

# 2017 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, engineering and community development. Research and Cooperative Extension....Research at each Alabama land-grant institution (LGU) 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 its historical focus in Alabama Black Belt and adjacent counties that include Native American and Hispanic populations and span rural, urban, and peri-urban communities. 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 Systems and Food Safety, 3) Natural Resources Conservation Environmental Sustainability and Climate Change, 4) Human Nutrition, Well-being, Health and Obesity, 5) Community Development, 6) Family, Home and 4-H and Youth Development, and 7) Sustainable Energy. The annual report for FY 2017 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 \$600,000 in 2017, thus increasing access to USDA programs for those stakeholders. Further, footpad irritation posed economic and welfare problems for poultry farmers. Work with the famers 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 year-round actives to introduce and provide advanced 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 and agricultural 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: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	364.0	56.5	326.0	44.3
Actual	375.0	67.0	81.0	48.6

**II. Merit Review Process**

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

- Combined External and Internal University Panel

**2. Brief Explanation**

In 2017, the three land grant universities in Alabama, Alabama A&M University, Auburn University and

Tuskegee University continued the utilization of a 5 phase merit review process. The process allowed opportunities for discussion and feedback at each phase.

**Phase 1** was conducted by extension and research program or project teams. Teams were instructed to review and discuss program data. This process ensured report information clearly represented critical needs identified by Alabama residents, stakeholders and partners. Upon completion of the team reviews data was submitted to Assistant/Associate Directors and Administrators and Deans/Associate Deans.

**Phase II** was conducted by Extension Assistant/Associate Directors and Administrators and Research Deans/Associate Deans. All data shared by program/project teams was reviewed to ensure:

- Relevant and impactful information
- Alignment of measurable impacts and outcomes with established national standards
- multistate/integrated research and extension activities reported

**Phase III** was conducted by Extension and Research administrative teams. Consideration was given to the following criteria:

- University mission
- Inclusion of approved programs and projects
- Adequate allocation of fiscal/human resources to successfully implement programs and projects
- The capacity to offer education programs and 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** involved Extension administrators, deans and department heads. In Alabama several system program specialists are housed in academic departments. Therefore, they were included in the process to review information from educators and scientists in their respective departments.

**Phase V** solicited reviews from various state-wide advisory councils to ensure:

- citizens' needs were addressed
- Extension programs and Research efforts/accomplishments were articulated
- collaboration and network opportunities were incorporated
- visibility of 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 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. In addition, Auburn University College of Agriculture has recently established 12 Collaborative Research Teams to help facilitate interdisciplinary research collaborations and provide input/feedback on research programs and initiatives. 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.**

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 Safety and Food Systems  
 Human Nutrition, Well-Being, Health and Obesity  
 Sustainable Energy  
 Community Resource Development  
 Family, Home, and 4-H and Youth Development

**IV. Expenditure Summary**

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
{No Data Entered}	{No Data Entered}	{No Data Entered}	{No Data Entered}

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

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
<b>Actual Formula</b>	0	1585060	0	2560811
<b>Actual Matching</b>	0	1585060	0	1344408
<b>Actual All Other</b>	0	0	0	0
<b>Total Actual Expended</b>	0	3170120	0	3905219

**Institution Name:** Auburn University

<b>2. Totaled 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>	8361127	0	5020303	0
<b>Actual Matching</b>	8361127	0	4629591	0
<b>Actual All Other</b>	47757546	0	16488566	0
<b>Total Actual Expended</b>	64479800	0	26138460	0

**Institution Name:** Tuskegee University

<b>2. Totaled 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	1925439	0	2678706
<b>Actual Matching</b>	0	1714361	0	2448384
<b>Actual All Other</b>	0	0	0	0
<b>Total Actual Expended</b>	0	3639800	0	5127090

<b>3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous</b>				
<b>Carryover</b>	0	165919	0	0



**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%	0%	13%
111	Conservation and Efficient Use of Water	10%	10%	0%	5%
123	Management and Sustainability of Forest Resources	10%	10%	2%	5%
125	Agroforestry	5%	5%	0%	9%
132	Weather and Climate	5%	5%	0%	3%
201	Plant Genome, Genetics, and Genetic Mechanisms	0%	0%	0%	4%
202	Plant Genetic Resources	0%	0%	5%	8%
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%	0%	5%	2%
205	Plant Management Systems	10%	10%	2%	2%
206	Basic Plant Biology	2%	2%	5%	2%
211	Insects, Mites, and Other Arthropods Affecting Plants	5%	5%	14%	2%
212	Pathogens and Nematodes Affecting Plants	0%	0%	29%	3%
213	Weeds Affecting Plants	2%	2%	4%	1%
216	Integrated Pest Management Systems	10%	10%	3%	6%
302	Nutrient Utilization in Animals	5%	5%	14%	8%
311	Animal Diseases	10%	10%	17%	2%
402	Engineering Systems and Equipment	2%	2%	0%	0%
502	New and Improved Food Products	5%	5%	0%	10%
601	Economics of Agricultural Production and Farm Management	15%	15%	0%	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: 2017	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	60.0	13.5	174.0	15.1
<b>Actual Paid</b>	64.3	12.9	15.9	16.0
<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
1513513	0	1068283	0
<b>1862 Matching</b>	<b>1890 Matching</b>	<b>1862 Matching</b>	<b>1890 Matching</b>
2137659	0	985142	0
<b>1862 All Other</b>	<b>1890 All Other</b>	<b>1862 All Other</b>	<b>1890 All Other</b>
8208250	0	4212765	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	241440	0	486554
<b>1862 Matching</b>	<b>1890 Matching</b>	<b>1862 Matching</b>	<b>1890 Matching</b>
0	241440	0	255438
<b>1862 All Other</b>	<b>1890 All Other</b>	<b>1862 All Other</b>	<b>1890 All Other</b>
0	0	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	482262	0	1112344
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	429393	0	1016685
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

**Integrated Pest and Disease Management:** AU researches are developing environmentally friendly and economically feasible methods to control and manage plant pests and disease infestation. **Crop Production Systems:** AU researchers are using breeding, cultivar evaluation, nutritional approaches and training systems to improve production efficiencies of agronomic and horticultural crops. **Integrated sustainable aquaculture systems:** AU Researchers are working to better integrate sustainability and economic development across multiple species including catfish, shrimp, pompano, and oysters. **Livestock production systems:** AU researchers are focused on improving forage bases and supplements for supporting Southeastern beef cattle production.

**Alternative and Small-Scale Livestock Production** 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.

**Animal Production Efficiency:** Beef cattle production is a very important source of supplemental income for many limited resource farm families within the Black Belt counties and across the state of Alabama. However, beef cattle production has become very risky for all cattle producers due to the increases in production costs.

**Holistic Real Time** 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 utilizing classic extension activities

**Fundamentals of Dormancy in Peach-**Conducted a demonstration and research on the efficacy of dormancy breaking compounds such as hydrogen cyanamide. Prepared a research presentation for the National American Society for Horticultural Science. Conducted grower networking sessions on peach tree dormancy. Conducted a round table discussion on dormancy issues in peach tree production in the Southeast. Provided periodic updates on chill hour accumulation to peach growers, Extension personnel as well as other stakeholders through an email alert system.

### 2. Brief description of the target audience

**AU Research-** Agriculture producers and allied industries, extension agents, state and federal agencies, educational institutions, and the general public, Aquaculture producers and allied industries, Poultry producers and allied industries, Livestock producers and allied industries.

**Alternative and Small-Scale Livestock Production** 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 interested in supplying quality food products. Tertiary target audience was consumers of meat products concerned with dietary cholesterol and other health issues.

**Consumers' valuation** landowners and farmers; business owners and managers particularly of groceries and supermarkets that sold fresh foods and the general public; Students researchers.

**Historically Disadvantaged and Limited-Resource Farmers Go Commercial** Limited resource producers

**Holistic Real Time (HRT)** response General Public, Farmers, Crop Consultants, Agribusiness Personnel, Regional and Statewide Extension Specialists, AU AAES Support Personnel and Faculty, State and Federal Ag Services Personnel.

**Fundamentals of Dormancy in Peach** was mainly peach growers, Extension personnel, researchers, research center personnel, and representatives from coops and chemical companies.

### 3. How was eXtension used?

eXtension was not used in this program

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

#### 1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	67446	0	30598	0

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

##### Patent Applications Submitted

Year: 2017

Actual: 4

##### Patents listed

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

##### Number of Peer Reviewed Publications

2017	Extension	Research	Total
<b>Actual</b>	50	119	0

### V(F). State Defined Outputs

#### Output Target

**Output #1**

**Output Measure**

- Number of peer reviewed publications

<b>Year</b>	<b>Actual</b>
2017	106

**Output #2**

**Output Measure**

- Number of patents and disclosures

<b>Year</b>	<b>Actual</b>
2017	4

**Output #3**

**Output Measure**

- Number of plant varieties developed and improved.

<b>Year</b>	<b>Actual</b>
2017	3

**Output #4**

**Output Measure**

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

**Output #5**

**Output Measure**

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

**Output #6**

**Output Measure**

- Number of graduate students completed

<b>Year</b>	<b>Actual</b>
2017	22

**Output #7**

**Output Measure**

- Number of technologies developed/evaluated

<b>Year</b>	<b>Actual</b>
2017	2

**Output #8**

**Output Measure**

- Number of technical and poster presentations

<b>Year</b>	<b>Actual</b>
2017	116

**Output #9**

**Output Measure**

- Number of training events  
Not reporting on this Output for this Annual Report

**Output #10**

**Output Measure**

- Number of demonstrations  
Not reporting on this Output for this Annual Report

**Output #11**

**Output Measure**

- Number of exhibitions and tradeshow  
Not reporting on this Output for this Annual Report

**Output #12**

**Output Measure**

- Number of participants  
Not reporting on this Output for this Annual Report

**Output #13**

**Output Measure**

- Number of educational publications developed or improved  
Not reporting on this Output for this Annual Report

**Output #14**

**Output Measure**

- Number of social media information interactions  
Not reporting on this Output for this Annual Report

**Output #15**

**Output Measure**

- Number of in-service training sessions for Extension and Research personnel

Not reporting on this Output for this Annual Report

**Output #16**

**Output Measure**

- Number of training curricula or modules developed

Not reporting on this Output for this Annual Report

**Output #17**

**Output Measure**

- Number of Meetings

<b>Year</b>	<b>Actual</b>
2017	149

**Output #18**

**Output Measure**

- Number of Demonstrations

<b>Year</b>	<b>Actual</b>
2017	261

**Output #19**

**Output Measure**

- Number of In-Service Training Sessions

<b>Year</b>	<b>Actual</b>
2017	15

**Output #20**

**Output Measure**

- Number of HRT participants

<b>Year</b>	<b>Actual</b>
2017	7141

**Output #21**

**Output Measure**

- Number of social media information sharing and interactions



<b>Year</b>	<b>Actual</b>
2017	567

**Output #22**

**Output Measure**

- Number of exhibitions and tradeshow

<b>Year</b>	<b>Actual</b>
2017	6

**Output #23**

**Output Measure**

- Number of in-service training sessions for Extension and Research personnel

<b>Year</b>	<b>Actual</b>
2017	357

**Output #24**

**Output Measure**

- Electronic media (web based materials including blog posts, twitter posts, video productions and other media)

<b>Year</b>	<b>Actual</b>
2017	439

**Output #25**

**Output Measure**

- Number of Webinars

<b>Year</b>	<b>Actual</b>
2017	51

**Output #26**

**Output Measure**

- Number of Alabama Precision Agriculture (PA) Learning Network workshops

<b>Year</b>	<b>Actual</b>
2017	6

**Output #27**

**Output Measure**

- Number of technical assistance hours

<b>Year</b>	<b>Actual</b>
2017	360

**Output #28**

**Output Measure**

- Number of methods and technologies developed/evaluated

<b>Year</b>	<b>Actual</b>
2017	4

**Output #29**

**Output Measure**

- Number of technical and poster presentations

<b>Year</b>	<b>Actual</b>
2017	30

**Output #30**

**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)

<b>Year</b>	<b>Actual</b>
2017	30

**Output #31**

**Output Measure**

- Number of on- and off-site demonstrations (number of participants)

<b>Year</b>	<b>Actual</b>
2017	5

**Output #32**

**Output Measure**

- Number of participants (Measures: event registrations, direct adult and youth contacts, and indirect adult and youth contacts )

<b>Year</b>	<b>Actual</b>
2017	1400

**Output #33**

**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)

<b>Year</b>	<b>Actual</b>
2017	2

**Output #34**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2017	6

**Output #35**

**Output Measure**

- Number of individuals who received instruction on peach tree dormancy related issues

<b>Year</b>	<b>Actual</b>
2017	300

**Output #36**

**Output Measure**

- Number of Feed Milling Technology workshops

<b>Year</b>	<b>Actual</b>
2017	2

**Output #37**

**Output Measure**

- Number of Small Poultry Flock Support workshops

<b>Year</b>	<b>Actual</b>
2017	5

**Output #38**

**Output Measure**

- Number of Peanut Production and Peanut Agronomics Meetings

<b>Year</b>	<b>Actual</b>
2017	18

**Output #39**

**Output Measure**

- Number of Peanut Production and Peanut Agronomics Demonstrations

<b>Year</b>	<b>Actual</b>
2017	20

**Output #40**

**Output Measure**

- Number of peer-reviewed publications related to extension efforts on livestock production

<b>Year</b>	<b>Actual</b>
2017	3

**Output #41**

**Output Measure**

- Number of graduate students completed

<b>Year</b>	<b>Actual</b>
2017	3

**Output #42**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2017	16

**Output #43**

**Output Measure**

- Number of followers on livestock online extension outlets

<b>Year</b>	<b>Actual</b>
2017	1960

**Output #44**

**Output Measure**

- Number of livestock educational publications developed or improved

<b>Year</b>	<b>Actual</b>
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2017 45

**Output #45**

**Output Measure**

- Number of livestock surveys completed

<b>Year</b>	<b>Actual</b>
2017	39

**Output #46**

**Output Measure**

- Number of livestock technical and poster presentations

<b>Year</b>	<b>Actual</b>
2017	16

**Output #47**

**Output Measure**

- Number of livestock on- and off-site demonstrations

<b>Year</b>	<b>Actual</b>
2017	4

**Output #48**

**Output Measure**

- Number of livestock training events and conferences for target audience

<b>Year</b>	<b>Actual</b>
2017	121

**Output #49**

**Output Measure**

- Number of livestock participants

<b>Year</b>	<b>Actual</b>
2017	4760

**Output #50**

**Output Measure**

- Number of individuals reached through beef cattle online programming and curriculum (online coursework, Extension website)

<b>Year</b>	<b>Actual</b>
2017	2551

**Output #51**

**Output Measure**

- Number of acres impacted

<b>Year</b>	<b>Actual</b>
2017	3457

**Output #52**

**Output Measure**

- Number of Auxin Herbicide Drift and Off-target Injury Education and Training participants

<b>Year</b>	<b>Actual</b>
2017	1062

**Output #53**

**Output Measure**

- Number of Auxin Herbicide Drift and Off-target Injury Education training events and conferences for target audience

<b>Year</b>	<b>Actual</b>
2017	26

**Output #54**

**Output Measure**

- Number of pond management workshops and presentations

<b>Year</b>	<b>Actual</b>
2017	30

**Output #55**

**Output Measure**

- Number of attendees at pond management workshops, presentations, and events

<b>Year</b>	<b>Actual</b>
2017	1665

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

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

O. No.	OUTCOME NAME
1	The number of new variety of crops developed
2	The number of technologies developed for control and management of diseases
3	The number of best management practices adopted that ensure the sustainability of agricultural systems
4	The number of broiler producers with increased knowledge of of methods to reduce waste management issues on farms
5	The number of participants with increased knowledge of horticultural production methods and marketing
6	The number of participants who adopted row crop production practices that are sustainable
7	The number of participants who adopted integrated pest management recommendations
8	The number of pond owners with increased knowledge of pond function and management
9	The number of participants who adopt water conservation best practices
10	The number of livestock and equine farmers who adopt forage best management practices
11	The number of livestock owners with increased producer knowledge on sustainability of production
12	The number of participant with increased knowledge of Integrated Pest Management
13	The number of best management practices adopted that ensure the sustainability of forestry production systems.
14	The number of poultry producer who adopt litter management techniques
15	The number of poultry industry personnel with increased knowledge in poultry house technology and management
16	The number of catfish producers who adopt more efficient practices
17	The number of catfish producers who use hybrid catfish production

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18	The number of livestock owners with increased knowledge on proper animal care
19	The number of participant with increased knowledge of Plasticulture
20	The number of participant with increased knowledge of Organic Farming
21	The number of participant with increased knowledge of Forest Management
22	The number of participant with increased knowledge of Animal Management
23	The number of pond owners who adopt pond management best practices
24	The number of participants who increased knowledge in angler education
25	The number of participants with increased knowledge of fisheries management
26	TU: Number of historically disadvantaged and limited resource livestock producers with increased skills on integrated approach for managing diseases and parasites
27	TU: Number of disadvantaged producers who adopted improved herd health practices.
28	TU: Number of disadvantaged producers with improved forage management
29	TU: Number of disadvantaged producers increased knowledge in regards to using beef cattle expected progeny differences when selecting herd breeding sires.
30	TU: Number of pounds increased weaning weight
31	TU: Number of farmers selling seasons produce to grocery stores
32	TU: Number of participants with increased skills on integrated approach for managing diseases and parasites
33	Dollar value attributed to the increase in farm gate income or reduction in input costs
34	Dollar Value on Increased Profits from High Yield Corn and Soybean Extension Programming in North Alabama
35	Knowledge increase on the use of soil sensors for irrigation scheduling
36	Percent of peach growers in Chilton County who plan to adopt measures to off set low chill accumulation
37	Dollar value of adoption of improved practices



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38	Number of feed mill employees that increased knowledge :certification in PCQI.
39	Increased knowledge of federal and state regulations by workshop participants.
40	Percent increased knowledge of poultry processing procedures by workshop participants.
41	Increased farm income from Peanut Production and Peanut Agronomics extension recommendations
42	Number of acres with increased management
43	Dollar amount saved with poultry recommendations
44	Percent increase of users for Alabama beef Extension website and social media resources
45	Percent knowledge gain from in-service trainings on forage-livestock management with Extension agents and federal agencies
46	Adoption of sustainable land and animal management practices through Extension facilitated beef producer discussion groups
47	Economic impact of retained ownership through the Alabama Pasture to Rail Program
48	Number of producers who adopted feedlot phase recommendations
49	Percent Knowledge gain of sustainable livestock management practices in the 2017 Women in Ag Program
50	Economic impact of Extension facilitated beef producer working groups
51	Economic impact of the Beef Basics Online Course
52	Dollar amount provided derived from increased farm income derived through reduction in use of unnecessary insecticide applications
53	Dollar value attributed to growers being aware that these 2 new stink bug pests could be present in their soybeans .
54	Dollar amount of loss prevented (soybean and open field cucurbits)
55	Number of dicamba drift incidence in AL
56	Number of new crop varieties and cultivars developed
57	Number of row crop production practices that are sustainable and profitable

58	Increase broiler producer awareness of methods to reduce waste management and litter management on farms
59	Increase the knowledge of catfish producers in more efficient practices and expand the use of hybrid catfish in production.
60	Increase knowledge and awareness of methodologies and practices used in establishing and sustaining a viable forage base on Alabama livestock and equine farms

**Outcome #1**

**1. Outcome Measures**

The number of new variety of crops developed

Not Reporting on this Outcome Measure

**Outcome #2**

**1. Outcome Measures**

The number of technologies developed for control and management of diseases

Not Reporting on this Outcome Measure

**Outcome #3**

**1. Outcome Measures**

The number of best management practices adopted that ensure the sustainability of agricultural systems

Not Reporting on this Outcome Measure

**Outcome #4**

**1. Outcome Measures**

The number of broiler producers with increased knowledge of of methods to reduce waste management issues on farms

Not Reporting on this Outcome Measure

**Outcome #5**

**1. Outcome Measures**

The number of participants with increased knowledge of horticultural production methods and marketing

Not Reporting on this Outcome Measure

**Outcome #6**

**1. Outcome Measures**

The number of participants who adopted row crop production practices that are sustainable

Not Reporting on this Outcome Measure

**Outcome #7**

**1. Outcome Measures**

The number of participants who adopted integrated pest management recommendations

Not Reporting on this Outcome Measure

**Outcome #8**

**1. Outcome Measures**

The number of pond owners with increased knowledge of pond function and management

Not Reporting on this Outcome Measure

**Outcome #9**

**1. Outcome Measures**

The number of participants who adopt water conservation best practices

Not Reporting on this Outcome Measure

**Outcome #10**

**1. Outcome Measures**

The number of livestock and equine farmers who adopt forage best management practices

Not Reporting on this Outcome Measure

**Outcome #11**

**1. Outcome Measures**

The number of livestock owners with increased producer knowledge on sustainability of production

Not Reporting on this Outcome Measure

**Outcome #12**

**1. Outcome Measures**

The number of participant with increased knowledge of Integrated Pest Management

Not Reporting on this Outcome Measure

**Outcome #13**

**1. Outcome Measures**

The number of best management practices adopted that ensure the sustainability of forestry production systems.

