**Results**

AAMU- Extension As a result of the STEAM activities, there was an increased knowledge of STEM concepts. Evaluation results showed that 71% of the participants improved knowledge of the scientific method by completing the steps to the scientific method using a lab notebook for each of the STEM lessons in which they participated.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
806	Youth Development

**Outcome #19**

**1. Outcome Measures**

The number of urban youth who increased youth development skills

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	1065

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

An alarming number of youth need understanding and guidance to develop the necessary skills to make healthy and informed choices. These healthy and informed choices are imperative in order to sustain a health and fitness lifestyle among our youth.

**What has been done**

A series of five interactive lessons on character education, health and physical fitness, etiquette, career focus and civic education.

**Results**

Evaluation data indicated an increased knowledge in decision making skills (54%); increased knowledge in health and physical fitness(43%); increased knowledge in citizenship (54%); increased knowledge in job interviewing skills (67%)and 54% increased knowledge in acceptable social behavior(N= 714)

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
802	Human Development and Family Well-Being

**Outcome #20**

**1. Outcome Measures**

The number of TMI participants who increased positive youth developed skills

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	351

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

An alarming number of youth need understanding and guidance to develop the necessary skills to make healthy and informed choices. These healthy and informed choices are imperative in order to sustain a health and fitness lifestyle among our youth.

**What has been done**

A series of five interactive lessons on character education, health and physical fitness, etiquette, career focus and civic education.

**Results**

AAMU-Extension An analysis of the data from the 2016 TMI Leadership Conference led to the conclusion that 59% of teens improved their knowledge about Robotics, 64% improved knowledge about nursing, 56% about cosmetology, 60% electric engineering, 59% food safety and 48% leadership skills; In addition, 39% improved their skills on appreciating diversity, 32%

choosing a career in science, 34% selecting a college to attend and 47% setting a personal goal. The hands-on workshops were instrumental in engaging and helping the youth to become more involved with choosing a career as well as empowering them to become leaders within their community.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

#### Outcome #21

##### 1. Outcome Measures

The number of youth who increased knowledge of how to help someone being bullied

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	1254

##### 3c. Qualitative Outcome or Impact Statement

###### Issue (Who cares and Why)

Students significantly increased in their knowledge of how to help someone being bullied.

###### What has been done

The curriculum has a lesson dedicated to teaching youth skills on ways to become an ally. This lesson gives youth scenarios to process through and also an "Action Steps" handout that gives active and passive ways to defend others.

###### Results

Students significantly increased in their knowledge of helping someone who is being bullied.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being
806	Youth Development

**Outcome #22**

**1. Outcome Measures**

The number of youth who increased knowledge of healthy relationships

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	1014

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Developing social intelligence can reduce negative peer interactions in the future.

**What has been done**

To help students develop social intelligence, we have a lesson that engaged kids on identifying qualities of healthy peer relationships on a continuum. .

**Results**

When students were asked to rate ?I can describe qualities of a healthy relationship,? 28.5% of 6th graders and 30.6% of 8th graders reported a significant increase in their ability to describe healthy qualities,  $p = 0.007$  and  $p = 0.028$ , respectively.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
802	Human Development and Family Well-Being
806	Youth Development

**Outcome #23**

**1. Outcome Measures**

The number of adults who increased knowledge of money management best practices

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	2409

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

American consumers owe approximately \$11.85 trillion in debt of which \$918.5 billion is credit card debit (Chen, 2015). In 2015, 911,086 bankruptcy filings were processed (United States Courts, 2015). In addition to sinking in debt, in 2013 nearly 9.6 million households were unbanked and 24.8 million were under-banked including those with a bank account but use alternative financial services such as payday loans title loans, etc. The State of Alabama ranks second among the fifty states in most bankruptcy filings per capita (Seale, 2015) and it has 26.4% of its citizens under-banked and 9.2% unbanked (Cole, 2014).

**What has been done**

Eight Regional Agents (Rural and Urban) utilized workshops, classes, and software training sessions to increase individuals', especially limited-resource individuals, awareness and knowledge of the impact of decision-making on personal and family finance, utilization of spending plans, techniques and strategies used by alternative credit sources, credit reports, and banking. The Making Money Count Curriculum was implemented as a series of four lessons or as single stand-alone lessons in all 67 counties including urban areas.