Not Reporting on this Outcome Measure

**Outcome #14**

**1. Outcome Measures**

The number of poultry producer who adopt litter management techniques

Not Reporting on this Outcome Measure

**Outcome #15**

**1. Outcome Measures**

The number of poultry industry personnel with increased knowledge in poultry house technology and management

Not Reporting on this Outcome Measure

**Outcome #16**

**1. Outcome Measures**

The number of catfish producers who adopt more efficient practices

Not Reporting on this Outcome Measure

**Outcome #17**

**1. Outcome Measures**

The number of catfish producers who use hybrid catfish production

Not Reporting on this Outcome Measure

**Outcome #18**

**1. Outcome Measures**

The number of livestock owners with increased knowledge on proper animal care

Not Reporting on this Outcome Measure

**Outcome #19**

**1. Outcome Measures**

The number of participant with increased knowledge of Plasticulture

Not Reporting on this Outcome Measure

**Outcome #20**

**1. Outcome Measures**

The number of participant with increased knowledge of Organic Farming

Not Reporting on this Outcome Measure

**Outcome #21**

**1. Outcome Measures**

The number of participant with increased knowledge of Forest Management

Not Reporting on this Outcome Measure

**Outcome #22**

**1. Outcome Measures**

The number of participant with increased knowledge of Animal Management

Not Reporting on this Outcome Measure

**Outcome #23**

**1. Outcome Measures**

The number of pond owners who adopt pond management best practices

Not Reporting on this Outcome Measure

**Outcome #24**

**1. Outcome Measures**

The number of participants who increased knowledge in angler education

Not Reporting on this Outcome Measure

**Outcome #25**

**1. Outcome Measures**

The number of participants with increased knowledge of fisheries management

Not Reporting on this Outcome Measure

**Outcome #26**

**1. Outcome Measures**

TU: Number of historically disadvantaged and limited resource livestock producers with increased skills on integrated approach for managing diseases and parasites

**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>
2017	71

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

**Issue (Who cares and Why)**

Conventional method of parasite control using chemical de-wormers is ineffective, especially to control the barber pole worm, a most significant parasite causing a huge loss in small ruminant industry, as this worm is becoming resistant to most chemical dewormers available in the market. Moreover, external parasites, infectious and other diseases, including zoonoses, are crucial in the health and well-being of small ruminants. Producers and professionals must know all these health problems and be able to prevent them.

**What has been done**

In efforts to assist beef and meat goat producers with production and marketing concerns, the Tuskegee University Agriculture Research, Extension and Outreach programs in partnership with the School of Veterinary Medicine conducted educational programs and assisted small producers in 2016 and 2017 with production problems. Approximately nine hundred (900) contacts made with small scale beef and goat producers through farm and home visits, newsletters, workshops, and field days. Extension and Research has also established Twenty-four (24) research and demonstration sites within the Black Belt and surrounding counties to further teach and demonstrate sound management practices for goat producers in efforts to create alternative

nutrition, herd health and marketing strategies for quality goat meat and by-products.

**Results**

Tuskegee Research and Extension: Seventy-one participants increased skills on integrated approach for managing diseases and parasites: use of FAMACHA; smart drenching; grazing management; using browse, woodlands, and tannin containing plants and feeds; animal selection; nutrition; general prevention and control strategies of common diseases and parasites.

**4. Associated Knowledge Areas**

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

**Outcome #27**

**1. Outcome Measures**

TU: Number of disadvantaged producers who adopted improved herd health practices.

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	22

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

**Issue (Who cares and Why)**

Beef cattle production is a very important source of supplemental income for many limited resource farm families within the Black Belt counties and across the state of Alabama. However, beef cattle production has become very risky for all cattle producers due to the increases in production costs. Many producers have begun to diversify limited resource farms by incorporating meat goats into their production systems in efforts to increase farm income through the sale of meat goats at least twice a year. However, both species of livestock (cattle and goats) share many of the same production problems including poor nutrition, parasites, health care, and the lack of marketing diversification. These production management issues are costing livestock producers millions of dollars annually in profit from the sale of calves and goats.

**What has been done**



In efforts to assist beef and meat goat producers with production and marketing concerns, the Tuskegee University Agriculture Research, Extension and Outreach programs in partnership with the School of Veterinary Medicine conducted educational programs and assisted small producers in 2016 and 2017 with production problems. Approximately nine hundred (900) contacts made with small scale beef and goat producers through farm and home visits, newsletters, workshops, and field days. Extension and Research has also established Twenty-four (24) research and demonstration sites within the Black Belt and surrounding counties to further teach and demonstrate sound management practices for goat producers in efforts to create alternative nutrition, herd health and marketing strategies for quality goat meat and by-products.

#### **Results**

Tuskegee Research and Extension Out of 352 producers that were engaged: 22 producers adopted improved herd health practices.

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

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

#### **Outcome #28**

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

TU: Number of disadvantaged producers with improved forage management

##### **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>
2017	27

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

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

Beef cattle production is a very important source of supplemental income for many limited resource farm families within the Black Belt counties and across the state of Alabama. However, beef cattle production has become very risky for all cattle producers due to the increases in production costs. Many producers have begun to diversify limited resource farms by incorporating meat goats into their production systems in efforts to increase farm income through the sale of

meat goats at least twice a year. However, both species of livestock (cattle and goats) share many of the same production problems including poor nutrition, parasites, health care, and the lack of marketing diversification. These production management issues are costing livestock producers millions of dollars annually in profit from the sale of calves and goats.

**What has been done**

In efforts to assist beef and meat goat producers with production and marketing concerns, the Tuskegee University Agriculture Research, Extension and Outreach programs in partnership with the School of Veterinary Medicine conducted educational programs and assisted small producers in 2016 and 2017 with production problems. Approximately nine hundred (900) contacts made with small scale beef and goat producers through farm and home visits, newsletters, workshops, and field days. Extension and Research has also established Twenty-four (24) research and demonstration sites within the Black Belt and surrounding counties to further teach and demonstrate sound management practices for goat producers in efforts to create alternative nutrition, herd health and marketing strategies for quality goat meat and by-products.

**Results**

Tuskegee Research and Extension Out of 352 producers that were engaged: 27 producers improved forage management.

**4. Associated Knowledge Areas**

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

**Outcome #29**

**1. Outcome Measures**

TU: Number of disadvantaged producers increased knowledge in regards to using beef cattle expected progeny differences when selecting herd breeding sires.

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	12

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

**Issue (Who cares and Why)**

Beef cattle production is a very important source of supplemental income for many limited resource farm families within the Black Belt counties and across the state of Alabama. However, beef cattle production has become very risky for all cattle producers due to the increases in production costs. Many producers have begun to diversify limited resource farms by incorporating meat goats into their production systems in efforts to increase farm income through the sale of meat goats at least twice a year. However, both species of livestock (cattle and goats) share many of the same production problems including poor nutrition, parasites, health care, and the lack of marketing diversification. These production management issues are costing livestock producers millions of dollars annually in profit from the sale of calves and goats.

**What has been done**

In efforts to assist beef and meat goat producers with production and marketing concerns, the Tuskegee University Agriculture Research, Extension and Outreach programs in partnership with the School of Veterinary Medicine conducted educational programs and assisted small producers in 2016 and 2017 with production problems. Approximately nine hundred (900) contacts made with small scale beef and goat producers through farm and home visits, newsletters, workshops, and field days. Extension and Research has also established Twenty-four (24) research and demonstration sites within the Black Belt and surrounding counties to further teach and demonstrate sound management practices for goat producers in efforts to create alternative nutrition, herd health and marketing strategies for quality goat meat and by-products.

**Results**

Tuskegee Research and Extension: Out of 352 producers that were engaged: 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>
216	Integrated Pest Management Systems
311	Animal Diseases
601	Economics of Agricultural Production and Farm Management

**Outcome #30**

**1. Outcome Measures**

TU: Number of pounds increased weaning weight

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2017	90

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Beef cattle production is a very important source of supplemental income for many limited resource farm families within the Black Belt counties and across the state of Alabama. However, beef cattle production has become very risky for all cattle producers due to the increases in production costs. Many producers have begun to diversify limited resource farms by incorporating meat goats into their production systems in efforts to increase farm income through the sale of meat goats at least twice a year. However, both species of livestock (cattle and goats) share many of the same production problems including poor nutrition, parasites, health care, and the lack of marketing diversification. These production management issues are costing livestock producers millions of dollars annually in profit from the sale of calves and goats.

#### What has been done

In efforts to assist beef and meat goat producers with production and marketing concerns, the Tuskegee University Agriculture Research, Extension and Outreach programs in partnership with the School of Veterinary Medicine conducted educational programs and assisted small producers in 2016 and 2017 with production problems. Approximately nine hundred (900) contacts made with small scale beef and goat producers through farm and home visits, newsletters, workshops, and field days. Extension and Research has also established Twenty-four (24) research and demonstration sites within the Black Belt and surrounding counties to further teach and demonstrate sound management practices for goat producers in efforts to create alternative nutrition, herd health and marketing strategies for quality goat meat and by-products.

#### Results

Tuskegee Research and Extension: This past year alone five of our cattle producers received the daily high sell price at auction for steers and heifers, all attributed to better herd health management. Four farmers reported an increase in weaning as a result of improving in pasture and forage management, corrected stocking rates and cattle overall health management, some culling and replacing and improving genetic both broods cows and bulls. On an average, weaning weight increased by 90+ pounds

### 4. Associated Knowledge Areas

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

**Outcome #31**

**1. Outcome Measures**

TU: Number of farmers selling seasons produce to grocery stores

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	1

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

**Issue (Who cares and Why)**

Growing fresh produce abundantly and economically, during the cool months of the year has always proven to be a challenge in Alabama. Early plasticulture research at Tuskegee University, aided in the development of the concept of building a simple wooden tunnel house.

**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**

Tuskegee Research and Extension Of the 6 farmers 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 at a profit

**4. Associated Knowledge Areas**

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

## **Outcome #32**

### **1. Outcome Measures**

TU: Number of participants with increased skills on integrated approach for managing diseases and parasites

### **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>
2017	71

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

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

Conventional method of parasite control using chemical de-wormers is ineffective, especially to control the barber pole worm, a most significant parasite causing a huge loss in small ruminant industry, as this worm is becoming resistant to most chemical dewormers available in the market. Moreover, external parasites, infectious and other diseases, including zoonoses, are crucial in the health and well-being of small ruminants. Producers and professionals must know all these health problems and be able to prevent them.

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

Three educational events conducted for historically disadvantaged and limited resource livestock producers in Alabama, especially Black Belt Region) on the integrated approach for managing diseases and parasites: use of FAMACHA; smart drenching; grazing management; using browse, woodlands, and tannin containing plants and feeds; animal selection; nutrition; general prevention and control strategies of common diseases and parasites. Research conducted to identify suitable browse species and sustainable use of woodlands for expanding grazing opportunity and promote animal health.

#### **Results**

Tuskegee University Research and Extension: Seventy-one participants increased skills on integrated approach for managing diseases and parasites: use of FAMACHA; smart drenching; grazing management; using browse, woodlands, and tannin containing plants and feeds; animal selection; nutrition; general prevention and control strategies of common diseases and parasites.

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

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

### **Outcome #33**

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

Dollar value attributed to the increase in farm gate income or reduction in input costs

#### **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>
2017	3079324

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

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

Stakeholder 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, fertility and pesticide recommendations and regulations, impact and efficient management of weed resistance in agricultural production systems, as well as the magnitude of pest-, disease-, and nematode-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 revenues for most of the above agronomic crops 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 (110) and pod blasting workshops (26); weed and field crop production tours (40); AAES Research Field Days (3); IPM Crop Scout Training (3); stored grain workshops (4); private pesticide applicator training (29) and pesticide dealer meetings (3); AL Crop Advisory Training; Corn and Wheat Short Course. Used electronic media to distribute recommendations (7), newsletters (32) and blog posts (58), Timely Information publications (15), YouTube videos (57) with 945 views, stakeholder email alerts (66), and Twitter posts (195) to facilitate the immediate dissemination of information to clientele. Also conducted on-farm demonstrations (92) and research trials (187) 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

KA Code	Knowledge Area
132	Weather and Climate
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
213	Weeds Affecting Plants

#### Outcome #34

##### 1. Outcome Measures

Dollar Value on Increased Profits from High Yield Corn and Soybean Extension Programming in North Alabama

##### 2. Associated Institution Types

- 1862 Extension
- 1862 Research

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	318714

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

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

Corn and soybean are economically important crops in North Alabama. Educational efforts have been initiated to provide stakeholders with the tools needed to sustainably increase yields and profit profile for both crops.

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

Programmatic activities initially focused identifying macro and microelement deficiencies in corn and soybean. In addition to production meetings, on-farm demonstration research projects addressing fertility, seeding rate, and cultivars in dryland and irrigated corn were conducted along with soybean fertility and disease management, planting date, and early- and late-season cultivar



trials were conducted. Information from 2017 is now being distributed for stakeholders in blog and email updates, and print and web articles along with meetings with individual producer and other stakeholders. Project updates will also be presented at upcoming 2018 winter meetings and webinars by the lead REA. Other REA's with the assistance of the lead REA will introduce the high-yield corn and soybean program across Alabama in 2018.

**Results**

In 2015, Alabama's corn acreage was 47,000 and 122,300 with average yields of 141 and 159 bu/A for Northeast and the Tennessee Valley regions, respectively. In that same year, soybean acreage was 93,900 and 262,000 acres with mean yields of 38 and 44 bu/A for Alabama's Northeast and the Tennessee Valley regions, respectively. In contrast, a stakeholder in Northeast AL and Northwest Georgia, cooperating with the regional REA in a high-yield corn project, averaged over 300 bu/A on irrigated and non-irrigated corn using strip tillage production practices. Overall, the stakeholder saw a 35 bu/A yield gain across 2000 corn acres, which increased farm gate income \$297,500. The REA expended 40 hours on the demonstration project and stakeholder consultations. The ROI for the \$2270 salary and travel for the REA and resources expended on this project was 130:1. The soybean project saw the stakeholder reach 102.5 bu/A with a gain of 16.5 bu/A over 2016 yields for a total increase in farm gate income from a 69 acre field of \$11,214 in addition to a \$10,000 bonus for exceeding 100 bu/A. Early planting plus supplemental N and K at GS R2 account for the yield gain. The ROI on the high yield soybean project was 9.35:1.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
213	Weeds Affecting Plants

**Outcome #35**

**1. Outcome Measures**

Knowledge increase on the use of soil sensors for irrigation scheduling

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	50

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Two surveys were conducted to assess stakeholders' needs regarding irrigation and use of soil sensors for irrigation scheduling. A survey conducted on the participants of the 2016 Alabama Corn and Wheat short course indicated that participants lack knowledge on: interpretation of soil moisture sensor data (58%), application of the right rate (53%), the use of irrigation scheduling methods (41%). A March 2017 survey, on registrants for a "soil sensors for irrigation scheduling workshop" indicated that from 38 respondents, 45% did not have much knowledge on irrigation scheduling, 70% did not use any irrigation scheduling method, and for 70% of them, the main motivation attending the workshop was the lack of knowledge on irrigation scheduling methods.

#### What has been done

A workshop on the "Use of soil sensors for irrigation scheduling" was organized in March 2017. The topics included on the workshop were: Role of Irrigation scheduling, Methods of irrigation scheduling, Type of soil sensors and differences, soil sensor installation guidelines, selection of irrigation thresholds, number of sensors per field, Interpretation of soil sensor data and use on irrigation scheduling, results from field evaluations of sensor-based irrigation scheduling practices, hands-on activity on the use of the Irrigation Pro software for irrigation scheduling. A pre- and post-training survey was conducted to measure change in knowledge, condition, and action. From the 45 participants, 31% were farmers.

#### Results

Results from a post-training survey indicated that from 18 respondents, 50% reported significant knowledge gain on irrigation scheduling and 30% indicated a lot of knowledge gain. 39% of respondents indicated very much knowledge gain on type of sensors used for irrigation scheduling and the interpretation of their data. 55% indicated moderate knowledge gain on methods of irrigation scheduling and the selection of irrigation thresholds. 66% indicated moderate knowledge gain on the use of soil sensor data for irrigation scheduling and 28% indicated very much knowledge gain.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water

### Outcome #36

#### 1. Outcome Measures

Percent of peach growers in Chilton County who plan to adopt measures to offset low chill accumulation

#### 2. Associated Institution Types

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	60

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

**Issue (Who cares and Why)**

Most areas in the state lacked sufficient chill accumulation in their peach trees. This resulted in reduced budbreak, no budbreak or tree death. The former issues resulted in a 75% to 90% reduction in peach production.

**What has been done**

Demonstrations and research results were presented at Extension and Research conferences within the state and region. A peach session was created as part of the Alabama Fruit and Vegetable Growers Conference to address the issues of dormancy issue or the lack of chill accumulation in peach trees. Attendees of this peach session were informed about the most effective dormancy breaking compounds available and how to apply them.

Developed new AFVGA Peach Educational/Grower Networking Session with Gary Gray and Dr. Amnon Erez, served as AFVGA Farm Tour coordinator. Also coordinated 2 special peach/fruit grower discussions and tour with Gary Gray, Dr. Amnon Erez and leading growers from AL & GA. Worked closely with Gary Gray touring farms, meeting and working with growers and advisory council.

**Results**

Approximately 60% of peach growers in Chilton County, AL (the primary peach producing region in the state) have decided to take proactive steps to mitigate the effects of low chill accumulation in peach trees by 1) selecting peach varieties that require fewer chill hours and use rest breaking compounds 2) by using rest breaking chemicals to alleviate dormancy.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
205	Plant Management Systems

**Outcome #37**

**1. Outcome Measures**

Dollar value of adoption of improved practices

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	3800000

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

**Issue (Who cares and Why)**

Yield due to lack of chill was reduced by 75% to 90% of a normal production year. However, implementation of improved practices such as the use of rest breaking chemicals has been effective improving yields.

**What has been done**

Production practices such as the use of rest breaking chemicals were demonstrated at the dormancy sessions at the Alabama Fruit and Vegetable Growers and the Peach Grower Conferences held in Chilton County. Growers who attended the conferences were posed a series of poll questions to determine the benefit of adopting production practices to mitigate damage done by lack of chill accumulation.

**Results**

Respondents indicated that implementation of improved practices learned at past Chilton Area Extension Peach Meetings has increased their crop value (or yield) by an average of 60%. This added value could represent as much as \$3.8 M of the state's \$10 M peach crop.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
205	Plant Management Systems

**Outcome #38**

**1. Outcome Measures**

Number of feed mill employees that increased knowledge :certification in PCQI.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	25

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

**Issue (Who cares and Why)**

Feed mill training in general and training to support FSMA compliance were important parts of Dr. Wilmer Pacheco's 2017 activities.

**What has been done**

Two feed mill meetings in Auburn were completed in 2017 including an Aviagen nutrition school in which ingredient quality, feed decontamination and general feed quality control were emphasized. In addition, a Preventative Control Qualified Individual (PCQI) training was completed using the standard FDA approved curriculum. Participants were certified during this course to develop and implement written animal food safety plans for animal food facilities. Three on-site feed mill visits were completed in 2017. Dr. Pacheco also authored a series a series of feed milling articles in Feedstuffs Magazine.

**Results**

25 feed mill employees were certified in PCQI to allow their mills to prepare FSMA compliance documents.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
402	Engineering Systems and Equipment

**Outcome #39**

**1. Outcome Measures**

Increased knowledge of federal and state regulations by workshop participants.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	66

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

**Issue (Who cares and Why)**

There has been a brisk demand for health, husbandry and marketing information for small poultry flock owners. In addition, information developed for this set of clientele is used to train county staff and volunteers associated with the Chick Chain program and other 4-H poultry related activities.

**What has been done**

During 2017, four small poultry flock training meetings and one small poultry flock hands-on processing training session were completed. In addition, poultry specialists participated in four regional Chick Chain training sessions for Extension staff and two genetically modified organism consumer meetings.

**Results**

The backyard chicken processing workshop increased knowledge of federal and state regulations on sale of chicken meat in Alabama from knowledge levels of 17% prior to the program to 83% following the workshop. Knowledge of poultry processing procedures increased from 17% to 94%. Through this program, ACES participants gained knowledge essential to launching a new 4-H broiler program, which includes meat bird production and processing.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
502	New and Improved Food Products
601	Economics of Agricultural Production and Farm Management

**Outcome #40**

**1. Outcome Measures**

Percent increased knowledge of poultry processing procedures by workshop participants.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	77

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

**Issue (Who cares and Why)**

There has been a brisk demand for health, husbandry and marketing information for small poultry flock owners. In addition, information developed for this set of clientele is used to train county staff and volunteers associated with the Chick Chain program and other 4-H poultry related activities.

**What has been done**

During 2017, four small poultry flock training meetings and one small poultry flock hands-on processing training session were completed. In addition, poultry specialists participated in four regional Chick Chain training sessions for Extension staff and two genetically modified organism consumer meetings.

**Results**

The backyard chicken processing workshop increased knowledge of federal and state regulations on sale of chicken meat in Alabama from knowledge levels of 17% prior to the program to 83% following the workshop. Knowledge of poultry processing procedures increased from 17% to 94%. Through this program, ACES participants gained knowledge essential to launching a new 4-H broiler program, which includes meat bird production and processing.

**4. Associated Knowledge Areas**

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

## **Outcome #41**

### **1. Outcome Measures**

Increased farm income from Peanut Production and Peanut Agronomics 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>
2017	19500000

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

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

Farmers, retail salesmen, and extension personnel often lack the information they need to make the best management decisions for their farming operations concerning agronomic production factors and pesticide recommendations in relation to weeds, disease and insects.

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

Conducted peanut Production meetings (9), pod blast workshops (26), field crop tours (3), AAES Research Field Days (3), IPM Crop Scouting School, and Row Crop Short Course. In addition to webinars and 20 research trials.

#### **Results**

A noticeable difference from the peanut variety trials across the state is that varieties perform differently due to disease pressure from the different regions. Producers in the North and Central Alabama region have taken advantage of the lack of disease pressure in that region by capitalizing on the high oleic varieties that don't have as much disease resistance but do perform well when disease pressure is low and the high oleic choice give those producers a \$50/ton premium for their production. One of the most important decisions a producer makes each year is which variety he will choose to plant. This variety research from the different growing regions is vital in helping these producers make the best decision possible for their farm. We see an advantage of 500 lb/ac in variety selection across the state from our research.



That's a positive impact of 19.5 million dollars from a 500 lb/ac yield increase over the other varieties for the different growing regions on 195,000 acres at \$400/ton.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
111	Conservation and Efficient Use of Water
132	Weather and Climate
205	Plant Management Systems
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants

**Outcome #42**

**1. Outcome Measures**

Number of acres with increased management

**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>
2017	14577

**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 815 large concentrated animal feeding operations (CAFO's). These 815 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**

Growers attending the 9 workshops/trainings in 2017 indicated on evaluations that 88% of those in attendance were likely to adopt some of the practices discussed in the training.

**Results**

Growers attending the 9 workshops/trainings in 2017 indicated that 14,577 acres will see an increase in management and will be impacted in a positive manner due to the knowledge gained.

**4. Associated Knowledge Areas**

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

**Outcome #43**

**1. Outcome Measures**

Dollar amount saved with poultry recommendations

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	53184

**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 815 large concentrated animal feeding operations (CAFO's). These 815 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 total of 9 workshops/trainings were conducted in 2017.

**Results**

A total of 648 hours of continuing education units (CEU's) was earned by growers attending workshops/trainings in 2017. The value of the CEU's was \$53,784.

**4. Associated Knowledge Areas**

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

**Outcome #44**

**1. Outcome Measures**

Percent increase of users for Alabama beef Extension website and social media resources

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	70

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

**Issue (Who cares and Why)**

The Alabama Beef Systems Extension program has developed a series of online platforms for extending beef cattle management information to producers in Alabama since January 2014. There is an increasing request for web-based content as users search for answers to management questions in their operations.

**What has been done**

The Alabama Beef Systems website ([www.aces.edu/beefsystems](http://www.aces.edu/beefsystems)), Facebook page (Alabama Beef Systems Extension), monthly electronic newsletter, and Twitter accounts all provide information on upcoming events, current management issues, and links to extension publications and resources for addressing on-farm management questions.

### Results

There has been a 70% increase in the use of the website, electronic newsletter, and social media resources affiliated with the Alabama Beef Systems Extension program since 2016. This indicates that users are accessing these resources for research-based information on beef cattle management.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals

### Outcome #45

#### 1. Outcome Measures

Percent knowledge gain from in-service trainings on forage-livestock management with Extension agents and federal agencies

#### 2. Associated Institution Types

- 1862 Extension

#### 3a. Outcome Type:

Change in Knowledge Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2017	22

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

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

Interagency training and collaboration efforts may improve delivery of research-based forage management information to stakeholders.

A series of four, two-day hands-on workshops related to forage ecosystem management and sustainability were held from May 2016 ? Nov. 2017 for USDA Natural Resources Conservation Service (NRCS) ? Alabama personnel and Alabama Cooperative Extension System (ACES) regional extension agents in Alabama.

The goal of these workshops was to provide experiential learning opportunities related to forage management for technical service providers with these agencies.

##### What has been done

Hands-on workshops were held at Auburn University Agricultural Research and Extension Centers around the state (EV Smith Research Center, Shorter, AL; Black Belt Research and Extension Center, Marion Junction, AL; Tennessee Valley Research and Extension Center, Belle Mina, AL) to represent different soil-plant ecosystems representative of Alabama livestock

**operations**

Topics included understanding plant physiology and growth, grazing methods, forage and weed identification, pasture and animal condition scoring, and environmental impacts in these systems. Pre- and post-course surveys were conducted with participants at each workshop using a clicker-based response system to determine change in knowledge, behavior, and potential application of the information within their respective organization.

**Results**

There was a 22% increase in knowledge among Alabama Extension animal science and forage agents and USDA NRCS Alabama staff after attending one of the four workshops as part of this training course. Knowledge gain was related to incorporating improved grazing management practices on livestock producer farms.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
205	Plant Management Systems

**Outcome #46**

**1. Outcome Measures**

Adoption of sustainable land and animal management practices through Extension facilitated beef producer discussion groups

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	75

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

**Issue (Who cares and Why)**

A working group is defined as a farmer-to-farmer network focused on a common theme or series of topics of interest. In 2016, a farmer-based working group was organized by Alabama Extension and formed in North Alabama to discuss beef-livestock management within the region. The intended audience was beef farmers with more than 10 years of experience in the industry. A series of five meetings were organized to highlight technologies and strategies for agronomic, animal, and economic best practices in beef cattle operations. Farmer meetings were located on-farm or at Auburn University affiliated research stations and demonstration sites, and offered from August 2016 through April 2017 to illustrate different management seasons.

**What has been done**

Topics included value-added calf marketing, bull selection and genetics, precision soil sampling, rotational grazing, bale grazing, and water quantity and quality in grazing systems. Group discussion was led by farmer participants and personnel from Alabama Extension, USDA NRCS Alabama, or another regional land-grant institution. A follow-up survey was conducted at the final meeting in April 2017. There were 26 participants in the program. 100% of the participants indicated that the program met their expectations, and that it should be offered again. Farmers preferred on-farm visits at producer farms or Auburn research centers for hosting and showcasing concepts in the discussion group.

**Results**

75% of the farmers in the group reported that they had already started to adopt one or more of the management topics highlighted during the working group discussion. The three primary areas where they adopted these practices into their farm management plan included 1) precision soil sampling, 2) value-added feeder calf marketing, and 3) incorporating grazing management to move towards a 300 days of grazing program.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
302	Nutrient Utilization in Animals

**Outcome #47**

**1. Outcome Measures**

Economic impact of retained ownership through the Alabama Pasture to Rail Program

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	28745

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

**Issue (Who cares and Why)**

The Alabama Pasture to Rail Program is an educational program for cattle producers. The purpose is to give cattle producers the following opportunities without the investment required to

finish an entire pen of cattle.

1. To obtain individual animal data for post-weaning performance and carcass merit that can be used to assist producers with selection decisions pertaining to existing breeding programs.
2. To educate cattle producers on recommended health practices and custom feeding programs.

**What has been done**

In 2017, 208 calves were shipped from 16 farms across Alabama to Hy-Plains Feedyard in Montezuma, KS. Cattle were shipped in October, November, and January from central shipping points in Alabama when a truckload (~48,000 lbs) could be assembled. Consignors shipped as few as a single calf and as many as 70 head. Total value of calves leaving Alabama was \$148,789.54 and farmers were paid a total of \$177,543.51. There was a total of \$28,744.97 profit on 208 head in the program.

**Results**

Net profit of cattle in the Alabama Pasture to Rail program was \$28,745 or \$1,769.56 per consignor in 2017. This program increased the value of Alabama cattle and demonstrated group marketing, retained ownership, and animal management practices through the beef cattle finishing phase to Alabama producers.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
302	Nutrient Utilization in Animals

**Outcome #48**

**1. Outcome Measures**

Number of producers who adopted feedlot phase recommendations

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	10

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

**Issue (Who cares and Why)**

The Alabama Pasture to Rail Program is an educational program for cattle producers. The purpose is to give cattle producers the following opportunities without the investment required to finish an entire pen of cattle.

1. To obtain individual animal data for post-weaning performance and carcass merit that can be used to assist producers with selection decisions pertaining to existing breeding programs.
2. To educate cattle producers on recommended health practices and custom feeding programs.

**What has been done**

Producers participated in this program by consigning weaned beef calves to be finished during the feedlot phase while retaining ownership. Animal performance data was provided to consignors following harvest to determine efficiency during the feedlot phase. Producers decided whether retained ownership was beneficial for their operations based on this reported data and net profit received during the process.

**Results**

10 of the 16 producers that participated in the 2017 Alabama Pasture to Rail Program plan to participate again in 2018. These producers plan to increase the number of cattle sent through the program. These producers decided that retaining ownership and continuing to gather performance data on their calves would be beneficial in making long-term herd management decisions on their operations.

**4. Associated Knowledge Areas**

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

**Outcome #49**

**1. Outcome Measures**

Percent Knowledge gain of sustainable livestock management practices in the 2017 Women in Ag Program

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	86

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

**Issue (Who cares and Why)**

The 2017 Women in Agriculture Program in Alabama was developed to provide women interested in the beef cattle business the opportunity to participate in hands-on learning experiences related to cattle handling, nutrition, forage management, beef quality assurance, and farm safety. This program was part of a multi-state grant funded through the Southern Risk Management Education



Center (North Carolina State University - lead institution). The two-day educational program was held at the Tennessee Valley Research and Extension Center in Belle Mina, AL on September 8 and 9, 2017.

**What has been done**

A two-day workshop was led by women Extension specialists, regional extension agents, and local veterinarians to provide an experiential learning opportunity for women interested in management of beef cattle operations in the Southeast. A group of 21 women were Beef Quality Assurance certified as part of the program, and were led through a series of hands-on livestock and farm safety rotations over the two day workshop.

**Results**

Women who participated in the program reported an 86% increase in knowledge on beef quality assurance practices, farm safety, animal reproductive health, and forage management.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
205	Plant Management Systems
302	Nutrient Utilization in Animals

**Outcome #50**

**1. Outcome Measures**

Economic impact of Extension facilitated beef producer working groups

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	65000

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

**Issue (Who cares and Why)**

A working group is defined as a farmer-to-farmer network focused on a common theme or series of topics of interest. In 2016, a farmer-based working group was organized by Alabama Extension and formed in North Alabama to discuss beef-livestock management within the region. The intended audience was beef farmers with more than 10 years of experience in the industry. A series of five meetings were organized to highlight technologies and strategies for agronomic, animal, and economic best practices in beef cattle operations. Farmer meetings were located on-

farm or at Auburn University affiliated research stations and demonstration sites, and offered from August 2016 through April 2017 to illustrate different management seasons.

**What has been done**

Topics included value-added calf marketing, bull selection and genetics, precision soil sampling, rotational grazing, bale grazing, and water quantity and quality in grazing systems. Group discussion was led by farmer participants and personnel from Alabama Extension, USDA NRCS Alabama, or another regional land-grant institution. A follow-up survey was conducted at the final meeting in April 2017 (n = 26 participants; average 66 head of cattle and 109 acres per operation).

**Results**

Participants in this program reported an average economic impact of \$2,500 per operation from the information provided to them in this program. There were 26 participants in this program, for a total economic impact of \$65,000.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
205	Plant Management Systems
302	Nutrient Utilization in Animals

**Outcome #51**

**1. Outcome Measures**

Economic impact of the Beef Basics Online Course

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	476096

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

**Issue (Who cares and Why)**

The Beef Basics Online course was created in January 2016 to provide a comprehensive livestock management course for new and beginning farmers interested in learning more about the beef cattle industry and to provide best management practices for those getting started with their operation.

### What has been done

An 8-module online course was developed to address management questions related to forages, nutrition, health, reproduction, breeding/genetics, and consumer education related to the beef industry in the Southeast. This course is hosted through the Canvas Catalog platform and is free to enroll for anyone interested in learning more about beef production. This is a self-paced online course that provides a certificate of completion at the end of the program. The course provides interactive lectures, videos, printed resources, and quizzes to test producer knowledge and review the topics discussed in the course. A follow-up survey is provided at the end of the course to determine change in knowledge and potential economic impact of the program for users who have completed the course.

### Results

There were 173 graduates of the Beef Basics Online course at the end of 2017. Participants indicated that the average economic impact of information presented in this course was \$2,752 per farm. This provides a total economic impact of \$476,096 for the Beef Basics Online Course program.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
302	Nutrient Utilization in Animals

## Outcome #52

### 1. Outcome Measures

Dollar amount provided derived from increased farm income derived through reduction in use of unnecessary insecticide applications

### 2. Associated Institution Types

- 1862 Extension
- 1862 Research

### 3a. Outcome Type:

Change in Condition Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2017	225450

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Farmers and crop advisors are not always aware of optimum management strategies for insect

pests of soybeans. New research often provides improved thresholds and management methods for insects and dissemination and adoption of this information in a timely manner can improve grower profitability

**What has been done**

What has been done: Conducted 8 grower meetings and 4 crop scout schools that provided soybean insect pest management info (264 contacts)Used electronic media to distribute insect pest updates and recommendations 12 website newsletters + 10 tweets with 477 followers). Conducted 7 soybean insect pest management research projects.

**Results**

Dollar amount provided derived from increased farm income derived through reduction in use of unnecessary insecticide applications and prevention of yield loss through timely dissemination of insect pest issues in soybeans

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
216	Integrated Pest Management Systems

**Outcome #53**

**1. Outcome Measures**

Dollar value attributed to growers being aware that these 2 new stink bug pests could be present in their soybeans .

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	55100

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

**Issue (Who cares and Why)**

Growers and crop advisors lacked knowledge about identifying 2 new invasive pests, the brown marmorated and red banded stink bugs. Both species can produce significant damage to soybeans

**What has been done**

During 8 grower meetings and 4 Crop Scout Schools information was presented on the characteristics to look for to identify these two stink bug pests. In-field training of 2 regional agronomists helped them learn how to recognize these pests and they then educated their growers about the pests. Crop consultants were also contacted and asked to help determine the distribution of these new pests within Alabama. Regional agents and Crop advisors assisted entomologists in determining the counties in Alabama where these two pests were present.

### Results

Dollar value attributed to growers being aware that these 2 new stink bug pests could be present in their soybeans . This encourage growers and their crop advisors to check soybeans closely and apply controls when these pests reached economic threshold levels

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems

### Outcome #54

#### 1. Outcome Measures

Dollar amount of loss prevented (soybean and open field cucurbits)

#### 2. Associated Institution Types

- 1862 Extension
- 1862 Research

#### 3a. Outcome Type:

Change in Condition Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2017	1290118

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

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

Dicamba drift has caused lots of complaints in mid south and mid west since 2015 in multiple states. In 2017 survey conducted by University of Missouri, a total of 3.6 million acres of soybean in 20 states were affected by dicamba drift.

##### What has been done

26 auxin trainings were conducted to educate growers about label restrictions and best management practices to manage auxin herbicide drift and off-target movement.

**Results**

Up to Oct 15, 2017, a total of 3.6 million acres of soybean were affected by dicamba in 20 soybean producing states. In these states, all the soybean acreage combined was 75.45 million acres (USDA-NASS). The % of affected acreage was 4.77%.

In AL, a total of 449,000 acres of soybean was planted. Using national average, a total of 21417 acres of soybean should have been affected without auxin training. Assume those soybean lose 10% of yield which is a very modest estimate, those yield loss will be  $21417 * 32 \text{ bu/A} * 0.1 * \$10/\text{bush} = \$685,354$  without AL auxin training.