**Results**

Based on pretest and posttest results, the knowledge of 2409 participants increased significantly regarding how to:

- a) maintain a checking account (t=13.71, p=.00),



- b) maintain a saving account (t=16.48, p=.00),
- c) compare interest rates to find the best rates (t=17.70, p=.00),
- d) request their credit report (t=19.55, p=.00),
- e) calculate their family debt load (t=10.60, p=.00),
- f) keep accurate records of their bank accounts (t=15.84, p=.00),
- g) use the decision making process (t=14.86, p=.00),
- h) deliberately generate a list of options when making major financial decisions (t=14.97, p=.00),
- i) gather quality information before making major decisions (t=14.22, p=.00),
- j) include their children in family conversations about money (t=17.14, p=.00),
- k) make financial decisions less impulsively and more deliberately (t=16.68, p=.00),
- l) Write out their financial goals (t=15.62, p=.00),
- m) Track their spending (t=13.88, p=.00),
- n) Maintain a written spending plan (t=15.62, p=.00),
- o) Include saving within spending plan (t=13.45, p=.00),
- p) Plan ahead for large yearly expenses (t=14.23, p=.00),
- q) Use debt management software (t=19.37, p=.00), and
- r) Use POWERPAY techniques in helping to manage debt (t=26.62, p=.00).

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

#### Outcome #24

##### 1. Outcome Measures

The number of adults who maintained money management best practices

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	207

##### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**

American consumers owe approximately \$11.85 trillion in debt of which \$918.5 billion is credit card debit (Chen, 2015). In 2015, 911,086 bankruptcy filings were processed (United States Courts, 2015). In addition to sinking in debt, in 2013 nearly 9.6 million households were unbanked and 24.8 million were under-banked including those with a bank account but use alternative financial services such as payday loans title loans, etc. The State of Alabama ranks second among the fifty states in most bankruptcy filings per capita (Seale, 2015) and it has 26.4% of its citizens under-banked and 9.2% unbanked (Cole, 2014).

**What has been done**

Eight Regional Agents (Rural and Urban) utilized workshops, classes, and software training sessions to increase individuals', especially limited-resource individuals, awareness and knowledge of the impact of decision-making on personal and family finance, utilization of spending plans, techniques and strategies used by alternative credit sources, credit reports, and banking. The Making Money Count Curriculum was implemented as a series of four lessons or as single stand-alone lessons in all 67 counties including urban areas.

**Results**

After approximately one to three months after participating in the program, of 207 individuals an increase of:

- 93% from 35% made financial decisions less impulsively and more deliberately,
- 80% from 25% used a spending plan,
- 84% from 28% tracked their spending plan,
- 67% found ways to reduce their expenses by an average of \$48 per month
- 71% from 26% had a saving account,
- 89% from 35% had a checking account, and
- 43% from 7% used debt management software.

514 participants requested their credit reports for the very first time.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
801	Individual and Family Resource Management

**Outcome #25**

**1. Outcome Measures**

The number of youth who increased positive youth development skills to manage risk

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	710

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

57.8 % or 6 in 10 of Alabama youth 12-17 perceive no great risk from drinking five or more drinks once or twice a month; 67.9% or 2 in 3 Alabama youth 12 to 17 perceive no great risk from smoking marijuana once a month.

**What has been done**

Alabama 4-H is making it easier for young people to develop resistance skills to navigate the negative pressures to engage in substance abuse that could sideline them for a lifetime. Alabama 4-H engages 3,143 middle school students through the in-school delivery model in the program Health Rocks. 51 schools across the state were served.

**Results**

Program impacts suggest N equal 710 youth increased or increased greatly ability to find help if they need it (89%); ability to work with adults (78%); ability to think about the effects of my decisions and choices on my future (85%); ability to say "no" if offered alcohol, tobacco, or other drugs (85%); Ability to help other kids like me resist tobacco, alcohol, and drugs (83%).

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
802	Human Development and Family Well-Being
806	Youth Development

**Outcome #26**

**1. Outcome Measures**

The number of youth who increased knowledge of STEM related workforce opportunities

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	690

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama is rich in potential opportunities for young people to enter into the workforce in areas such as the automobile and aerospace industries, among many others. The need for educational programs related to science, technology, engineering, and mathematics (STEM) is significant in meeting workforce needs now and in the future.

**What has been done**

The Alabama 4-H program engages approximately 24,000 young people in various STEM related programs such as rocketry, robotics, and 4-H Innovators

**Results**

Rocketry (n= 33) agree or strongly agree because of 4-H STEM Programs:76% like science and technology;67% were good at science & technology; want to learn more about science & technology; 67% get excited about new discoveries from working with rockets. (N= 237) 4-H Innovators report increase in confidence level:79% in problem solving ability as confident or very confident; 70% rated their ability to solve a problem based on a challenge as high or very high. In another group of (n = 420) 4-Hi participants 88% of respondents indicated in a post-experience survey that they agree or highly agree that given a choice, they would take a science or math class. When compared to a smaller number of respondents in a pre-test the data shows a 25% increase in choices to take math and science courses.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
802	Human Development and Family Well-Being
806	Youth Development

**Outcome #27**

**1. Outcome Measures**

The number of youth who increased skills related to working with adults

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	744

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

4-H members that participated in a leadership and citizenship program had an opportunity to gain knowledge in leadership and citizenship skills. The youth were surveyed on their ability to cooperate with other youth and adult, problem solving, and decision making. These leadership and citizenship skills all the youth to gain knowledge in workforce development, people skills, and teamwork.