AL Cucurbits acreage and farm gate value:  
 Cucumbers: 3641 acres (A) @ \$9804/A = \$35,696,364  
 Squash: 655A @ \$6250/A=\$4,093,750  
 Watermelon: 2462A @ \$6958/A= \$17,130,596  
 Cantaloupe: 511A @\$6958/A=\$3,555,640

Total farm gate value: \$60,476,350  
 Use most conservative estimation which is only 1% of the production was affected and lost produce value without ACES trainings.  
 the loss prevented is \$604,764

Total loss prevented by AL auxin training is: \$685,354 + \$604,764 = \$1,290,118

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
213	Weeds Affecting Plants

**Outcome #55**

**1. Outcome Measures**

Number of dicamba drift incidence in AL

**2. Associated Institution Types**

- 1862 Extension
- 1862 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)**

Dicamba drift has caused lots of complaints in mid south and mid west since 2015. Up till Oct 15 2017, a total of 2708 official complaints were reported to department of agriculture in 20 soybean producing states.

**What has been done**

26 auxin trainings were conducted to educate growers about label restrictions and best management practices to manage auxin herbicide drift and off-target movement.

**Results**

7 dicamba drift complaints were reported to ADAI. Nationally, 2708 cases were reported in 20 states and AL is way below national average.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
213	Weeds Affecting Plants

**Outcome #56**

**1. Outcome Measures**

Number of new crop varieties and cultivars developed

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	5

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

**Issue (Who cares and Why)**

For sustainable production, there is a need to develop new cultivars best suited for production in Alabama, including those with enhanced yield and drought-tolerance, and resistance to pests and diseases.

**What has been done**

Peanut genotypes and hybrids were evaluated for yield, TSWV resistance, leaf spot tolerance, oleic acid content as well as size and shelling characteristics. Many different specialty crop cultivars and selections were evaluated for their performance including apple, banana, blackberry, blueberry, citrus, grape, kiwifruit, peach, and pear. The yield potential of hybrid cotton germplasm with enhanced tolerance to pests was evaluated. The role of hormone signaling in response to abiotic stress was evaluated.

**Results**

?AU-NPL 17?, a high yielding, TSWV resistant, leaf spot tolerant, high grade peanut cultivar with superior shelling characteristics and high oleic acid content was released. Superior lines with tolerance to reniform nematodes were identified in cotton. Patent application was submitted for ?AU Gulf Coast Gold?, the 6th kiwifruit cultivar patented from this program <10 years. Several cultivars and rootstocks with enhanced resistance to pathogens were evaluated. We found a major hub for hormones signaling growth or defense responses to environment stress by plants.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms

**Outcome #57**

**1. Outcome Measures**

Number of row crop production practices that are sustainable and profitable

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	2

**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 a need for increased knowledge and adoption of irrigation management



practices conducive for profitability under changing climatic conditions by Alabama producers and stakeholders.

**What has been done**

The impact of climate on crops and the availability of water for irrigation were evaluated and results were disseminated to stakeholders.

**Results**

On-farm demonstrations were conducted to illustrate the use of soil sensors for irrigation scheduling and variable rate irrigation. Approximately 500 people attended training sessions where topics related to climate variability and its impact on agriculture and irrigation were addressed.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
205	Plant Management Systems

**Outcome #58**

**1. Outcome Measures**

Increase broiler producer awareness of methods to reduce waste management and litter management on farms

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	8

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

**Issue (Who cares and Why)**

Poultry production is a critical economic driver in Alabama and much of the Southeastern U.S. Training farmers on proper litter management as well as house management is crucial.

**What has been done**

Researchers at AU have examined factors such as optimal windspeed, house heating, and water utilization.

**Results**

The National Poultry Technology center at AU has built several models on campus to demonstrate optimal wind speeds, and heating. Off campus, they have one farm setup for rainwater capture. Money spent for installation of rainwater capture systems have been demonstrated to be cost-effective.

**4. Associated Knowledge Areas**

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

**Outcome #59**

**1. Outcome Measures**

Increase the knowledge of catfish producers in more efficient practices and expand the use of hybrid catfish in production.

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	7

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

**Issue (Who cares and Why)**

Catfish producers in the southeast are under continuous pressure to reduce costs in the face of rising global imports. Use of hybrid catfish has been demonstrated to lead to higher filet yields, decreased loss due to disease, and improved production efficiencies in general.

**What has been done**

Researchers at AU are examining specific combining abilities of the two species which are used to make the hybrid, the channel catfish and blue catfish. They are also investigating innovative systems which allow for higher per acre yields.

**Results**

Use of the hybrid catfish continues to expand in SE farming regions. Some estimates place hybrid usage at over 60% of the industry in 2017. Researchers at AU continue to evaluate and work toward the release of improved broodstock for use in hybrid production.

**4. Associated Knowledge Areas**

**KA Code**    **Knowledge Area**  
502            New and Improved Food Products

**Outcome #60**

**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

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	2

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

**Issue (Who cares and Why)**

Southeastern cattle producers have ideal forage bases for cow-calf operations. Producers can command higher profits if their pastures can support longer grazing periods. In order to support this need, improved forage management is needed.

**What has been done**

Researchers at AU are examining various forage bases, fertilization regimes, supplements, and rotational strategies that would reduce dependence on concentrated feedstuffs.

**Results**

Examined strategies have demonstrated that use of cottonseed rather than traditional fertilizer can result in lower costs per gain.

**4. Associated Knowledge Areas**

**KA Code**    **Knowledge Area**  
302            Nutrient Utilization in Animals

## 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

**AU Global Food Security Programs New** economic thresholds for kudzu bugs in soybeans should incorporate two factors: egg-parasitization rates and kudzu bug counts. This new economic threshold will preserve natural enemies, reduce soybean farmers' insecticide use, labor costs, and increase profits by an estimated \$10-20/acre. **Crop Production Systems:** The newly released runner-type peanut cultivar, 'AU-NPL 17', is expected to be adopted by 50% of Alabama peanut producers (~200) having 100,000 acres by 2020, which will result in \$100/acre increase in revenue or \$10 million increase in AL each year. Another \$50/acre (\$5 million in AL) savings from reduction of fungicide application is expect.

**Alternative and Small-Scale Livestock Production-**As a result of the educational activities, the following quantitative outcomes (based on 373 post surveys) were achieved: 288 small-scale and limited-resource farmers gained knowledge of key production management practices for sheep and goats. 84 small-scale and limited-resource farmers observed improved sheep and goat production efficiency. 70 small-scale and limited-resource farmers raising sheep and goats observed improved herd health and well-being. 71 small-scale and limited-resource farmers raising sheep and goats reported increased profitability rates ranging from 5 to 20%.

**Animal Production Efficiency:** The quality of herds has increased; resulting from making better genetic choices. This past year alone five of our cattle producers received the daily high sell price at auction for steers and heifers, all attributed to better herd health management. Four farmers reported an increase in weaning as a result of improving in pasture and forage management, corrected stocking rates and cattle overall health management, some culling and replacing and improving genetic both broods cows and bulls. On an average, weaning weight increased by 90+ pounds

**Historically Disadvantaged and Limited-Resource Farmers Go Commercial-**As a result of this initiative to aggregate these small farmers' produce, between 20 to 30 farms supplied one or more of five crops. These sales represented over \$2 million in revenues over the 2012 to 2016 seasons, where in the peak year, 2014, the estimated revenues between all participating farmers was about \$750,000. In terms of impacts to the rural community, additional income from the effort contributed to local agricultural business

such as feed/seed/agricultural supply stores. It is estimated that around 350 jobs, full and part-time seasonal, were created over the life of the program.

**Holistic Real Time (HRT)-** In 2017, cotton cultivars with the Xtendflex trait, which were planted on 380,471 acres or 84.5% of all Alabama's cotton acreage, received at list one application of the 'low' drift Xtendimax or Engenia dicamba herbicides. Asgrow Xtend (Monsanto) soybean acreage totaled 133,490 acres or 31.8% of Alabama's total soybean acreage. Total Xtend soybean acreage encompassed 50 to 60% of Alabama's total soybean acreage of which 50 to 60% received at least one application of the 'low' drift Xtendimax or Engenia dicamba herbicides. The avoidance of injury to Alabama's cucumber, pumpkin, squash, tomato, and watermelon industry is valued at more than \$8 million.

**Fundamentals of Dormancy in Peach-** 29% of participants When asked about the opinion as to the effectiveness of hydrogen cyanimide is in breaking flower buds in peaches 35% of participants said yes and 35% percent said no. Growers were asked if noticed a higher number of tree deaths last year and if they believe it was due to lack of chill accumulation. Evaluation of respondents indicated that implementation of improved practices learned at past Chilton Area Extension Peach Mtgs has increased their crop value (or yield) by an average of 60%. This added value could represent as much as \$3.8 M of the state's \$10 M peach crop

## Key Items of Evaluation

**AU Global Food Security Programs New** economic thresholds for kudzu bugs in soybeans should incorporate two factors: egg-parasitization rates and kudzu bug counts. This new economic threshold will preserve natural enemies, reduce soybean farmers' insecticide use, labor costs, and increase profits by an estimated \$10-20/acre.**Crop Production Systems:** The newly released runner-type peanut cultivar, 'AU-NPL 17', is expected to be adopted by 50% of Alabama peanut producers (~200) having 100,000 acres by 2020, which will result in \$100/acre increase in revenue or \$10 million increase in AL each year. Another \$50/acre (\$5 million in AL) savings from reduction of fungicide application is expect.

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**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%	15%	8%
111	Conservation and Efficient Use of Water	0%	0%	4%	5%
112	Watershed Protection and Management	5%	5%	16%	5%
122	Management and Control of Forest and Range Fires	5%	5%	0%	3%
123	Management and Sustainability of Forest Resources	5%	5%	2%	5%
125	Agroforestry	5%	5%	0%	10%
131	Alternative Uses of Land	5%	5%	0%	3%
132	Weather and Climate	5%	5%	5%	7%
133	Pollution Prevention and Mitigation	5%	5%	12%	5%
134	Outdoor Recreation	5%	5%	0%	5%
135	Aquatic and Terrestrial Wildlife	5%	5%	16%	5%
136	Conservation of Biological Diversity	5%	5%	1%	2%
201	Plant Genome, Genetics, and Genetic Mechanisms	5%	5%	12%	5%
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	5%	5%	0%	5%
304	Animal Genome	5%	5%	0%	2%
402	Engineering Systems and Equipment	5%	5%	2%	5%
403	Waste Disposal, Recycling, and Reuse	10%	10%	1%	3%
601	Economics of Agricultural Production and Farm Management	5%	5%	11%	7%
610	Domestic Policy Analysis	10%	10%	2%	5%
903	Communication, Education, and Information Delivery	5%	5%	1%	5%
	<b>Total</b>	100%	100%	100%	100%

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

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

2017 Tuskegee University and Auburn University and Alabama A&M University Combined Research and Extension Annual Report of Accomplishments and Results

Year: 2017	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	37.5	8.3	81.0	7.3
<b>Actual Paid</b>	40.2	12.2	24.4	8.6
<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
1210141	0	1437933	0
<b>1862 Matching</b>	<b>1890 Matching</b>	<b>1862 Matching</b>	<b>1890 Matching</b>
1348677	0	1326024	0
<b>1862 All Other</b>	<b>1890 All Other</b>	<b>1862 All Other</b>	<b>1890 All Other</b>
5099766	0	3639552	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	357141	0	640203
<b>1862 Matching</b>	<b>1890 Matching</b>	<b>1862 Matching</b>	<b>1890 Matching</b>
0	357141	0	336102
<b>1862 All Other</b>	<b>1890 All Other</b>	<b>1862 All Other</b>	<b>1890 All Other</b>
0	0	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	234516	0	476719
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	208807	0	435722
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 Climate Variability and Change:** Researchers assessed spatiotemporal variability in drought severity in the Southeast US; determined the effects of changes in air quality and climate on forested and associated ecosystems; and developed an agrometeorological monitoring and forecasting system using emerging datasets and numerical models. **AU Harmful Algal Bloom:** Cyanobacteria abundance, dominance, and toxicity in waterbodies throughout Alabama and southeastern US were quantified. **AU Environmental and Ecological Sustainability:** Researchers determined the impact of subsurface-band application of manure on P and N loss in surface and subsurface flows as a function of runoff generating and infiltrating storm events, and quantified polycyclic aromatic hydrocarbon concentrations and bioavailability in biochars to ensure environmentally sound land application of biochar.

**AU Alabama Water Watch** workshops taught stakeholders about watersheds and got 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. **AU Aquaculture and Sportfish Production** research determined effect of liming and fertilization on sportfish production and developed and tested new methods to assess health of Alabama's fisheries.

**Off-Bottom Oyster Farming** Establish a clean, sustainable renewable agricultural industry along the Alabama coast through the establishment of profitable commercial off-bottom oyster farms through outreach, training and research.

**Water Quality Testing** Tuskegee University Agriculture Research, Extension and Outreach programs continued a water quality testing and education program to serve the rural residents in Alabama Black Belt Counties.

**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)** The research will 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.

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

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

**Limited Resource Farmers, Climate Change Impacts on Water Resources and Adaptation**

**Strategies for Crop Production-** Most limited resource farmers, land and well owners have limited understanding on the realities and impacts of climate change, which is expected to have negative impacts on agricultural yields and water resources.

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

**AU Climate Variability and Change program; AU Harmful Algal Bloom program; AU Alabama Water Watch; Environmental and Ecological Sustainability program; AU Aquaculture and Sportfish**

**Production:** Target audiences include conservation planners, water resources managers, water utilities, Extension specialists, researchers, policy makers, K-12, college students, and general public. AU bioenergy industry: Local decision makers, (farmers, foresters), contractors, engineers, landscape architects, State of Alabama Marine and Freshwater Fisheries Departments, Extension aquaculture producers, sportfish pond owners

**Off-Bottom Oyster Farming in Alabama-** Individuals interested in becoming or operating off-bottom oyster farms in the southern US, as well as those interested in supporting the industry.

**Water Quality Testing** Rural residents in Alabama Black Belt

**Alabama Urban Home\*A\*Syst** volunteers, homeowners, stakeholders and the general public.

**Urban Environmental Science Education Program (UeSeP)-** youth, educators, volunteers, and the general public. UESEP youth learned the impacts of non-point pollution

**Limited Resource Farmers, Climate Change Impacts on Water Resources and Adaptation Strategies for Crop Production-** Limited resource farmers

**3. How was eXtension used?**

eXtension was not used in this program

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

**1. Standard output measures**

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	199986	0	115010	0

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

**Patent Applications Submitted**

Year: 2017

Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2017	Extension	Research	Total
<b>Actual</b>	38	47	0

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

### Output Target

#### Output #1

##### Output Measure

- The number of peer-reviewed papers

Year	Actual
2017	63

#### Output #2

##### Output Measure

- The number of dissertations and thesis

Year	Actual
2017	3

#### Output #3

##### Output Measure

- The number of graduate students trained

Year	Actual
2017	0

#### Output #4

##### Output Measure

- The number of curricula developed  
Not reporting on this Output for this Annual Report

#### Output #5

##### Output Measure

- The number of graded facilities and computing cluster at the Geospatial and Climate Change Center  
Not reporting on this Output for this Annual Report

#### Output #6

##### Output Measure

- The number of workshops on climate change variability  
Not reporting on this Output for this Annual Report

#### Output #7

##### Output Measure

- The number of Rural well owners and homeowners who participate in water well quality

programs

Not reporting on this Output for this Annual Report

**Output #8**

**Output Measure**

- The number of Underserved Black Belt students who participate in natural resource management programs

Not reporting on this Output for this Annual Report

**Output #9**

**Output Measure**

- The number of natural resources management workshops

Not reporting on this Output for this Annual Report

**Output #10**

**Output Measure**

- 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>
2017	5

**Output #11**

**Output Measure**

- Number of Alabama Water Watch Workshops Conducted

<b>Year</b>	<b>Actual</b>
2017	97

**Output #12**

**Output Measure**

- Number of community food gardens managed/supported by Master Gardeners

<b>Year</b>	<b>Actual</b>
2017	14

**Output #13**

**Output Measure**

- Number of MG volunteers reporting volunteer hours

<b>Year</b>	<b>Actual</b>
2017	1786

**Output #14**

**Output Measure**

- Number of MG volunteer hours in education activities and outreach (ACES mission).

<b>Year</b>	<b>Actual</b>
2017	125670

**Output #15**

**Output Measure**

- Number of one-on-one, public contacts through the Helpline and Ask-an-MG.

<b>Year</b>	<b>Actual</b>
2017	23428

**Output #16**

**Output Measure**

- Number of one-on-one, public contacts through demonstration and other teaching gardens.

<b>Year</b>	<b>Actual</b>
2017	122752

**Output #17**

**Output Measure**

- Number of oysters produced

<b>Year</b>	<b>Actual</b>
2017	73964

**Output #18**

**Output Measure**

- Number of Alabama residents trained in oyster farming course

<b>Year</b>	<b>Actual</b>
2017	18

**Output #19**

**Output Measure**

- Number of attendees at Invasive Plants educational events

<b>Year</b>	<b>Actual</b>
2017	2477

**Output #20**

**Output Measure**

- number of views of online invasive species material

<b>Year</b>	<b>Actual</b>
2017	27944

**Output #21**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2017	2500000

**Output #22**

**Output Measure**

- Number of presentations and posters at appropriate scientific meetings in the Extension section with peer-reviewed abstracts

<b>Year</b>	<b>Actual</b>
2017	3

**Output #23**

**Output Measure**

- Number of presentations and posters at appropriate scientific meetings in the Extension section with no abstract

<b>Year</b>	<b>Actual</b>
2017	2

**Output #24**

**Output Measure**

- Number of Timely Information Sheets Written and Disseminated on Forage and Forage-related topics

<b>Year</b>	<b>Actual</b>
2017	9

**Output #25**

**Output Measure**

- Number of forage videos created

<b>Year</b>	<b>Actual</b>
2017	7

**Output #26**

**Output Measure**

- Number of Twitter followers on @Forage Focus

<b>Year</b>	<b>Actual</b>
2017	624

**Output #27**

**Output Measure**

- Number of followers for on the Alabama Cooperative Extension Forage Focus Program Facebook Page

<b>Year</b>	<b>Actual</b>
2017	931

**Output #28**

**Output Measure**

- Number of unique posts made to the Alabama Cooperative Extension Forage Focus Program Facebook Page by specialists and agents

<b>Year</b>	<b>Actual</b>
2017	178

**Output #29**

**Output Measure**

- Total number of unique (non-duplicated, organic) people who saw posts on Alabama Cooperative Extension Forage Focus Program Facebook page

<b>Year</b>	<b>Actual</b>
2017	26390

**Output #30**

**Output Measure**

- Average number of non-duplicated, organic people who saw a specific post from the Alabama Cooperative Extension Forage Focus Program Facebook page

<b>Year</b>	<b>Actual</b>
2017	290

**Output #31**

**Output Measure**

- Average number of non-duplicated, organic people who engaged per post seen on the Alabama Cooperative Extension Forage Focus Program Facebook page

<b>Year</b>	<b>Actual</b>
2017	15

**Output #32**

**Output Measure**

- Total attendees to all ACES Forage Focus Program: Growing Grass, Growing Profits face-to-face programming

<b>Year</b>	<b>Actual</b>
2017	2185

**Output #33**

**Output Measure**

- Number of forage related webinars conducted for producers in 2017

<b>Year</b>	<b>Actual</b>
2017	7

**Output #34**

**Output Measure**

- Total number of views of the 7 forage videos on the Alabama Cooperative Extension Forage Focus Program Facebook page

<b>Year</b>	<b>Actual</b>
2017	3287

**Output #35**

**Output Measure**

- Number of Forage Pest programs conducted

<b>Year</b>	<b>Actual</b>
2017	4

**Output #36**

**Output Measure**

- Number of Forage Weed meetings conducted



<b>Year</b>	<b>Actual</b>
2017	5

**Output #37**

**Output Measure**

- Number of Pasture and Forage Management programs conducted

<b>Year</b>	<b>Actual</b>
2017	7

**Output #38**

**Output Measure**

- Number of single or multi-whole day forage conferences, clinics, short courses, field days and tours conducted

<b>Year</b>	<b>Actual</b>
2017	7

**Output #39**

**Output Measure**

- Number of forage related result demonstrations conducted

<b>Year</b>	<b>Actual</b>
2017	2

**Output #40**

**Output Measure**

- A number of graduate students trained.