**What has been done**

The youth were asked a variety of qualitative questions that allowed them to see if their action had increased or stayed the same in different leadership and citizenship areas.

**Results**

881 youth were surveyed on their ability to work with other adults. Out of 881 youth 744 youth felt their ability to successfully work with adults increased due to their participation in a leadership and citizenship program.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

**Outcome #28**

**1. Outcome Measures**

The number of youth who increased communication skills

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	637

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The ability to communicate verbal and written is very important in any leadership role. Being able to communicate and express yourself is also one of the key life skills.

**What has been done**

The ability to communicate verbal and written is very important in any leadership role. Being able to communicate and express yourself is also one of the key life skills.

**Results**

Being able to express yourself and communicate verbally is a very important leadership and citizenship skill. 881 youth were asked if their ability to express themselves had increased or stayed the same after participating in a 4-H leadership and citizenship role. 637 of the youths ability to express and communicate verbally increased while participating in a 4-H leadership and citizenship program.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
802	Human Development and Family Well-Being

**Outcome #29**

**1. Outcome Measures**

The number of youth who increased their ability to use differential leadership styles

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	684

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Being able to use different types of leadership styles in various situations are very important in any program or job.

**What has been done**

The youth were asked a variety of qualitative questions that allowed them to see if their action had increased or stayed the same in different leadership and citizenship areas.

**Results**

881 youth were surveyed on their ability to learn different styles of leadership for different situations. Out of the 881 youth 684 youth used the leadership and citizenship information that they learned to help them increase their ability to learn different styles of leadership for different situations.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

**Outcome #30**

**1. Outcome Measures**

The number of youth who increased their ability to use teamwork to problem solve

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	69

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

4-H club officers influence and support their peers in a positive manner for a shared goal. Club officers can be officers of in-school, community, or special interest clubs. Learning about yourself and how youth work with others is a key part of developing leadership skills as a club officer.

**What has been done**

The youth were asked a variety of qualitative questions that allowed them to see if their action had increased or stayed the same in different leadership areas.

**Results**

100 youth were surveyed on their ability to work with others to solve problems. Out of the 100 youth 69 youth felt that their ability to work with others to solve problems has increased due to their participation as a club officer.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development



**Outcome #31**

**1. Outcome Measures**

The number of youth who increased their ability to cooperate with others

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	70

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Cooperating with other youth and adults are very important leadership skills in any leadership role.

**What has been done**

The youth were asked a variety of qualitative questions that allowed them to see if their action had increased or stayed the same in different leadership areas.

**Results**

Out of the 100 youth 70 youth felt that their ability to cooperate with others increased due to their participation as a 4-H club officer.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

**Outcome #32**

**1. Outcome Measures**

The number of youth who increased skills in event planning

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	67

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Being able to plan and organize club meetings or any other events in 4-H is a great leadership opportunity for a 4-H club officer or any 4-H member.

**What has been done**

The youth were asked a variety of qualitative questions that allowed them to see if their action had increased or stayed the same in different leadership areas.

**Results**

100 4-H Club Officers were surveyed on their change of knowledge after they held a club officer role. Out of the 100 youth 67 of the youth knowledge on how to plan meetings and events have increased.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
602	Business Management, Finance, and Taxation

**Outcome #33**

**1. Outcome Measures**

The number of participants who increase natural resource literacy

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	131

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Alabama ranks number one in the nation for freshwater fish diversity, as it is home to 332 species, and is one of the most variety-rich places in the country to paddle, with more navigable waterways than any other state. With a statewide demand for outdoor recreation opportunities, comes a great need for increased environmental literacy or "the capacity to perceive and interpret the relative health of environmental systems and take appropriate action to maintain, restore, or improve the health of those systems" (Disinger and Roth). Increased outreach and education efforts focused on aquatic resources and stewardship are warranted.

**What has been done**

In response, programmatic emphasis placed on aquatic education and stewardship through the delivery of 4-H AWW, 4-H RiverKids, and 4-H Sportfishing. ACES 4-H partnered with ASRT to develop the 4-H RiverKids Program. Youth in the state now have the opportunity to learn to paddle safely and explore the water resources in their communities. In response to outdoor recreation demand and a desire to promote responsible fishing and aquatic stewardship, ACES 4-H partnered ADCNR WFF to develop the 4-H Sportfishing Program. Youth are able to learn casting, tackle crafting, and water safety skills while exploring the water resources in their communities.