<b>Year</b>	<b>Actual</b>
2017	20

**Output #41**

**Output Measure**

- Number of popular press articles written and published in 2017 on forage and forage related topics

<b>Year</b>	<b>Actual</b>
2017	8

**Output #42**

**Output Measure**

- Number of forage webinars produced

<b>Year</b>	<b>Actual</b>
2017	7

**Output #43**

**Output Measure**

- Number of webinars produced: fire ants and other home grounds, gardens, and home pests

<b>Year</b>	<b>Actual</b>
2017	10

**Output #44**

**Output Measure**

- Number of participants who watched the fire ant webinars live

<b>Year</b>	<b>Actual</b>
2017	772

**Output #45**

**Output Measure**

- Number of times the fire ant recordings were viewed

<b>Year</b>	<b>Actual</b>
2017	5644

**Output #46**

**Output Measure**

- Number of agents and specialists who participated in fire ant program delivery

<b>Year</b>	<b>Actual</b>
2017	20

**Output #47**

**Output Measure**

- Number of workshops in chainsaw safety, inventories, arborist certification, and tree care and management.

<b>Year</b>	<b>Actual</b>
2017	54

**Output #48**

**Output Measure**

- Number of people attending the community forestry workshops in 2017.

<b>Year</b>	<b>Actual</b>
2017	2032

**Output #49**

**Output Measure**

- Number of arboriculture CEUs offered to allow Certified Arborist to retain credentials.

<b>Year</b>	<b>Actual</b>
2017	144

**Output #50**

**Output Measure**

- Athletic field managers trained in using Best Management Practices at our series of workshops

<b>Year</b>	<b>Actual</b>
2017	34

**Output #51**

**Output Measure**

- Alabama Water Watch Workshops Conducted

<b>Year</b>	<b>Actual</b>
2017	93

**Output #52**

**Output Measure**

- Number of attendees at Backyard Wildlife Damage Management events

<b>Year</b>	<b>Actual</b>
2017	160

**Output #53**

**Output Measure**

- Number of attendees at Wild Pig Damage Management events

<b>Year</b>	<b>Actual</b>
2017	458

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

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

O. No.	OUTCOME NAME
1	The number of participants who adopted improved agricultural practices to reduce carbon footprint
2	The number of participants who adopt improved agricultural practices designed to increase carbon sequestration
3	The number of crop varieties identified that adapt to a changing environment
4	The number of participants who adopt organic grown fruit and vegetable production practices
5	The number of poultry farmer who increased knowledge of new housing and equipment changes and techniques
6	The number of farmers with increased knowledge of farm succession methods
7	The number of participants with increased knowledge of forages in animal production systems
8	The number of participants who adopt rainwater collection best practices
9	The number of participants who increase skills related to water conservation
10	Increase number of acres of rainwater irrigated fruits and vegetables
11	The number of urban participants who adopt electronic waste management best practices
12	The number of urban participants who increased knowledge of urban environmental management best practices
13	The number of participants who adopt IPM recommendations
14	The number of urban residents with increased knowledge on the impact of household hazards on the environment
15	The number of row crops and vegetables producers who adopt agronomic management best practices
16	The number of youth who increased knowledge of well head protection
17	The number of animal stocks identified that can adapt to a changing environment

2017 Tuskegee University and Auburn University and Alabama A&M University Combined Research and Extension Annual Report of Accomplishments and Results

18	The number of youth with increased knowledge of environmental stewardship best practices
19	The number of adults who adopt environmental stewardship best practices
20	TU: Percent decrease in corn yield
21	TU: The number of samples tested for agricultural and residential use with decreased coliform bacteria
22	TU: Number of participants who adopted best management practices for water quality protection
23	Increase profitability of pay-to-fish operations
24	Increase awareness of water conservation
25	Capacities strengthened for integrating climate change risks and opportunities into state and regional development assistance
26	The number of reduced environmental impacts
27	Number of interns who feel confident distinguishing between abiotic and biotic garden/landscape problems
28	Number of interns who are promoting gardening to increase physical activity - for themselves and in others.
29	Pounds of produce grown by MGs and donated to local food charities
30	Number of MG volunteer hours in support of ACES programming
31	Number of Acres of oyster reef restored
32	Number of additional oyster larvae generated from planting oysters grown by the program.
33	Dollar value of restored oyster reef
34	Economic impact of ForestHer recommendations
35	percent of applicators that showed an increase in knowledge and preference towards the Private applicator program between 2014 and 2017
36	Percent of land managers surveyed who reported adopting recommendations
37	Number of acres receiving new or improved treatment

2017 Tuskegee University and Auburn University and Alabama A&M University Combined Research and Extension Annual Report of Accomplishments and Results

38	Number of forage (hay/pastureland) acres impacted by Alabama Forage Conference
39	Number of acres impacted by Women In Ag Program
40	Percent increase in knowledge of Women In Ag Participants of forage related topics
41	Increase in knowledge of how to control weeds in drought stressed pastures and hay fields
42	Money saved due to adoption of drought strategy
43	Extension of grazing days due to adoption of grazing management techniques
44	Percentage change in knowledge for producers attending forage pest programs
45	Percent of trainees sharing information learned in interagency training program
46	Percentage of grazing days available for late planted winter annuals
47	Percentage of participants who increased knowledge of pest biology
48	Percent of participants who change their behavior as a result of the pest management webinar
49	Total number of Alabama Certified Arborists who completed their CEU requirements at Extension lead programming.
50	Number of newly certified arborists as a result of certification preparatory training.
51	Percentage of workers attending chainsaw safety who purchased safety equipment as a result of the training.
52	Dollar value of avoided medical and lost productivity cost.
53	Number of school field managers who saved water by adopting irrigation systems recommendations.
54	Total gallons of water saved
55	Number of field managers who increased knowledge of proper ID and control of weeds
56	Number of citizen monitored groups actively monitoring water quality on streams, lakes or bays.
57	Linear feet of streams enhanced or restored in Alabama

58	Number of tons of sediment prevented from entering streams
59	Number of tons of phosphorus prevented from entering streams
60	Pounds of nitrogen prevented from reaching streams
61	Economic Return on Investment of forestry workshops
62	Return on Investment of wild pig workshops

**Outcome #1**

**1. Outcome Measures**

The number of participants who adopted improved agricultural practices to reduce carbon footprint

Not Reporting on this Outcome Measure

**Outcome #2**

**1. Outcome Measures**

The number of participants who adopt improved agricultural practices designed to increase carbon sequestration

Not Reporting on this Outcome Measure

**Outcome #3**

**1. Outcome Measures**

The number of crop varieties identified that adapt to a changing environment

Not Reporting on this Outcome Measure

**Outcome #4**

**1. Outcome Measures**

The number of participants who adopt organic grown fruit and vegetable production practices

Not Reporting on this Outcome Measure

**Outcome #5**

**1. Outcome Measures**

The number of poultry farmer who increased knowledge of new housing and equipment changes and techniques

Not Reporting on this Outcome Measure

**Outcome #6**

**1. Outcome Measures**

The number of farmers with increased knowledge of farm succession methods

Not Reporting on this Outcome Measure

**Outcome #7**

**1. Outcome Measures**

The number of participants with increased knowledge of forages in animal production systems

Not Reporting on this Outcome Measure

**Outcome #8**

**1. Outcome Measures**

The number of participants who adopt rainwater collection best practices

Not Reporting on this Outcome Measure

**Outcome #9**

**1. Outcome Measures**

The number of participants who increase skills related to water conservation

Not Reporting on this Outcome Measure



**Outcome #10**

**1. Outcome Measures**

Increase number of acres of rainwater irrigated fruits and vegetables

Not Reporting on this Outcome Measure

**Outcome #11**

**1. Outcome Measures**

The number of urban participants who adopt electronic waste management best practices

Not Reporting on this Outcome Measure

**Outcome #12**

**1. Outcome Measures**

The number of urban participants who increased knowledge of urban environmental management best practices

Not Reporting on this Outcome Measure

**Outcome #13**

**1. Outcome Measures**

The number of participants who adopt IPM recommendations

Not Reporting on this Outcome Measure

**Outcome #14**

**1. Outcome Measures**

The number of urban residents with increased knowledge on the impact of household hazards on the environment

Not Reporting on this Outcome Measure

**Outcome #15**

**1. Outcome Measures**

The number of row crops and vegetables producers who adopt agronomic management best practices

Not Reporting on this Outcome Measure

**Outcome #16**

**1. Outcome Measures**

The number of youth who increased knowledge of well head protection

Not Reporting on this Outcome Measure

**Outcome #17**

**1. Outcome Measures**

The number of animal stocks identified that can adapt to a changing environment

Not Reporting on this Outcome Measure

**Outcome #18**

**1. Outcome Measures**

The number of youth with increased knowledge of environmental stewardship best practices

Not Reporting on this Outcome Measure

**Outcome #19**

**1. Outcome Measures**

The number of adults who adopt environmental stewardship best practices

Not Reporting on this Outcome Measure

## **Outcome #20**

### **1. Outcome Measures**

TU: Percent decrease in corn yield

### **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>
2017	32

### **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, which is expected to have negative impacts on agricultural yields and water resources. Local farmers and land owners are most impacted by decreases in water resources, decrease in crop yields and weakened crop resilience as a results of climate change. Knowing the magnitude and spatial trends of these impacts will help in the development of adaptation strategies.

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

Returned climate change questionnaires were analyzed for baseline knowledge. Hydrologic models calibrated and integrated with future climate data. DSSAT model was calibrated for Maize and Soybean models based on future climate data for years 2045 and 2075, and results analyzed for yield changes and adaptation strategies. Extreme climate indices have been computed and frequency and intensity of extreme climatic events have been analyzed.

#### **Results**

Tuskegee Research and Extension: Results showed there will be average decreases in corn yield of 17% and 32% in 2045, and 29% and 61% in 2075, and decreases in soybean yields of 29% and 23% in 2045, and 19% and 43% in 2075, under RCP 4.5 and RCP 8.5 scenarios respectively. Results also shows a tendency toward warming by s nights and growing season length, in contrast with decreases in cool nights, cool days, frost days and ice days.

## **4. Associated Knowledge Areas**

**KA Code**    **Knowledge Area**  
132            Weather and Climate

**Outcome #21**

**1. Outcome Measures**

TU: The number of samples tested for agricultural and residential use with decreased coliform bacteria

**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>
2017	10

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

**Issue (Who cares and Why)**

More than half of Alabama residents, particularly, rural residents use groundwater as their drinking water sources. Water resources in Alabama however, are becoming increasingly contaminated by agricultural nutrients, pesticides and pathogens. Private Wells in rural areas are not regulated by the Safe Drinking Water Act (SDWA); hence rising levels of contaminants often go undetected. Consumption of contaminated water presents a serious health hazard. Therefore a better understanding of management practices can improve water quality and other health and environmental issues in Alabama.

**What has been done**

Tuskegee University Agriculture Research, Extension and Outreach programs continued a water quality testing and education program to serve the rural residents in Alabama Black Belt Counties. A series of workshops were conducted as well as dissemination of educational resources in Macon, Lowndes, Wilcox, Sumter, Marengo, Dallas and Perry. A broad range of topics were covered including watersheds principles, sources and effects of water contaminants, water testing, septic systems, and best management practices.

**Results**

Tuskegee Research and Extension Forty out of 73 samples tested were for agricultural and residential use. Of those 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. A notable long-term impact of this program is a gradual decrease in

nitrate and coliforms as more than 50% of participants have over the years adopted best management practices for water quality protection.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
133	Pollution Prevention and Mitigation

**Outcome #22**

**1. Outcome Measures**

TU: Number of participants who adopted best management practices for water quality protection

**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>
2017	37

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

**Issue (Who cares and Why)**

More than half of Alabama residents, particularly, rural residents use groundwater as their drinking water sources. Water resources in Alabama however, are becoming increasingly contaminated by agricultural nutrients, pesticides and pathogens. Private Wells in rural areas are not regulated by the Safe Drinking Water Act (SDWA); hence rising levels of contaminants often go undetected. Consumption of contaminated water presents a serious health hazard. Therefore a better understanding of management practices can improve water quality and other health and environmental issues in Alabama.

**What has been done**

Tuskegee University Agriculture Research, Extension and Outreach programs continued a water quality testing and education program to serve the rural residents in Alabama Black Belt Counties. A series of workshops were conducted as well as dissemination of educational resources in Macon, Lowndes, Wilcox, Sumter, Marengo, Dallas and Perry. A broad range of topics were covered including watersheds principles, sources and effects of water contaminants, water testing, septic systems, and best management practices.

**Results**

Tuskegee Research and Extension A notable long-term impact of this program is a gradual decrease in nitrate and coliforms as more than 50% of participants have over the years adopted best management practices for water quality protection.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation

#### Outcome #23

##### 1. Outcome Measures

Increase profitability of pay-to-fish operations

##### 2. Associated Institution Types

- 1862 Research

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	1

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

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

Fishery resources are a vital component of the economy and culture of Alabama. Alabama contains renowned freshwater fisheries for highly sought warm water species like largemouth bass (*Micropterus salmoides*) and crappie (*Pomoxis sp.*). Moreover, Alabama has more than 250,000 small impoundments that are managed with State, Extension, or private assistance.

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

Researchers developed and tested new methods to assess the health of Alabama's fisheries. These methods provided fishery managers with new and better information on which to base decisions on harvesting these stocks.

###### **Results**

Better informed decision-making helps ensure that fishers can harvest as many fish as possible while leaving enough for future generations.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife

## **Outcome #24**

### **1. Outcome Measures**

Increase awareness of water conservation

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

- 1862 Research

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2017	1

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

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

Water supply and water quality issues affect economies and resources of national and international importance. Water conservation is a best management practice that must be integrated into agricultural production systems.

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

In 2017, 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 conservation

#### **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>
132	Weather and Climate

**Outcome #25**

**1. Outcome Measures**

Capacities strengthened for integrating climate change risks and opportunities into state and regional development assistance

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	1

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

**Issue (Who cares and Why)**

Recurring droughts in the southeast USA have been linked to economic losses and intractable water conflicts. The region has witnessed several severe droughts events during the period from 1901 to 2005. Climate change projections suggest intensification of water cycle in the Southeast.

**What has been done**

Researchers quantified spatiotemporal variability in meteorological drought characteristics in the southeast by the means of standard precipitation index and standard precipitation evapotranspiration index for the 20th and 21st century.

**Results**

The results of this research can be used by policymakers as a benchmark for studying the impacts of future climate change projections to determine how drought characteristics are expected to change in the future. Thus the research strengthen their capacity for integrating climate change risks and opportunities into state and regional development assistance.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
132	Weather and Climate



**Outcome #26**

**1. Outcome Measures**

The number of reduced environmental impacts

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	1

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

**Issue (Who cares and Why)**

Excessive loss of nutrients in agricultural runoff can increase the frequency of toxic algal blooms and fish kills in receiving waters. There is a good understanding of nutrient transport processes and dynamics at the plot and field -scale, however little is known about how nutrient transport processes and dynamics scale to larger watersheds and whole regions over long time periods

**What has been done**

Researchers are quantifying phosphorus and nitrogen loss in surface and subsurface flow pathways as a function of runoff generating and infiltrating storm events, and determine the impact of subsurface-band application of manure on phosphorus and nitrogen loss in surface and subsurface flow pathways

**Results**

The results showed that subsurface application of broiler litter helped to reduce phosphorus loss in surface runoff at the subwatershed and watershed scales. Subsurface application of broiler litter helped to retain greater amount of phosphorus in soil and therefore reduce excessive delivery of phosphorus from agricultural landscapes to surface waters.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation

**Outcome #27**

**1. Outcome Measures**

Number of interns who feel confident distinguishing between abiotic and biotic garden/landscape problems

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	250

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

**Issue (Who cares and Why)**

Residential gardeners have questions about numerous topics in their landscapes from pest management to plant selection, and other points in between. We train MGs with information from historic client questions so the volunteers are better prepared to help the client and so they gain confidence to handle the questions.

**What has been done**

MGs are trained to share what they've learned and implement it as models for others to copy. Working the Helpline and similar outreach activities, they felt more confident with the basics of detective work needed for them to find solutions to client questions.

**Results**

Of the MGs surveyed, 250 (66%) felt confident they could distinguish between abiotic and biotic plant problems if shown a photo. This is important as many garden and landscape problems are related to weather or human factors.

**4. Associated Knowledge Areas**

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

**Outcome #28**

**1. Outcome Measures**

Number of interns who are promoting gardening to increase physical activity - for themselves and in others.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	292

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

**Issue (Who cares and Why)**

Physical activity is important at every age. In older adults, this activity reduces health problems related to aging and improves quality of life when combined with social interaction.

**What has been done**

Gardening involves, bending, stretching, lifting, pulling, and grasping. The Master Gardener program teaches people best practices for gardening - and in turn encourages them to garden and share what they have learned with others in their communities.

**Results**

Of the MGs surveyed, 292 (77%) were promoting gardening as method to remain active and encourage others to do the same.

**4. Associated Knowledge Areas**

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

**Outcome #29**

**1. Outcome Measures**

Pounds of produce grown by MGs and donated to local food charities

**2. Associated Institution Types**

- 1862 Extension

### 3a. Outcome Type:

Change in Condition Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2017	33000

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Food insecurity is well documented in many states. Alabama is not alone. MGs enjoy sharing their time, knowledge and talent growing food for the community and teaching people how to grow it themselves.

#### What has been done

MGs support and manage various food gardens and demonstration gardens that grow vegetables for donation to local charities. Feedback from 14 MG associations, confirmed a state-wide donation of 33,000 pounds of produce in 2017. One MG project in Guntersville documented 10,626 pounds harvested from their garden and donated to their local CASA organization.

#### Results

Vegetables were donated from food gardens supported and managed by MGs in 2017. One garden project, Guntersville AL, documented an annual total donation of 10,626 pounds of fresh vegetables.

### 4. Associated Knowledge Areas

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

### Outcome #30

#### 1. Outcome Measures

Number of MG volunteer hours in support of ACES programming

#### 2. Associated Institution Types

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	125670

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

**Issue (Who cares and Why)**

The original and current purpose of the Master Gardener program is to train volunteer-minded people in horticulture practices who will then extend what they have learned back to the community.

**What has been done**

We trained 380 new interns and maintained relationships with 34 MG associations state-wide. We recruited them to support Ho

**Results**

MG volunteers supported many ACES activities. In doing so, they gave 125,670 volunteer hours and recorded over 500,000 public contacts. When asked what they thought was the "best thing about the program", they said - "The sense of community and neighborly responsibility that leads to volunteering." - "Helping others to learn more by visiting the garden" - "Fellowship with a group who believes in community service" - "Volunteering is exhilarating and rewarding" - "We try to be an extension of our agent whenever possible." - "Volunteering is a positive influence on the community"

**4. Associated Knowledge Areas**

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

**Outcome #31**

**1. Outcome Measures**

Number of Acres of oyster reef restored

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	4

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

**Issue (Who cares and Why)**

Oyster reefs in coastal Alabama and Mississippi have been degraded.

**What has been done**

Volunteers produced 57,640 oysters in Alabama restoration efforts and 16,324 oysters in Mississippi restoration efforts. Oysters were placed on degraded reef sites in Mobile Bay and the Mississippi Sound.

**Results**

The combined 73,964 oysters produced by the 74 volunteer gardening sites in two states are sufficient to plant 3.68 acres

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife

**Outcome #32**

**1. Outcome Measures**

Number of additional oyster larvae generated from planting oysters grown by the program.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	1000000

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

**Issue (Who cares and Why)**

Loss of oyster reef is further hampered by limitations in oyster larvae.

**What has been done**

The 73,964 oysters planted will be capable of spawning in the Spring of 2018 generating millions of additional larvae.

**Results**

The 1,000,000 additional oyster larvae represents the spawning capacity of the planted oysters. The additional larvae for the estuarine systems are capable of further expanding the reef environment into which they were planted.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife

**Outcome #33**

**1. Outcome Measures**

Dollar value of restored oyster reef

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	71304

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

**Issue (Who cares and Why)**

Value of oyster reef restoration included ecological components (pounds N removed), total net benefits, value of N removal, increase in local economic value from higher catch rates, and increase revenue from harvested share of enhanced fish numbers

**What has been done**

73,964 oysters produced by volunteer gardeners in two states is sufficient to restore (5/m2) 3.68 acres with a per acre value of \$19,376 (TNC) for a total value of \$71,304 for the 3.68 acres in

2017. ROI = 1:3.92 (392%)

**Results**

dollar value from 3.68 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 = 1.3.92 (392%)

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife

**Outcome #34**

**1. Outcome Measures**

Economic impact of ForestHer recommendations

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	9500000

**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 2017 it was decided to build upon work of the prior year and host two ForestHer workshops and an Alabama Extension BioBlitz. On March 6&7 ACES Extension personnel hosted a ForestHer workshop in the Wiregrass area, and on March 13&14 hosted a ForestHer on FIRE!



workshop in Auburn, Alabama. A BioBlitz is a hands-on, citizen science event to promote interest in biodiversity. Our BioBlitz was held on April 1, 2017 at the Forest Ecology Preserve 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**

ForestHer: In an exit survey participants stated that they would use the information presented to better manage their collective 4,770 acres. Ten-percent of participants were minorities. Impact estimate for ForestHer workshops: \$9.5 million in forestland value.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
131	Alternative Uses of Land
903	Communication, Education, and Information Delivery

**Outcome #35**

**1. Outcome Measures**

percent of applicators that showed an increase in knowledge and preference towards the Private applicator program between 2014 and 2017

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	11

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

**Issue (Who cares and Why)**

This is the fourth year of the program and we are now retesting the original applicators that were certified in 2014. A survey of over 4,000 examinees between 2014 and 2017 indicated that the online option was the most preferable option.

**What has been done**

Exams were offered in three different methods.

Testing in a county with only the manual and 50 question exam  
Attending a Training Course with 50 question exam to follow

- Online Training course consisting of 6 modules with a total of 62 exam questions.
- Based on online survey data and face to face evaluations;
  1. Applicator knowledge of basic pesticide application was increased 11.2%
  2. Online exam option was the preferred choice of applicators 62%

**Results**

Applicators grades were reviewed in 2014 and 2017. The average score for a new applicator in 2014 was 81.67 with a retake (applicator renewal of permit) score in 2017 of 92.87. This showed an increase in knowledge of 11.2% for overall private applicator pesticide safety knowledge.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
903	Communication, Education, and Information Delivery

**Outcome #36**

**1. Outcome Measures**

Percent of land managers surveyed who reported adopting recommendations

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	85

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

**Issue (Who cares and Why)**

Homeowners often 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 established or emerging invasive plant species in Alabama. The forestry and natural resource community, and other stakeholders, look to the Alabama Cooperative Extension System 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, publications, online and social media resources informed 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 online materials gained knowledge and encouragement for taking action. This included training on plant identification, proper use of herbicides, control options, and making informed choices when selecting plants for wildlife plantings and landscaping. Armed with this knowledge, stakeholders are better able to control invasive plants and reduce their use of invasive plants, leading to healthier and more productive forests across the state.

**Results**

85% of land managers surveyed reported adoption of information provided at meetings. Furthermore, 95 percent of attendees at educational events who filled out a meeting 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 #37**

**1. Outcome Measures**

Number of acres receiving new or improved treatment

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	180000

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

**Issue (Who cares and Why)**

While many forest landowners and natural resource professionals are generally aware of invasive plants, the many potential impacts of invasive plants are not fully understood. Furthermore, many landowners and land managers 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 better 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 over 2.5 million acres of land, increased their knowledge and saw ways to include the information in their land management efforts. It is estimated that treatment of as many as 180,000 acres of invasive plants in the state may have been influenced by information presented at the annual conference and our other educational events. Initiating treatment or improving efficiency of treatment will improve forest health and productivity on a local level and will help slow the spread of invasive plants across the state.

**Results**

It is estimated that treatment of as many as 180,000 acres of invasive plants in the state may have been influenced by information presented at the annual conference and our other educational events. Initiating treatment or improving efficiency of treatment will improve forest health and productivity on a local level and will help slow the spread of invasive plants across the state.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources

**Outcome #38**

**1. Outcome Measures**

Number of forage (hay/pastureland) acres impacted by Alabama Forage Conference

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	14577

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

**Issue (Who cares and Why)**

One of Alabama's greatest resources is its agricultural land. Over 2.5 million acres of land in Alabama is designated as pasture land or in forage production. It is important that producers adopt practices that improve the overall quality of forage produced on these acres as well as properly care for the land.

**What has been done**

The biennial Alabama Forage Conference was conducted in November 2017. Topics focused on soil health and forage management tools to ensure quality forage stands and health. There were 82 producers who attended. There was a bimodal distribution of farm experience within the attendees. 46% of the attendees had 20 or more years of experience. 36% were new and beginning farmers.

**Results**

The 82 producers manage 14,577 acres of pasture and forage lands. Producers stated they would use temporary fencing and new technologies in grazing management to better utilize existing forage production. They also stated they would work to improve soil health, thus impacting forage persistency and forage stand quantity and quality.

**4. Associated Knowledge Areas**

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

**Outcome #39**

**1. Outcome Measures**

Number of acres impacted by Women In Ag Program

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	3547

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

**Issue (Who cares and Why)**

Approximately 12% of farm operators in Alabama are women. There are many reasons women may become the primary operator of a farm or involved with the family farm operation. Some reasons include they had either found themselves involved in the family farm through marriage or

as the sole operator through inheritance, the death of a spouse, or chose to purchase their own operation. It is important to address needs of these women operators, especially issues of self-confidence and additional skill building.

**What has been done**

The Alabama Women In Ag program was designed to promote self-confidence for women by providing hands-on educational opportunities, including identifying pasture pests, properly forage and soil sampling, interpreting forage and soil sample results and going on a pasture walk. The two-day, hands-on workshop was conducted by Alabama Cooperative Extension educators, local veterinarians, and producers at the Tennessee Valley Research and Extension Center in September 2017.

**Results**

Managing pasture pests and properly utilizing soil and forage results will increase the overall health and productivity of the pasture and hay fields. Increasing the productivity can potentially decrease dependence on stored feed and increase gains/acre.

**4. Associated Knowledge Areas**

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

**Outcome #40**

**1. Outcome Measures**

Percent increase in knowledge of Women In Ag Participants of forage related topics

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	51

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

**Issue (Who cares and Why)**

Approximately 12% of farm operators in Alabama are women. There are many reasons women may become the primary operator of a farm or involved with the family farm operation. Some reasons include they had either found themselves involved in the family farm through marriage or as the sole operator through inheritance, the death of a spouse, or chose to purchase their own

operation. It is important to address needs of these women operators, especially issues of self-confidence and additional skill building.

**What has been done**

The Alabama Women In Ag program was designed to promote self-confidence for women by providing hands-on educational opportunities, including identifying pasture pests, properly forage and soil sampling, interpreting forage and soil sample results and going on a pasture walk. The two-day, hands-on workshop was conducted by Alabama Cooperative Extension educators, local veterinarians, and producers at the Tennessee Valley Research and Extension Center in September 2017. Pre- and post-test tests were administered to participants to assess knowledge transfer.

**Results**

Through pre- and post-tests, it was determined these women producers increased their knowledge level by 51% concerning Forage Pests & Management, Forage Species and Forage Analysis & Interpretation.

**4. Associated Knowledge Areas**

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

**Outcome #41**

**1. Outcome Measures**

Increase in knowledge of how to control weeds in drought stressed pastures and hay fields

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	33

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

**Issue (Who cares and Why)**

By November 2016, 100% of Alabama was classified in drought, with east-central and northeast Alabama classified in the most significant drought category. Hayfields and especially pastures were subjected to significant stress. Most producers saw some forage stand loss. Other

producers lost their entire pasture stands of forage.

**What has been done**

Regional meetings were organized and conducted to teach producers how to strengthen forages stands and control weeds in drought stressed forages. Pre- and post- surveys were conducted to assess change in knowledge to combat weeds in these drought stressed hay fields and pastures.

**Results**

There was a 33% increase in knowledge of how to combat weeds in drought stressed hay fields and pastures. These drought meetings represented over 20,000 acres of hay fields and pastures in Alabama. These same producers manage over 9,000 head of brood cows.

**4. Associated Knowledge Areas**

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

**Outcome #42**

**1. Outcome Measures**

Money saved due to adoption of drought strategy

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	16500

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

**Issue (Who cares and Why)**

By November 2016, 100% of Alabama was classified in drought, with east-central and northeast Alabama classified in the most significant drought category. Hayfields and especially pastures were subjected to significant stress. Most producers saw some forage stand loss. Other producers lost their entire pasture stands of forage. .

**What has been done**

Drought meetings were conducted late 2016. However, results of adoption of suggested management methods were not observed until 2017. One of the practices suggested was use of



a sacrifice pasture. One producer in Marshall County utilized a sacrifice pasture that was 10 acres in size, keeping cattle off his other 110 acres of pasture. The producer did have to completely renovate the 10 acre sacrifice pasture this spring.

**Results**

The cost of pasture renovation is approximately \$150/acre. Because the Marshall County Producer kept cattle off 110 acres of pasture until grass began growing again in the spring, he saw little to no stand loss in those 110 acres. Thus, this producer saw a potential savings of \$16,500 in pasture renovation costs. He did have to spend \$1500 in renovation costs for his sacrifice pasture.

**4. Associated Knowledge Areas**

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

**Outcome #43**

**1. Outcome Measures**

Extension of grazing days due to adoption of grazing management techniques

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	75

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

**Issue (Who cares and Why)**

If Alabama producers would adopt the use of stockpiled forages and planting of winter annuals, producers could increase the number of grazing days and decrease the number of day feeding hay. The adoption of these practices requires additional management of existing forages and the ability to move cattle off some pastures from August to November each year.

**What has been done**

As a result of the Winter Grazing meeting conducted on early Fall of 2017 in Marshall county, 3 producers went home and planted additional winter annuals. Additionally, a Blount County producer stockpiled fescue and planted winter annuals.

### Results

The producer in Blount County has reported 75 additional grazing days due to the stockpiled fescue. This has saved them from feeding an estimated 65 rolls of hay in this same time period. This producer has yet to utilize the planted winter grazing.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
601	Economics of Agricultural Production and Farm Management

### Outcome #44

#### 1. Outcome Measures

Percentage change in knowledge for producers attending forage pest programs

#### 2. Associated Institution Types

- 1862 Extension
- 1862 Research

#### 3a. Outcome Type:

Change in Knowledge Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2017	42

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

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

Forage pests can cause significant production and economic losses in hay fields and pastures. It is important that producers are able to identify and properly manage these forage pests.

##### What has been done

Producer meetings (n=4) were conducted throughout Alabama discussing various forage pests, life cycles, monitoring, management and control. Producers were asked to rate their knowledge on forage pests both pre- and post-program. Hands on activities, like using a sweep net to monitor fields for army worms, were included in these programming efforts.

##### Results

Results from pre- and post-meeting surveys indicated a 42% increase in knowledge. This is significant at the  $P < 0.01$  level.

#### 4. Associated Knowledge Areas

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

#### Outcome #45

##### 1. Outcome Measures

Percent of trainees sharing information learned in interagency training program

##### 2. Associated Institution Types

- 1862 Extension
- 1862 Research

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	100

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

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

It is important to conduct cross-training across governmental agencies (e.g. Cooperative Extension and NRCS) to ensure employees are knowledgeable and recommending best management practices. Currently, in Alabama, 49% of employees working for Alabama Cooperative Extension Animal Science and Forages Team and NRCS have 5 or less years of experience.

###### What has been done

A series of three, two-day hands-on workshops related to forage ecosystem management and sustainability were held from May 2016 through May 2017 for USDA NRCS (Alabama) personnel and ACES extension agents in Alabama. The goal of these workshops was to provide experiential learning opportunities related to forage management for technical service providers within these agencies. Both in-classroom and hands-on demonstrations were used to illustrate grazing management concepts, soil-plant animal evaluation practices, and facilitate group problem-solving and discussion. Topics included understanding basic plant physiology and growth in grazing systems, grazing methods, forage and weed identification, pasture and animal condition scoring, and environmental impacts on these systems

###### Results

Survey participants (n=67) were highly likely (65%) or likely (35%) to share forage practices learned with farmers during farm site visits and one-on-one consultation with clientele in the next

12 months following these programs. These results indicate that joint in-service training opportunities among university and government organizations may benefit communication, understanding, and application of forage management practices in on-farm settings.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants

#### Outcome #46

##### 1. Outcome Measures

Percentage of grazing days available for late planted winter annuals

##### 2. Associated Institution Types

- 1862 Extension
- 1862 Research

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	50

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

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

With the significant drought in Alabama in 2016, there was no moisture to plant winter annuals for grazing in traditional planting times of September through early November. Also, there is no scientific data in the literature which provides yields or grazing days of late planted winter annuals in the southeast.

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

A demonstration was established at the Sand Mountain Research and Extension Center in Crossville, AL as part of the Sand Mountain Elite Heifer Development Project . Varieties of Marshall and Winterhawk ryegrass were drilled into 24 acres (12 two-acre paddocks) on December 1, 2016 and February 1 and March 1, 2017. Each paddock was fertilized with 50-40-40 at planting and 50 lbs N in March. Heifers grazed ryegrass beginning March 27 through June 13, 2017. Forage mass and quality was assessed. Forage utilization was determined using a USDA Forage Stick to measure disappearance. Heifers were rotated to a new paddock once half of the forage had been consumed as determined by the forage stick.

**Results**

Heifers were able to begin grazing winter annuals 87 days after planting. The ryegrass varieties persisted until early June for a total of 70 grazing days. This is 50% of what was seen in 2016 under no drought conditions. Additionally, forage growth was only 65% of what was seen in 2016 and heifer average daily gains were lower.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
102	Soil, Plant, Water, Nutrient Relationships
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants

**Outcome #47**

**1. Outcome Measures**

Percentage of participants who increased knowledge of pest biology

**2. Associated Institution Types**

- 1862 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	58

**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**

10 webinars were conducted on topics of general interest to homeowners; extension agents and specialists; master gardeners; pest control operators, and state, local, and school professionals. The webinars give the target audience a better understanding of pest biology and IPM tactics.

**Results**

58% of webinar attendees said they learned a lot, 34% said they learned something, 7% said they learned a little, 1% said they learned nothing

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms

#### Outcome #48

##### 1. Outcome Measures

Percent of participants who change their behavior as a result of the pest management webinar

##### 2. Associated Institution Types

- 1862 Extension
- 1890 Research

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	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**

10 webinars were conducted on topics of general interest to homeowners; extension agents and specialists; master gardeners; pest control operators, and state, local, and school professionals. The webinars give the target audience a better understanding of pest biology and IPM tactics.

###### **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

KA Code	Knowledge Area
136	Conservation of Biological Diversity

**Outcome #49**

**1. Outcome Measures**

Total number of Alabama Certified Arborists who completed their CEU requirements at Extension lead programming.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	50

**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 for managing and caring for Alabama's community forests.

**What has been done**

29 community forestry workshops throughout Alabama offered a total of 144 continuing educational credits in arboriculture for professional arborists.

**Results**

50 of the 67 Certified Arborist in Alabama attended meeting and maintained Certification

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
123	Management and Sustainability of Forest Resources

**Outcome #50**

**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 Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	3

**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**

3 workshops aimed at preparing and educating tree workers with the scientific and technical knowledge necessary to become Certified Arborists was offered in 2017. 44 tree workers attend, of which 12 planned on taking the exam in 2017.

**Results**

3 students successfully took and passed the exam in Alabama. This raises the number of Certified Arborist to 67 in the State.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources

**Outcome #51**

**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**

<b>Year</b>	<b>Actual</b>
2017	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. Over 80% of chainsaw operators report not wearing PPE prior to attending workshops. It is generally understood that the use of PPE can prevent or reduce the severity of chainsaw injuries.

**What has been done**

16 chainsaw safety workshops trained 286 municipal and commercial personnel on safety chainsaw use, including the value and importance of wearing PPE.

**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**

<b>KA Code</b>	<b>Knowledge Area</b>
123	Management and Sustainability of Forest Resources

**Outcome #52**

**1. Outcome Measures**

Dollar value of avoided medical and lost productivity cost.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	632000

**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**

16 chainsaw safety workshops trained 286 municipal and commercial personnel. Trainings encourage use of PPE and instructed on safe and proper chainsaw handling and techniques.

**Results**

It is generally understood that regular training and the proper use of PPE can reduce chainsaw injuries by as much as 60%. As a result, we estimate that trainings have resulted in \$632,000 in avoided medical costs and lost productivity costs.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
123	Management and Sustainability of Forest Resources

**Outcome #53**

**1. Outcome Measures**

Number of school field managers who saved water by adopting irrigation systems recommendations.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	34

**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 and other field managers are unaware of how to audit their irrigation systems and how to tune them to provide the necessary amount of water without overwatering. They also lack a clear understanding of the agronomic basics of how much irrigation to apply to bermudagrass sports fields and the best timing practices for irrigation.

**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 saves one irrigation event per week, or an average of 50,000 gallons of water per week per field. Shifting the timing of irrigation away from the middle of the day to early morning also reduces water useage 15% by reducing the amount of water lost to evaporation. For a field requiring 100,000 gallons of water per week (2 irrigation events weekly) this is an additional weekly savings of 15,000 gallons of water.

**Results**

Field managers became proficient in auditing irrigation systems and using them to save water.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
111	Conservation and Efficient Use of Water

**Outcome #54**

**1. Outcome Measures**

Total gallons of water saved

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	57600000

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

**Issue (Who cares and Why)**

Field managers often water fields on a calendar basis instead of according to the actual water needs of the grass and weather patterns. 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**

Learning how to audit their irrigation systems allowed them to apply only as much water as the field requires. Field managers were taught how to audit their systems and how to apply that knowledge to reduce the amount of water used.