**Results**

In 2016, 4-H Natural Resource and Environmental Education programming increased adult environmental literacy with the certification training of 131 staff and volunteers in the delivery of aquatic resources and stewardship. 4-H AWW trained 65 adults to utilize the Exploring Our Living Streams curriculum through the delivery of four workshops and prepared them to deliver watershed and water monitoring educational activities to youth to enable them to actively take part in watershed stewardship in their local communities and make informed and responsible decisions about the environment. 4-H RiverKids trained 45 adults in 23-counties as certified instructors, assistants, and volunteers to work with community partners to teach participants paddling skills to youth while cultivating knowledge of the importance of being good stewards of our abundant water resources. 4-H Sportfishing trained 18 adults in 15-counties as certified instructors and volunteers to implement Sportfishing events and activities including land-based casting classes, aquatic education, and over-the-water fishing. Instructors completed 16-hours of hands-on training and scored 80% or higher on post-test.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

#### Outcome #34

##### 1. Outcome Measures

The number of Just Move Soccer Youth who increased physical stamina

##### 2. Associated Institution Types

- 1890 Extension
- 1890 Research

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	218

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

It is well-known throughout the nation that Michelle Obama has made youth fitness her mission. Childhood obesity is critical especially throughout the Black Belt communities. Youth need the tools, the hand-on means and the encouragement of their families and community members to strive for physical fitness and healthier lives. All youth are not proficient in football, baseball and basketball. Soccer offers a different opportunity for physical activity

###### **What has been done**

Bi-weekly lessons alternated for each site which received a one hour session in soccer training and techniques and a one hour session in healthy eating practices and the importance of the 3210 program. These sessions were inclusive of presentations, demonstrations and discussions regarding healthy eating practices, and consumption of water rather than sodas. Soccer offered as activity during summer nutrition camp. Over 33,000 healthy meals served after-school at 5 sites in Macon County

###### **Results**

Tuskegee University Research and Extension reached over 870 students in grades K-9 who learned more healthy eating practices, the importance of physical exercise and fitness and to apply the 3210 program. 25% of the participants showed measureable increase in endurance and physical stamina.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being
806	Youth Development

#### Outcome #35

##### 1. Outcome Measures

The number of Just Move Soccer youth who increase healthy eating behaviors

##### 2. Associated Institution Types

- 1890 Extension
- 1890 Research

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	653

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

It is well-known throughout the nation that Michelle Obama has made youth fitness her mission. Childhood obesity is critical especially throughout the Black Belt communities. Youth need the tools, the hand-on means and the encouragement of their families and community members to strive for physical fitness and healthier lives. All youth are not proficient in football, baseball and basketball. Soccer offers a different opportunity for physical activity

###### **What has been done**

Bi-weekly lessons alternated for each site which received a one hour session in soccer training and techniques and a one hour session in healthy eating practices and the importance of the 3210 program. These sessions were inclusive of presentations, demonstrations and discussions regarding healthy eating practices, and consumption of water rather than sodas. Soccer offered as activity during summer nutrition camp. Over 33,000 healthy meals served after-school at 5 sites in Macon County

###### **Results**

Tuskegee Research and Extension Through the use of post project survey results, 75% of participants expressed that they were eating healthier and using the 3210 program.

#### 4. Associated Knowledge Areas

<b>KA Code</b>	<b>Knowledge Area</b>
802	Human Development and Family Well-Being
806	Youth Development

**Outcome #36**

**1. Outcome Measures**

The percent increase of physical stamina in Just Move Soccer youth after one year

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	40

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

It is well-known throughout the nation that Michelle Obama has made youth fitness her mission. Childhood obesity is critical especially throughout the Black Belt communities. Youth need the tools, the hand-on means and the encouragement of their families and community members to strive for physical fitness and healthier lives. All youth are not proficient in football, baseball and basketball. Soccer offers a different opportunity for physical activity

**What has been done**

Bi-weekly lessons alternated for each site which received a one hour session in soccer training and techniques and a one hour session in healthy eating practices and the importance of the 3210 program. These sessions were inclusive of presentations, demonstrations and discussions regarding healthy eating practices, and consumption of water rather than sodas. Soccer offered as activity during summer nutrition camp. Over 33,000 healthy meals served after-school at 5 sites in Macon County

**Results**

Tuskegee Research and Extension measured participants' weights, physical stamina and endurance at the beginning of the year and at the end of the year and realized at least a 40% difference.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
802	Human Development and Family Well-Being
806	Youth Development

### **Outcome #37**

#### **1. Outcome Measures**

The number of Just Move Soccer youth who increased motor skill development

#### **2. Associated Institution Types**

- 1890 Extension
- 1890 Research

#### **3a. Outcome Type:**

Change in Action Outcome Measure

#### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	100

#### **3c. Qualitative Outcome or Impact Statement**

##### **Issue (Who cares and Why)**

It is well-known throughout the nation that Michelle Obama has made youth fitness her mission. Childhood obesity is critical especially throughout the Black Belt communities. Youth need the tools, the hand-on means and the encouragement of their families and community members to strive for physical fitness and healthier lives. All youth are not proficient in football, baseball and basketball. Soccer offers a different opportunity for physical activity

##### **What has been done**

Bi-weekly lessons alternated for each site which received a one hour session in soccer training and techniques and a one hour session in healthy eating practices and the importance of the 3210 program. These sessions were inclusive of presentations, demonstrations and discussions regarding healthy eating practices, and consumption of water rather than sodas. Soccer offered as activity during summer nutrition camp. Over 33,000 healthy meals served after-school at 5 sites in Macon County

##### **Results**

Tuskegee Research and Extension After the soccer sessions, 100% the students developed the physical skills to enable them to become better soccer players. The students learned the skills of dribbling, passing, trapping, shooting, goalkeeping along with offense and defense. The development of these necessary skills produced a well-rounded beginning soccer players.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being
806	Youth Development

#### Outcome #38

##### 1. Outcome Measures

The percentage of Just Move Soccer youth who decreased the consumption of sugar sweetened beverages

##### 2. Associated Institution Types

- 1890 Extension
- 1890 Research

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2016	40

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

It is well-known throughout the nation that Michelle Obama has made youth fitness her mission. Childhood obesity is critical especially throughout the Black Belt communities. Youth need the tools, the hand-on means and the encouragement of their families and community members to strive for physical fitness and healthier lives. All youth are not proficient in football, baseball and basketball. Soccer offers a different opportunity for physical activity

###### **What has been done**

Bi-weekly lessons alternated for each site which received a one hour session in soccer training and techniques and a one hour session in healthy eating practices and the importance of the 3210 program. These sessions were inclusive of presentations, demonstrations and discussions regarding healthy eating practices, and consumption of water rather than sodas. Soccer offered as activity during summer nutrition camp. Over 33,000 healthy meals served after-school at 5 sites in Macon County

###### **Results**

Tuskegee Research and Extension 40% of youth reported drinking less sodas and more water

#### 4. Associated Knowledge Areas



**KA Code**    **Knowledge Area**  
806           Youth Development

**Outcome #39**

**1. Outcome Measures**

The number of Just MOve Soccer Youth who increased thier ability to follow multi-step directions

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	300

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

It is well-known throughout the nation that Michelle Obama has made youth fitness her mission. Childhood obesity is critical especially throughout the Black Belt communities. Youth need the tools, the hand-on means and the encouragement of their families and community members to strive for physical fitness and healthier lives. All youth are not proficient in football, baseball and basketball. Soccer offers a different opportunity for physical activity

**What has been done**

Bi-weekly lessons alternated for each site which received a one hour session in soccer training and techniques and a one hour session in healthy eating practices and the importance of the 3210 program. These sessions were inclusive of presentations, demonstrations and discussions regarding healthy eating practices, and consumption of water rather than sodas

**Results**

TU 80% of the participants exhibited an increase in ability to follow multi-step directions both written and oral.

**4. Associated Knowledge Areas**

**KA Code**    **Knowledge Area**  
802           Human Development and Family Well-Being  
806           Youth Development

**Outcome #40**

**1. Outcome Measures**

Number of students increased problem solving skills as a result of the Tukegee University CAENS Math Infusion Center

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	300

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The integration of TU CAENS research with Cooperative Extension activities, projects and programs positively impacted youth development

**What has been done**

Direct instruction, demonstrations, shared activities, leadership activities, mentorships have been provided. We had science fairs, fertilized eggs, planting and harvesting activities , career development discussions. Envirobowl and scholar bowl students became more aware of environmental science, biology, chemistry and Alabama ?related agriculture issues by studying materials for competition under the leadership of partner sponsors. Seven students in grades 9-12 worked as student interns under the direction of TU CAENS researchers.

**Results**

Over 300 students received mathematics tutorials in the Mathematics Infusion Center. They experienced mprovement in problem-solving, logical reasoning and other mathematics skills

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
806	Youth Development

**Outcome #41**

**1. Outcome Measures**

The number of TU CAENS youth who increase leadership skills

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	40

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The integration of TU CAENS research with Cooperative Extension activities, projects and programs positively impacted youth development in science education.

**What has been done**

Direct instruction, demonstrations, shared activities, leadership activities, mentorships have been provided. We had science fairs, fertilized eggs, planting and harvesting activities , career development discussions. Envirobowl and scholar bowl students became more aware of environmental science, biology, chemistry and Alabama ?related agriculture issues by studying materials for competition under the leadership of partner sponsors. Seven students in grades 9-12 worked as student interns under the direction of TU CAENS researchers.