**Results**

By learning about the true water needs of fields and how to audit their irrigation systems, our field managers were able to reduce their water usage by an average of one irrigation event per week during the growing season. This amounts to 1.8 million gallons per field per year, or a total of 57.6 million gallons of water that would otherwise have been wasted by unnecessary irrigation.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
111	Conservation and Efficient Use of Water

**Outcome #55**

**1. Outcome Measures**

Number of field managers who increased knowledge of proper ID and control of weeds

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	34

**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 and city field managers do not have formal training in identification of weeds commonly found on sports fields in Alabama. This allowed them to use the correct herbicides, and fewer of them.

**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 \$7,500 in herbicide and labor costs while providing better weed control.

**Results**

Field managers learned how to identify common weeds in sports fields and the best practices for managing them.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water

#### Outcome #56

##### 1. Outcome Measures

Number of citizen monitored groups actively monitoring water quality on streams, lakes or bays.

##### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	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 93 training sessions in 2017 certifying 632 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 2,884 data records in 2017.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
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**Outcome #57**

**1. Outcome Measures**

Linear feet of streams enhanced or restored in Alabama

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	1100

**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 1,100 linear feet of streams in Alabama in 2017.

Moore's Creek, Lanett, Alabama (1,100 linear feet)

The Moore's Creek project stopped an estimated 180 tons of sediment, 1.2 tons of phosphorus,

and 2.6 pounds of nitrogen from entering the Chattahoochee River annually.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management

#### Outcome #58

##### 1. Outcome Measures

Number of tons of sediment prevented from entering streams

##### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	180

##### 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**

Moores Creek, Lanett, Alabama (1,100 linear feet)

The Moores Creek project stopped an estimated 180 tons of sediment, 1.2 tons of phosphorus, and 2.6 pounds of nitrogen from entering the Chattahoochee River annually.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
112	Watershed Protection and Management

**Outcome #59**

**1. Outcome Measures**

Number of tons of phosphorus prevented from entering streams

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	1

**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**

Moore's Creek, Lanett, Alabama (1,100 linear feet)

The Moore's Creek project stopped an estimated 180 tons of sediment, 1.2 tons of phosphorus, and 2.6 pounds of nitrogen from entering the Chattahoochee River annually.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
112	Watershed Protection and Management

**Outcome #60**

**1. Outcome Measures**

Pounds of nitrogen prevented from reaching streams

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	3

**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**

Moore's Creek, Lanett, Alabama (1,100 linear feet)

The Moore's Creek project stopped an estimated 180 tons of sediment, 1.2 tons of phosphorus, and 2.6 pounds of nitrogen from entering the Chattahoochee River annually.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
112	Watershed Protection and Management

**Outcome #61**

**1. Outcome Measures**

Economic Return on Investment of forestry workshops

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	22

**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 2017, 3 Extension publications/videos were produced providing information on wild pig management, nuisance wildlife, and mole and vole control. More than 10 workshops were conducted in which attendees were show ways to identify and control damage from nuisance wildlife. In addition, over 2,500 one-on-one contacts were made concerning nuisance wildlife.

**Results**

Many nuisance wildlife damage issues are handled by Nuisance Wildlife Control Operators who charge a fee for their services. Using a conservative estimate of \$200 (most complaints cost more) in the estimate of \$32,000 was calculated for attendees. For every \$1 invested by the AL Cooperative Extension System there was a \$22 benefit to those who attended a Backyard Wildlife Damage Management event.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife

**Outcome #62**

**1. Outcome Measures**

Return on Investment of wild pig workshops

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	80

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

**Issue (Who cares and Why)**

Over the last 30 years wild pigs have become a major concern on a national basis due to their deleterious impacts on agriculture and natural resources. In AL, wild pigs are found in nearly all 67 counties and cause more than \$55 million in agricultural and forestry damage.

**What has been done**

This project provides hands-on training to landowners and natural resource professionals. Practical, cost-effective and time-effective approaches for reducing or eliminating damage by wild pigs are provided. The project uses multiple approaches including seminars and demonstrations, publications, and videos.

### Results

Techniques recommended in the Wild Pig Damage Management workshops had an adoption rate of 99%. This calculates out to a \$1.1 million reduction in damage of a reported 218,000 acres. Thus, for every \$1 invested by AL Cooperative Extension System there was an \$80 benefit to those who attended the Wild Pig Damage Management event.

### 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

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

#### Evaluation Results

**AU Environmental Sustainability:** Results show that subsurface application of broiler litter reduced phosphorus losses at the watershed outlet by as much as 40%. Biochar, thought to be a good soil amendment, may contain harmful chemicals such as polycyclic aromatic hydrocarbons (PAHs). Total PAH concentrations can be as high as 31,957 g/g of pine char produced at 1,000°C. **AU Alabama Water Watch :**The 4-H AWW Program reached 8,400 youth who noted increased awareness and knowledge with 95% indicating that citizens can collect scientific water quality data and 95% will help take care of water resources. **AU Aquaculture and Sportfish:** Sunfish production increased with greater alkalinity between 20 and 40 mg/L. Results suggest that ponds with less than 40 mg/L alkalinity should be limed.

**Best Management Practices for Sports Fields-** fields were able to reduce their water usage by 1.8 million gallons per field per year, or a total of 57.6 million gallons of water that would otherwise have been wasted by unnecessary irrigation. Better weed management practices saved schools \$7,500 in herbicide costs plus labor by reducing herbicide applications. **Off-Bottom Oyster Farming** the reported harvest for 2016 was almost \$2 million farm gate value. This production was accomplished by 15 commercial operations using approximately 20 acres. These farms supported at least 20 full-time jobs and 10 part-time jobs.

### **Water Quality in the Flint Creek Watershed (FCW)**

Outcomes: Observing samples from an urban area (US-31), fecal indicators, E. coli, Enterococcus and pathogen P. aeruginosa were present in all water samples. September (191.8) exceeded the geometric mean of 126 CFU/100 mL for E. coli. All monthly samples exceeded the geometric mean of 33 CFU/100 mL for Enterococcus except February (21.98), March (27.33), May (14.94) and October (13.27). Target audience: stakeholders, regulators and watershed coordinators

**Alabama Urban Home\*A\*Syst** 81% (n=163) 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.

**UeSeP** water quality and quantity (80%); natural resource conservation (75%); forestry and wildlife; (78%) energy and waste management (74%) (n=658). 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 88% (n=658) of youth surveyed agreed that the program made them want to become better stewards of the environment

**Limited Resource Farmers, Climate Change Impacts on Water Resources** Results showed there will be average decreases in corn yield of 17% and 32% in 2045, and 29% and 61% in 2075, and decreases in soybean yields of 29% and 23% in 2045, and 19% and 43% in 2075, under RCP 4.5 and RCP 8.5 scenarios respectively. Results also shows a tendency toward warming by s nights and growing season length, in contrast with decreases in cool nights, cool days, frost days and ice days.

**Water Quality Testing** Forty out of 73 samples tested were for agricultural and residential use. Of those 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. A notable long-term impact of this program is a gradual decrease in nitrate and coliforms as more than 50% of participants have over the years adopted best management practices for water quality protection

## **Key Items of Evaluation**

**AU Environmental Sustainability:** Results show that subsurface application of broiler litter reduced phosphorus losses at the watershed outlet by as much as 40%. Biochar, thought to be a good soil amendment, may contain harmful chemicals such as polycyclic aromatic hydrocarbons (PAHs). Total PAH concentrations can be as high as 31,957 g/g of pine char produced at 1,000°C. **AU Alabama Water Watch** :The 4-H AWW Program reached 8,400 youth who noted increased awareness and knowledge with 95% indicating that citizens can collect scientific water quality data and 95% will help take care of water resources. **AU Aquaculture and Sportfish:** Sunfish production increased with greater alkalinity between 20 and 40 mg/L. Results suggest that ponds with less than 40 mg/L alkalinity should be limed.

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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%	10%	0%
216	Integrated Pest Management Systems	12%	0%	3%	0%
304	Animal Genome	0%	0%	7%	7%
305	Animal Physiological Processes	0%	0%	18%	5%
307	Animal Management Systems	0%	0%	11%	13%
308	Improved Animal Products (Before Harvest)	0%	0%	0%	7%
311	Animal Diseases	0%	0%	24%	5%
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals	0%	0%	0%	10%
501	New and Improved Food Processing Technologies	5%	10%	3%	10%
503	Quality Maintenance in Storing and Marketing Food Products	5%	10%	3%	3%
504	Home and Commercial Food Service	10%	10%	0%	0%
607	Consumer Economics	0%	0%	0%	5%
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	20%	35%	0%	15%
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	0%	0%	14%	10%
721	Insects and Other Pests Affecting Humans	15%	35%	1%	0%
723	Hazards to Human Health and Safety	0%	0%	6%	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: 2017	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	17.8	2.0	28.0	7.9
<b>Actual Paid</b>	18.8	0.9	24.9	8.5
<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
804712	0	1612170	0
<b>1862 Matching</b>	<b>1890 Matching</b>	<b>1862 Matching</b>	<b>1890 Matching</b>
459761	0	1486700	0
<b>1862 All Other</b>	<b>1890 All Other</b>	<b>1862 All Other</b>	<b>1890 All Other</b>
2888177	0	4733195	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	0	0	512162
<b>1862 Matching</b>	<b>1890 Matching</b>	<b>1862 Matching</b>	<b>1890 Matching</b>
0	0	0	268881
<b>1862 All Other</b>	<b>1890 All Other</b>	<b>1862 All Other</b>	<b>1890 All Other</b>
0	0	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	54119	0	332947
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	48186	0	304314
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

**Historically Disadvantaged Farmers Go Commercial** Tuskegee helped the group of farmers to: form the Small Farmer Agricultural Cooperative; negotiate agreements with Wal-Mart and each other, and; obtain production equipment and supplies and wells, access to transportation and refrigeration units, and training and technical assistance on commercial-level harvesting and grading, packing and processing, food safety, integrated pest management, and record keeping. **Animal Production Efficiency**-In efforts to assist beef and meat goat producers with production and marketing concerns, the Tuskegee University Agriculture Research, Extension and Outreach programs in partnership with the School of Veterinary Medicine conducted educational programs and assisted small producers in 2016 and 2017 with production problems.

**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. **AU Heifer Reproduction Research:** active in linking genomic, metabolomic and production markers for development of heifer pregnancy which will result in increased efficiency of cattle production across the southeast. **AU Animal Diseases and Antimicrobials Research:** projects focus on the use of alternative antibiotics and other intervention strategies to mitigate development of antimicrobial resistance and provide increased immunity to animal disease.

**Beef Cattle Performance Programs to Enhance Profitability (BCIA)** The overall objective of this planned program is to increase the knowledge and skills of commercial and seedstock beef cattle producers to make sound genetic selection decisions to enhance herd profitability and marketing in beef cattle. **Serv Safe** The Alabama Cooperative Extension System Food Safety and Quality Team teaches the ServSafe course which is certified through the National Restaurant Association.

**Reduction of antimicrobial resistance in poultry product production utilizing probiotics** The goal of the proposed work is to develop, evaluate, and implement effective and sustainable strategies that mitigate emergence, spread and persistence of antimicrobial resistant pathogens in the ecosystem from farm to fork.

**Food Safety of Aquaponic Products** examine the feasibility of Aquaponics its food safety relationships. To date, we have had major problems with fish mortalities in our fish rearing systems.

### 2. Brief description of the target audience

**Historically Disadvantaged Farmers Go Commercial** - limited resource farmers

**Animal Production Efficiency**-limited resource farmers

**ServSafe** This course is open to any individual that wishes to meet the food safety certification required in the State of Alabama.

**Beef Cattle Performance Programs to Enhance Profitability (BCIA)** commercial and seedstock beef

cattle producers and also beef cattle industry organizations and professionals.

**Reduction of antimicrobial resistance in poultry product production utilizing probiotics** Poultry production companies and poultry processing companies.

**Food Safety of Aquaponic Products** small farmers and small commercial operations

**3. How was eXtension used?**

eXtension was not used in this program

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

**1. Standard output measures**

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	83401	0	20866	0

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

**Patent Applications Submitted**

Year: 2017

Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2017	Extension	Research	Total
<b>Actual</b>	39	47	0

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

**Output Target**

**Output #1**

**Output Measure**

- Number of publications

Year	Actual
2017	33

**Output #2**

**Output Measure**

- Number of abstracts

<b>Year</b>	<b>Actual</b>
2017	0

**Output #3**

**Output Measure**

- Number of presentations given at scientific meetings

<b>Year</b>	<b>Actual</b>
2017	6

**Output #4**

**Output Measure**

- Number of Extension publications

<b>Year</b>	<b>Actual</b>
2017	5

**Output #5**

**Output Measure**

- Number of training programs

<b>Year</b>	<b>Actual</b>
2017	521

**Output #6**

**Output Measure**

- Number of farm demonstrations

<b>Year</b>	<b>Actual</b>
2017	24

**Output #7**

**Output Measure**

- Number of graduate students

<b>Year</b>	<b>Actual</b>
2017	1

**Output #8**

**Output Measure**

- Number of thesis

<b>Year</b>	<b>Actual</b>
2017	0

**Output #9**

**Output Measure**

- Number of dissertations

<b>Year</b>	<b>Actual</b>
2017	0

**Output #10**

**Output Measure**

- Number of SOW programs offered in 2017.

<b>Year</b>	<b>Actual</b>
2017	85

**Output #11**

**Output Measure**

- Pounds of produce donated from demonstration gardens.

<b>Year</b>	<b>Actual</b>
2017	33000

**Output #12**

**Output Measure**

- Number of cancer survivors learning to garden via Harvest for Health (a grant funded project).

<b>Year</b>	<b>Actual</b>
2017	49

**Output #13**

**Output Measure**

- Number of smart device downloads, "SOW - A Planting Companion"

<b>Year</b>	<b>Actual</b>
2017	3425

**Output #14**

**Output Measure**

- Number of surveys completed

<b>Year</b>	<b>Actual</b>
2017	153

**Output #15**

**Output Measure**

- Number of Beef Quality Assurance curricula developed for use by Alabama agriscience instructors

<b>Year</b>	<b>Actual</b>
2017	1

**Output #16**

**Output Measure**

- Number of Alabama residents receiving formal Food Animal Quality Assurance training and certification

<b>Year</b>	<b>Actual</b>
2017	6368

**Output #17**

**Output Measure**

- Number of educational trainings, advisory board meetings and marketing events

<b>Year</b>	<b>Actual</b>
2017	52

**Output #18**

**Output Measure**

- Number of contacts from 118 contact reports

<b>Year</b>	<b>Actual</b>
2017	6218

**Output #19**

**Output Measure**

- Number of activities of educational meetings, organizational advisory board meetings, marketing programming and stakeholder organizational meetings

<b>Year</b>	<b>Actual</b>
2017	53

**Output #20**

**Output Measure**

- Number of total participants

<b>Year</b>	<b>Actual</b>
2017	5664

**Output #21**

**Output Measure**

- Number of contacts from the Alabama BCIA website

<b>Year</b>	<b>Actual</b>
2017	4496

**Output #22**

**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>
2017	2733

**Output #23**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2017	4

**Output #24**

**Output Measure**

- Number of disadvantaged goat and beef producers reached

<b>Year</b>	<b>Actual</b>
2017	900

**Output #25**

**Output Measure**

- Number of Tuskegee Research and Extension demonstrations sites established

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<b>Year</b>	<b>Actual</b>
2017	24

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

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

O. No.	OUTCOME NAME
1	Number of food service workers receiving certification in food safety training
2	Number of participants with increased knowledge of alternate pest management strategies in home food gardens
3	Number of participants who adopt IPM principles
4	Number of people who start or enhance their own food gardens at home
5	Number of participants who adopt Good Agricultural Practices (GAP) for commercial food producers
6	Number of participants who adopt Good Handling Practices (GHP) for commercial food producers
7	Number of participants who increase knowledge of safe food systems practices
8	Number of participants who adopt safe food systems practices
9	Number of SOW participants who improved their knowledge of garden pests.
10	Number of SOW participants who improved their knowledge of protecting pollinators and other beneficial insects.
11	Number of SOW participants who adopted principles taught - using alternative pest management options.
12	Number of SOW participants who adopted principles taught - choosing adapted and/or resistant plant varieties.
13	Harvest increase at one demonstration garden due to changes in irrigation practice.
14	Number of Individuals that completed the home food preservation courses
15	Number of individuals that increase their knowledge of safe food systems practices
16	Number of participants that increased knowledge through training for selling eggs from backyard flocks.
17	Number of individuals Completing Training for Selling Cottage Foods in Alabama



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18	Number of individuals completing the Food Service Certification Course
19	Number of participants with increase knowledge in Basic Biology and Behavior of Bees
20	Percent of respondents who self ranked an increase in knowledge Understanding beehive components and related equipment.
21	Percent of respondents who increased knowledge in Honey bee diseases and pests and their control
22	Number of food animal producers committed to the goal of producing safe, wholesome meat products
23	Number of cattle producers who benefit from value-added marketing opportunity programs
24	Economic impact of value-added marketing as compared to conventional marketing channels
25	Increased revenue per feeder steer in value-added feeder calf marketing opportunities
26	Increase revenue per feeder heifer in value-added feeder calf marketing opportunities
27	Increase in revenue by participation in retained ownership marketing opportunity
28	Number of commercial and seedstock beef cattle producers committed to the goal to produce better beef and genetics
29	Number of participants engaged in record keeping to enhance herd production and efficiency
30	Number of participants impacted by marketing opportunities and superior genetic selection
31	Economic impact of marketing opportunities for superior genetic breeding animals
32	Average of increased revenue per 7 to 9 month bred replacement heifers from fall BCIA marketing opportunities
33	Average of increased revenue per 4 to 6 month bred replacement heifers marketed in fall BCIA marketing opportunities
34	Average of increased revenue per open replacement heifers marketed in winter BCIA marketing opportunities
35	% clientele that adopted recommended IPM practices.
36	\$ saved by grower clientele following Auburn Plant Diagnostic Lab recommendations.
37	Number of teachers who increased knowledge of aquaculture best practices

38	Number of schools implementing new aquaponics systems
39	Monetary value of instruction and resources received
40	TU: Number of disadvantaged producers constructed better cattle working facilities/infrastructure improvements.
41	TU: The number of research projects yielding increased knowledge in thermal stability of nano-sized cellulose fibrils
42	TU: Number of disadvantaged farmers supplying directly to grocery chain- Wal-Mart.
43	TU: Number of jobs created as a result of Tuskegee University Research and Extension Historically Disadvantaged and Limited-Resource Farmers Go Commercial
44	TU Number of cool-season forage species identified suitable to cultivate in southern-pine silvopasture systems for raising small ruminants.
45	TU: Number of warm season forage species suitable to cultivate in southern-pine silvopasture systems for raising small ruminants.
46	TU: Number of Black Belt participants who increased knowledge of on pasture improvement and sustainable grazing management
47	TU: Number of Black Belt residents who increased skills related to developing and managing agroforestry systems
48	TU Number of historically disadvantaged and limited resource livestock producers who increased skills on integrated approach for managing diseases and parasites:

**Outcome #1**

**1. Outcome Measures**

Number of food service workers receiving certification in food safety training

Not Reporting on this Outcome Measure

**Outcome #2**

**1. Outcome Measures**

Number of participants with increased knowledge of alternate pest management strategies in home food gardens

Not Reporting on this Outcome Measure

**Outcome #3**

**1. Outcome Measures**

Number of participants who adopt IPM principles

Not Reporting on this Outcome Measure

**Outcome #4**

**1. Outcome Measures**

Number of people who start or enhance their own food gardens at home

Not Reporting on this Outcome Measure

**Outcome #5**

**1. Outcome Measures**

Number of participants who adopt Good Agricultural Practices (GAP) for commercial food producers

Not Reporting on this Outcome Measure

**Outcome #6**

**1. Outcome Measures**

Number of participants who adopt Good Handling Practices (GHP) for commercial food producers

Not Reporting on this Outcome Measure

**Outcome #7**

**1. Outcome Measures**

Number of participants who increase knowledge of safe food systems practices

Not Reporting on this Outcome Measure

**Outcome #8**

**1. Outcome Measures**

Number of participants who adopt safe food systems practices

Not Reporting on this Outcome Measure

**Outcome #9**

**1. Outcome Measures**

Number of SOW participants who improved their knowledge of garden pests.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	635

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

**Issue (Who cares and Why)**

According to the National Gardening Assoc., 1 in 3 households grow food crops at home (~42 M). And while Alabama's climate allows an abundant growing season for many food crops, it also supports thriving disease and insect pest populations. Managing pests is then an integral part of learning to produce a worthwhile harvest. A lack of pest management knowledge, and the resulting harvest failure, is one reason why some new gardeners abandon the activity.