**Results**

As a result of participation in 4H Camp, 40 students showed an increase in leadership skills, making important decisions and taking responsibility for self and others.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

**Outcome #42**

**1. Outcome Measures**

The number of TU CAENS youth you recieved top internships

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	7

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The integration of TU CAENS research with Cooperative Extension activities, projects and programs positively impacted youth development in science education

**What has been done**

Direct instruction, demonstrations, shared activities, leadership activities, mentorships have been provided. We had science fairs, fertilized eggs, planting and harvesting activities , career development discussions. Envirobowl and scholar bowl students became more aware of environmental science, biology, chemistry and Alabama ?related agriculture issues by studying materials for competition under the leadership of partner sponsors. Seven students in grades 9-12 worked as student interns under the direction of TU CAENS researchers.

**Results**

Seven high school students were student interns as a result of their placement in the k-12 ag-related science fair. Their projects had to be related to any of the research in CAENS. Students were strategically placed with researchers whose work was relative to the students? projects

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
806	Youth Development

**Outcome #43**

**1. Outcome Measures**

The number of TU CAENS youth who increased ability to follow the scientific method

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	150

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The integration of TU CAENS research with Cooperative Extension activities, projects and programs positively impacted youth development in science education

**What has been done**

Direct instruction, demonstrations, shared activities, leadership activities, mentorships have been provided. We had science fairs, fertilized eggs, planting and harvesting activities , career development discussions. Envirobowl and scholar bowl students became more aware of environmental science, biology, chemistry and Alabama ?related agriculture issues by studying materials for competition under the leadership of partner sponsors. Seven students in grades 9-12 worked as student interns under the direction of TU CAENS researchers.

**Results**

As a result of the lessons taught on the scientific method for science projects, students showed a marked increase in their knowledge of the scientific method.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

**Outcome #44**

**1. Outcome Measures**

Number of TU CAENS students demonstrating the importance of water and other natural resources

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	60

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The integration of TU CAENS research with Cooperative Extension activities, projects and programs positively impacted youth development in science education.

**What has been done**

Direct instruction, demonstrations, shared activities, leadership activities, mentorships have been provided. We had science fairs, fertilized eggs, planting and harvesting activities , career development discussions. Envirobowl and scholar bowl students became more aware of environmental science, biology, chemistry and Alabama ?related agriculture issues by studying materials for competition under the leadership of partner sponsors. Seven students in grades 9-12 worked as student interns under the direction of TU CAENS researchers.

**Results**

60 participants in SMART Camp demonstrated an increase in their knowledge of the importance, functions and sources of water in our daily lives using pre and post test evaluations.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

**Outcome #45**

**1. Outcome Measures**

Number of participants showing increase in knowledge and care of fertilized eggs and baby chicks.

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	361

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The integration of TU CAENS research with Cooperative Extension activities, projects and programs positively impacted youth development in science education

**What has been done**

Direct instruction, demonstrations, shared activities, leadership activities, mentorships have been provided. We had science fairs, fertilized eggs, planting and harvesting activities , career development discussions. Envirobowl and scholar bowl students became more aware of environmental science, biology, chemistry and Alabama ?related agriculture issues by studying materials for competition under the leadership of partner sponsors. Seven students in grades 9-12 worked as student interns under the direction of TU CAENS researchers.

**Results**

90 fertilized eggs and two incubators were set up for participants grades 4-5. They monitored temperatures, water levels and recorded the hatching process and recorded results on graphic organizers. They also wrote essays and photographed steps in the process.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

**Outcome #46**

**1. Outcome Measures**

The number of youth with more access to healthy foods as a result of TU CAENS

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	230

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The integration of TU CAENS research with Cooperative Extension activities, projects and programs positively impacted youth development in science education

**What has been done**

Direct instruction, demonstrations, shared activities, leadership activities, mentorships have been provided. We had science fairs, fertilized eggs, planting and harvesting activities , career development discussions. Envirobowl and scholar bowl students became more aware of environmental science, biology, chemistry and Alabama ?related agriculture issues by studying materials for competition under the leadership of partner sponsors. Seven students in grades 9-12 worked as student interns under the direction of TU CAENS researchers.

**Results**

As a result of the placement of youth gardens in local schools, the youth participation in gardening has increased to over 230.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development



**Outcome #47**

**1. Outcome Measures**

The number of TU youth increasing knowledge of raptors and reptiles

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	358

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The integration of TU CAENS research with Cooperative Extension activities, projects and programs positively impacted youth development in science education.

**What has been done**

Direct instruction, demonstrations, shared activities, leadership activities, mentorships have been provided. We had science fairs, fertilized eggs, planting and harvesting activities , career development discussions. Envirobowl and scholar bowl students became more aware of environmental science, biology, chemistry and Alabama ?related agriculture issues by studying materials for competition under the leadership of partner sponsors. Seven students in grades 9-12 worked as student interns under the direction of TU CAENS researchers.

**Results**

Over 358 participants expressed an increase in knowledge of importance of reptiles and raptors as a result of presentation by the Coosa River Science School Birds of Prey and Raptor Trek at 4 sites in the Black Belt.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

**Outcome #48**

**1. Outcome Measures**

Number of TU participants who gain knowledge about citizenship, science, health and leadership

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2016	835

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The integration of TU CAENS research with Cooperative Extension activities, projects and programs positively impacted youth development in science education

**What has been done**

Direct instruction, demonstrations, shared activities, leadership activities, mentorships have been provided. We had science fairs, fertilized eggs, planting and harvesting activities , career development discussions. Envirobowl and scholar bowl students became more aware of environmental science, biology, chemistry and Alabama ?related agriculture issues by studying materials for competition under the leadership of partner sponsors. Seven students in grades 9-12 worked as student interns under the direction of TU CAENS researchers.

**Results**

TUI Research and Extension The outcome measured changes in knowledge, skills, perceptions, attitudes, and actions regarding the identified need of the communities being served, and program impacts on 100% of youth (behavior, decision-making, academic progress, choices) as a result of their participation in the science education activities and survey results.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
802	Human Development and Family Well-Being
806	Youth Development

**Outcome #49**

**1. Outcome Measures**

The number of TU participants who gained knowledge about science,

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2016	112

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The need for science, engineering, and technology education is essential for today's young people. 4-H youth development programs prepare youth for the challenges of the 21st century by engaging them in a process of discovery and exploration leading to STEAM career choices. Participation in high-quality positive youth development 4-H science programs culminating to the 4-H National Youth Science Day (4-H NYSD) offers youth and adults the opportunity to engage in scientific exploration and work together to build the next generation scientists, engineers and mathematicians.

**What has been done**

Over 3000 youth ages 8 to 16 (grades 4 ? 12) from private and public schools in Macon, Bullock, Montgomery, Lowndes and Houston counties enrolled to participate in a series of workshops, one-on-one and/or interactive group activities in afterschool and in-school settings leading to the eighth annual 4-H National Youth Science Day (4-H NYSD) experiment. The event titled: "Motion Commotion," combined a speeding car collision and distracted driving demonstration in a simulated activity to investigate the physical and human factors of motion.

In this interactive exercise, youth used every day materials ? including a toy car, modeling clay, ruler, calculator and cell phone ? to explore physics in the real-world. In the first phase, youth constructed a simulated runway to analyze the speed, momentum and kinetic energy of a car in motion and explored the science behind the car's collisions. In the second phase, they lead an experiment that used the same physics principles to demonstrate the consequences of distracted driving.

**Results**

70 percent (112) of registered contestants clearly executed their project work and were awarded prizes. Pre- and post-test results were used to assess participant's perceived interest in pursuing science careers, their ability to interpret basic science concepts, ability to articulate and present scientific information, and to successfully execute an assign project. Follow-up interviews were conducted with participants for who indicated participating two or more times.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

#### V(H). Planned Program (External Factors)

##### External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

##### Brief Explanation

{No Data Entered}

#### V(I). Planned Program (Evaluation Studies)

##### Evaluation Results

**TMI-** data indicated an increased knowledge in decision making skills (54%); increased knowledge in health and physical fitness(43%); increased knowledge in citizenship (54%); increased knowledge in job interviewing skills (67%)and 54% increased knowledge in acceptable social behavior(N= 714)t.

**PREP-**Based on pre and posttest results, 9% of the participants obtained employment by the end of the program. Follow-up data were collected from 81 individuals 1 to 2 months after participating in the program. Based on the results, participants felt significantly more confident in their ability to a)interview (t = -6.01, p =.00) b) choose appropriate dress for an interview (t = -6.32, p=.00) c)do an overall job search (t = -7.65, p=.00)

**BE SAFE-** Students significantly increased in their knowledge of how to help someone being bullied,  $p < 0.001$ ; and their ability to describe qualities of a healthy peer relationship,  $p = 0.001$ .

**4H Leadership-**881 youth were surveyed on their ability to work with other adults. Out of 881 youth 744 youth felt their ability to successfully work with adults increased due to their participation in a leadership and citizenship program.

**STEAM Pre- and post-test** Over 300 students prepared science projects. Knowledge of scientific method was increased by 60%. The outcome measured changes in knowledge, skills, perceptions, attitudes, and actions regarding the identified need of the communities being served, and program impacts on 100% of youth (behavior, decision-making,

academic progress, choices) as a result of their participation in the science education activities and survey results. Eco- Art won first place at local festival and is on display at the George Washington Carver Museum at Tuskegee University

**Development and the Nurturing of Youth in Science Education-** A pre-and post-program assessment of participating youth (n=160) indicate 85 percent (8-12) graders and 90 percent (4-7) graders desired further experimenting and/or testing new ideas. Eighty percent (8-12) graders and 82 percent (4-7) graders indicated they enjoyed their science project; while 75 percent (8-12) graders and 76 percent (4-7) graders want to learn more about their science projects in related fields. Majority of the participating youth (90%; 8-12 graders and 74% 4-7 graders) said they were confident to lead and teach others about using science in solving everyday problems.

**Money Management for High School Youth in Dallas County** -15% of students scored 100% on pre-test: basic knowledge of credit card usage, bill paid in full and interest applied, penalty if balances are paid after due dates, percentages of price of any purchases with cards, and what credit reports contain. 27% of students scored 80%, 32% scored 70%, 15% scored 55%, and 5% scored 40% on same test. -89% of students understood the importance of savings; 59% of students had experience in the workforce; 25% of students had Saving Accounts;98% learned the Principles of Money and understood how they effected financial stability;62% committed to starting Saving Accounts.

## Key Items of Evaluation

**TMI-** data indicated an increased knowledge in decision making skills (54%); increased knowledge in health and physical fitness(43%); increased knowledge in citizenship (54%); increased knowledge in job interviewing skills (67%)and 54% increased knowledge in acceptable social behavior(N= 714)t.

**PREP-**Based on pre and posttest results, 9% of the participants obtained employment by the end of the program. Follow-up data were collected from 81 individuals 1 to 2 months after participating in the program. Based on the results, participants felt significantly more confident in their ability to a)interview (t = -6.01, p =.00) b) choose appropriate dress for an interview (t = -6.32, p=.00) c)do an overall job search (t = -7.65, p=.00)

**BE SAFE-** Students significantly increased in their knowledge of how to help someone being bullied,  $p < 0.001$ ; and their ability to describe qualities of a healthy peer relationship,  $p = 0.001$ .

**4H Leadership-**881 youth were surveyed on their ability to work with other adults. Out of 881 youth 744 youth felt their ability to successfully work with adults increased due to their participation in a leadership and citizenship program.

**STEAM Pre- and post-test** Over 300 students prepared science projects. Knowledge of scientific method was increased by 60%. The outcome measured changes in knowledge, skills, perceptions, attitudes, and actions regarding the identified need of the communities being served, and program impacts on 100% of youth (behavior, decision-making, academic progress, choices) as a result of their participation in the science education activities and survey results. Eco- Art won first place at local festival and is on display at the George Washington Carver Museum at Tuskegee University

**Development and the Nurturing of Youth in Science Education-** A pre-and post-program assessment of participating youth (n=160) indicate 85 percent (8-12) graders and 90 percent (4-7) graders desired further experimenting and/or testing new ideas. Eighty percent (8-12) graders and 82 percent (4-7) graders indicated they enjoyed their science project; while 75 percent (8-12) graders and 76 percent (4-7) graders want to learn more about their science projects in related fields. Majority of the participating youth (90%; 8-12 graders and 74% 4-7 graders) said they were confident to lead and teach others about using science in solving everyday problems.

**Money Management for High School Youth in Dallas County** -15% of students scored 100% on pre-test: basic knowledge of credit card usage, bill paid in full and interest applied, penalty if balances are paid after due dates, percentages of price of any purchases with cards, and what credit reports contain. 27% of students scored 80%, 32% scored 70%, 15% scored 55%, and 5% scored 40% on same test. -89% of students understood the importance of savings; 59% of students had experience in the workforce; 25% of students had Saving Accounts;98% learned the Principles of Money and understood how they effected financial stability;62% committed to starting Saving Accounts.

## VI. National Outcomes and Indicators

### 1. NIFA Selected Outcomes and Indicators

<b>Childhood Obesity (Outcome 1, Indicator 1.c)</b>	
0	Number of children and youth who reported eating more of healthy foods.
<b>Climate Change (Outcome 1, Indicator 4)</b>	
0	Number of new crop varieties, animal breeds, and genotypes with climate adaptive traits.
<b>Global Food Security and Hunger (Outcome 1, Indicator 4.a)</b>	
0	Number of participants adopting best practices and technologies resulting in increased yield, reduced inputs, increased efficiency, increased economic return, and/or conservation of resources.
<b>Global Food Security and Hunger (Outcome 2, Indicator 1)</b>	
0	Number of new or improved innovations developed for food enterprises.
<b>Food Safety (Outcome 1, Indicator 1)</b>	
0	Number of viable technologies developed or modified for the detection and
<b>Sustainable Energy (Outcome 3, Indicator 2)</b>	
0	Number of farmers who adopted a dedicated bioenergy crop
<b>Sustainable Energy (Outcome 3, Indicator 4)</b>	
0	Tons of feedstocks delivered.