**What has been done**

Home Grounds agents supported demonstration gardens, and hosted workshops, webinars and other programs to show gardeners how to grow productive fruit and vegetable gardens at home. Based on one report, a 100ft<sup>2</sup> garden can yield 150#/year (Rabin, Zinati, PhD, and Nitzsche. Monthly Briefing from Rudgers, Sept 2012). Achieving this average in Alabama, and possibly higher production, only happens with good management of resources and pests.

**Results**

Participants in the SOW a Garden programs learned about pest ID, which is the first step in learning to manage them. 635 people (89%) improved their knowledge of garden pests.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
721	Insects and Other Pests Affecting Humans

#### Outcome #10

##### 1. Outcome Measures

Number of SOW participants who improved their knowledge of protecting pollinators and other beneficial insects.

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	600

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

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

According to the National Gardening Assoc., 1 in 3 households grow food crops at home (~42 M). And while Alabama's climate allows an abundant growing season for many food crops, it also supports thriving disease and insect pest populations. Managing pests is then an integral part of learning to produce a worthwhile harvest. At the same time, protecting beneficial insects is necessary for a garden harvest. SOW emphasizes the importance of knowing friend from foe.

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

Home Grounds agents supported demonstration gardens, and hosted workshops, webinars and other programs to show gardeners how to grow productive fruit and vegetable gardens at home. Based on one report, a 100ft<sup>2</sup> garden can yield 150#/year (Rabin, Zinati, PhD, and Nitzsche. Monthly Briefing from Rutgers, Sept 2012). Achieving this average in Alabama, and possibly higher production, only happens with good management of resources and pests.

###### **Results**

Participants in the SOW a Garden programs learned to ID beneficial insects and methods to protect them during pest management. 600 people (84%) improved their knowledge of pollinators and other beneficial insects.

#### 4. Associated Knowledge Areas

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

**Outcome #11**

**1. Outcome Measures**

Number of SOW participants who adopted principles taught - using alternative pest management options.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	485

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

**Issue (Who cares and Why)**

According to the National Gardening Assoc., 1 in 3 households grow food crops at home (~42 M). And while Alabama's climate allows an abundant growing season for many food crops, it also supports thriving disease and insect pest populations. Managing pests is then an integral part of learning to produce a worthwhile harvest. At the same time, protecting beneficial insects is necessary for a garden harvest. SOW emphasizes the importance of knowing friend from foe.

**What has been done**

Home Grounds agents supported demonstration gardens, and hosted workshops, webinars and other programs to show gardeners how to grow productive fruit and vegetable gardens at home. Based on one report, a 100ft<sup>2</sup> garden can yield 150#/year (Rabin, Zinati, PhD, and Nitzsche. Monthly Briefing from Rutgers, Sept 2012). Achieving this average in Alabama, and possibly higher production, only happens with good management of resources and pests.

**Results**

Of the SOW participants surveyed, 485 (68%) were using one or more of the alternative pest management strategies taught (exclusion devices such as row covers, planting time, soap/oil sprays, etc) during the program.

**4. Associated Knowledge Areas**

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

## **Outcome #12**

### **1. Outcome Measures**

Number of SOW participants who adopted principles taught - choosing adapted and/or resistant plant varieties.

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

- 1862 Extension

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

Change in Action Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2017	528

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

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

According to the National Gardening Assoc., 1 in 3 households grow food crops at home (~42 M). And while Alabama's climate allows an abundant growing season for many food crops, it also supports thriving disease and insect pest populations. Managing pests is then an integral part of learning to produce a worthwhile harvest. At the same time, protecting beneficial insects is necessary for a garden harvest. SOW emphasizes the importance of knowing friend from foe.

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

Home Grounds agents supported demonstration gardens, and hosted workshops, webinars and other programs to show gardeners how to grow productive fruit and vegetable gardens at home. Based on one report, a 100ft<sup>2</sup> garden can yield 150#/year (Rabin, Zinati, PhD, and Nitzsche. Monthly Briefing from Rutgers, Sept 2012). Achieving this average in Alabama, and possibly higher production, only happens with good management of resources and pests. One basic principle in pest management is prevention. Choosing plant varieties known to have resistance to the expected pests can short-cut time spent managing those pests.

#### **Results**

Of the SOW participants surveyed, 528 (74%) were using pest resistant plant varieties in their gardens as a result of attending our programs. "I planted Bella Rosa. They did really well." - "Thank you for the recommended nurseries"

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

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

**Outcome #13**

**1. Outcome Measures**

Harvest increase at one demonstration garden due to changes in irrigation practice.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	65

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

**Issue (Who cares and Why)**

Irrigation is necessary for most gardens to be consistently productive. A more traditional method for many home gardens is to apply over-head irrigation. Micro-irrigation, such as drip-tape, is more efficient with the water resource, protects soil quality, and reduces disease pest problems.

**What has been done**

A Home Grounds agent became involved with a long-standing volunteer project, a garden growing produce for the home-bound and elderly in their county. He recommended a way to both enhance the harvest and reduce disease problems - drip irrigation.

**Results**

Comparing the garden's annual harvest between two years, the previous having over-head irrigation and the current having drip irrigation, there was a 65% harvest increase. In the year using an over-head irrigation system, they harvested 129# of produce per inch of water applied (rain or irrigation). With drip irrigation used in year two, the annual harvest was 213# of produce per inch of water applied (rain or irrigation), a 65% increase. Continuing this demonstration to year three, one with excessive rainfall = 60inches, the garden harvest was still higher under drip irrigation (165#/inch water, or 28% more compared to the year with over-head irrigation). [Note: higher rainfall increases fungal disease pressure]

**4. Associated Knowledge Areas**

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



## **Outcome #14**

### **1. Outcome Measures**

Number of Individuals that completed the home food preservation courses

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

- 1862 Extension

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2017	2821

### **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 absence of air (anaerobic environment) and produce the deadly botulism toxin.

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

The Food Safety and Quality team taught a total of 104 Home Food Preservation classes to the general public. The attendance for the classes totaled 2,821 individuals. The classes taught pressure canning, water bath canning, freezing, fermenting, and drying.

#### **Results**

Of the 2,821 individuals attending the food preservation classes, only 150 completed the pre and post-test for the course. However, the pre and post-test only pertains to the canning classes. The freezing, fermentation and drying classes do not have an evaluation instrument. Of the attendees answering the questions concerning either pressure canning or water bath canning, 91 had done home food preservation before but 58 have never done home food preservation. When asked how many years they had been doing home food preservation most answered 5 years or less. When asked how much they processed last year, 79 stated none, indicating that many new individuals want to first gain knowledge about home food preservation. In the pre-test we had 60 stating that they water bath canned green beans while in the post-test 136 stated that they would now pressure can low acid canned foods. When asked if they water bath canned jellies and jams only 61 stated that they already did this and in the post-test, 139 stated that they would now water bath can these products. When asked if they used paraffin to seal jars of jelly, in the pre-test 19 answered that they still do this and in the post-test one still said they would do this.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

#### Outcome #15

##### 1. Outcome Measures

Number of individuals that increase their knowledge of safe food systems practices

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	20

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

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

From 1990 to 2005 there have been 47 cases of outbreaks nationally, 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 the current trend is 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 farmer's markets.

###### What has been done

A Farmer's Market Food Safety curriculum that was developed by the University of Georgia, Virginia Tech and North Carolina State University was purchase. The title of this program is, "Enhancing the Safety of Locally Grown Produce" and the Food Safety and Quality Team was trained to deliver this program.

###### Results

The Food Safety and Quality Team along with County Agent Coordinators and the Commercial Horticulture Team, delivered 20 programs throughout the state. A total of 1254 individuals attended the programs. Each attendee received a certificate of attendance that they can post at their farmer's market stand. The certificate, if displayed, will inform the consumer that these farmers have attended a food safety training course and are concerned about the safety of their produce.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

#### Outcome #16

##### 1. Outcome Measures

Number of participants that increased knowledge through training for selling eggs from backyard flocks.

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	109

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

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

In 2017, the CDC and multiple states investigated 10 separate multistate outbreaks of Salmonella infections in people who had contact with live poultry in backyard flocks. The outbreak strains of Salmonella infected a reported 1,120 people in 48 states and the District of Columbia. Illnesses started on dates ranging from January 4, 2017 to September 22, 2017. In the US 249 ill people were hospitalized. One death was reported from North Carolina. Illness was also reported in Alabama. As raising backyard flocks becomes more popular, more people are having contact with chickens and ducks. Therefore, through contact with hens more individuals can contract salmonella and other human pathogens.

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

Prior to these recent outbreaks, the Alabama Cooperative Extension System Food Safety Team foresaw the need to educate individuals, especially children, on how to handle shell eggs as well as their hens. Therefore, we developed an egg safety curriculum that was evaluated and approved through the Department of Agriculture and Industries and the Alabama Department of Public Health. This curriculum was introduced to the Food Safety and Quality Team at the Spring Program Priority Team Meeting. Also, tools such as egg scales and size charts were given to the agents.

###### **Results**

As a result of this program 109 individuals completed the training and received a certificate of completion.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

#### Outcome #17

##### 1. Outcome Measures

Number of individuals Completing Training for Selling Cottage Foods in Alabama

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	533

##### 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.

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

A total of 155 food safety cottage food law classes were taught and individuals from every county in Alabama attended these classes. Also, online training was developed to allow the individuals to review training videos and handouts for the cottage food law course. The individual could then schedule a time to take the exam at their convenience at a local county office.

###### **Results**

A total of 533 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 that 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 this amount then the

economic gain for the state of Alabama would be over 10.7 million dollars. However, we completed a survey of the individuals that were certified since the beginning of the law in 2014 and of those that completed the survey only half of them have actually sold products. The actual income from their reporting of sales averaged \$5,000. Although the individuals have not exercised the full potential to the law, food safety principles were conveyed to many households that would not have simply attended a workshop for food safety in the home.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
723	Hazards to Human Health and Safety

#### Outcome #18

##### 1. Outcome Measures

Number of individuals completing the Food Service Certification Course

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	1479

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

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

The CDC estimates that 1 in 6 Americans get sick yearly with foodborne illnesses. Not only is there 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." The CDC estimates that around 60% of these illnesses are associated with food service establishments. Therefore, food safety training for food service workers is critical to reducing foodborne illnesses in the United States. As Americans eat more and more meals away from home this number stands to increase.

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

A total of 176 food safety certification classes for food service workers were taught and held in all 67 counties in Alabama with a total of 1,479 participants.

###### **Results**

A total of 1,479 food service workers completed the certified food safety training. After the completion of the rigorous exam, 1,148 passed. This is a passage rate of only 78% which is up from a passage rate of 70% in the previous year. This is a reflection of the seriousness of the trainers to work harder to teach the participants the food safety principles. 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, 45% of them failed the exam. There appears to be a great need to assist individuals with reading comprehension skills. When race was considered, 28% of the African American food service workers failed the exam while only 12% of the Caucasian food service workers failed. Hispanics also had a higher failure rate with 41% and those indicating Asian, 27% failed. This may be related to the lack of our staff not being able to speak those individual languages. Although, we have books and the exam in their given languages, our ability to assist them is limited. Years of working in a food service facility did not tend to increase the ability of the individuals to pass the exam.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
504	Home and Commercial Food Service

**Outcome #19**

**1. Outcome Measures**

Number of participants with increase knowledge in Basic Biology and Behavior of Bees

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	69

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

**Issue (Who cares and Why)**

Address issue of basic bee biology

**What has been done**

Class on topic covering the following:

Biology and behavior of honey bees

- a. Nomenclature of the honey bees and other common bees
- b. Social structure (caste system) of the honey bees
- c. Life cycles of the three castes: worker bees, drones, and queens
- d. Honey bee communication behaviors
- e. Nest biology, including reproductive swarming
- f. Pollen collection and pollination

### Results

Honeybee biology knowledge level before and after the program:

Before: 30% Very Low, 46% low, 15% medium, 8% fairly high, 0% high

After: 0% Very Low, 0% low, 23% medium, 54% fairly high, 23% high

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
305	Animal Physiological Processes

### Outcome #20

#### 1. Outcome Measures

Percent of respondents who self ranked an increase in knowledge Understanding beehive components and related equipment.

#### 2. Associated Institution Types

- 1862 Extension

#### 3a. Outcome Type:

Change in Knowledge Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2017	77

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

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

Address issue of beehive components and related equipment.

##### What has been done

Class on topic covering the following:

Beehive components and related equipment

- a. An overview of the historical development of beekeeping and related equipment
- b. Aspects of hive components and function (e.g. bottom boards, brood bodies, supers, outer covers)
- c. Smoker and hive tool uses
- d. Protective personal clothing

**Results**

Knowledge level before and after class on beekeeping equipment.

Before: 8% Very low, 46% low, 31% medium, 8% fairly high, 8% high

After: 0% Very low, 0% low, 8% medium, 62% fairly high, 31% high

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
307	Animal Management Systems

**Outcome #21**

**1. Outcome Measures**

Percent of respondents who increased knowledge in Honey bee diseases and pests and their control

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	76

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

**Issue (Who cares and Why)**

Address issue of bee pest management.

**What has been done**

Class was conducted to cover the following topics:

Honey bee diseases and pests and their control



- a. Bacterial infections
- b. Viral infections
- c. Fungal infections
- d. Mite predation
- e. Insect and Arachnid pests
- f. Pesticide damage both inside and outside the hive
- g. Related maladies such as Colony Collapse Disorder (CCD)
- h. Animal pests

**Results**

Knowledge level before and after class on bee pest and management:

Before: 25% Very low, 50% low, 17% medium, 8% fairly high, 0% high  
After: 0% Very low, 0% low, 15% medium, 69% fairly high, 15% high

**4. Associated Knowledge Areas**

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

**Outcome #22**

**1. Outcome Measures**

Number of food animal producers committed to the goal of producing safe, wholesome meat products

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	6368

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

**Issue (Who cares and Why)**

Food Animal Quality Assurance programs instill a positive public image of animal agriculture and assures consumer confidence in the meat industry. When food animal producers voluntarily implement Quality Assurance recommended practices, they assure their animals and the meat they produce are the best they can be. When better quality meat reaches the supermarket, consumers are more confident in the meat they are buying, which in turn encourages meat consumption for a healthy lifestyle.

### **What has been done**

A total of 46 face-to-face Food Animal Quality Assurance training programs, including 24 on-farm demonstrations, were conducted throughout Alabama at outlying Research and Extension Centers. In addition, six presentations involving Food Animal Quality Assurance provided continuing education credits for southeastern food animal veterinarians. For those unable to attend a face-to-face meeting, 27 publications focused on issues related to food animal quality assurance, and online food animal quality assurance training and certification was also available in English and Spanish.

### **Results**

The 2017 Food Animal Quality Assurance program provided formal Food Animal Quality Assurance training and certification for 6,368 Alabama residents. To achieve this, the Food Animal Quality Assurance program offered on-farm demonstrations, classroom training, continuing education credits for veterinarians, and online training to reach a wide audience. Educational topics and/or hands-on training included, but were not limited to effective parasite control, safe animal handling, vaccinations, herd health guidelines, humane euthanasia of livestock, the proper use of feed additives and medications, record keeping, administration of animal health products, calf management, culling, and calf weaning and preconditioning.

## **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
311	Animal Diseases

## **Outcome #23**

### **1. Outcome Measures**

Number of cattle producers who benefit from value-added marketing opportunity programs

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

- 1862 Extension

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

Change in Action Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2017	222

### **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 and the retained ownership program, 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. Three marketing events within BCIA were also held to market bulls, bred and open replacement heifers. Sixteen individual beef operations participated in the opportunity of retained ownership through educational programming. Fifty-two activities of educational trainings, advisory board meetings, valued-added marketing events, farm visits, and demonstrations totaled to 6,218 contacts for 118 contact reports.

**Results**

Two hundred twenty-two individuals were impacted by opportunities for value-added livestock marketing. Forty-one Alabama beef operations are represented in utilizing the opportunities for value-added feeder calf marketing in these 3 highlighted feeder calf marketing events. Overall for 2017 breeding animal marketing events, a total of 165 beef cattle operations were impacted by value-added marketing opportunities and superior genetic selection. Sixteen individual beef operations participated in the opportunity of retained ownership through educational programming.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
307	Animal Management Systems

**Outcome #24**

**1. Outcome Measures**

Economic impact of value-added marketing as compared to conventional marketing channels

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition 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)

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 and the retained ownership program, 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. Three marketing events within BCIA were also held to market bulls, bred and open replacement heifers. Sixteen individual beef operations participated in the opportunity of retained ownership through educational programming. Fifty-two activities of educational trainings, advisory board meetings, valued-added marketing events, farm visits, and demonstrations totaled to 6,218 contacts for 118 contact reports.

#### Results

Total economic impact of value-added livestock marketing opportunities equaled to \$6,541,992.51. Economic impact of 3 highlighted value-added feeder calf marketing events represented 5,910 head of Alabama bred and raised feeder calves worth \$5,324,133.12. For breeding animal marketing events, an economic impact of \$1,040,325.00 from 548 head marketed. Retained ownership marketing opportunities represented 208 Alabama bred and raised feeder calves worth \$177,534.51 at the time of harvest.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

#### Outcome #25

##### 1. Outcome Measures

Increased revenue per feeder steer in value-added feeder calf marketing opportunities

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Condition Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2017	104

### 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 and the retained ownership program, 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. Three marketing events within BCIA were also held to market bulls, bred and open replacement heifers. Sixteen individual beef operations participated in the opportunity of retained ownership through educational programming. Fifty-two activities of educational training, advisory board meetings, valued-added marketing events, farm visits, and demonstrations totaled to 6,218 contacts for 118 contact reports.

#### Results

By producers utilizing proper management and health protocols, participating beef operations realized an increased revenue of \$104.56 per steer on average, with an increased price per hundred pounds of \$14.82 for steers by marketing in these marketing events over weekly livestock auction sales, as reported in the USDA Alabama Weekly Summary Report for the same respective time period. Forty-one Alabama beef cattle operations are represented in 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 #26

##### 1. Outcome Measures

Increase revenue per feeder heifer in value-added feeder calf marketing opportunities

##### 2. Associated Institution Types

- 1862 Extension

### 3a. Outcome Type:

Change in Condition Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2017	118

### 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 and the retained ownership program, 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. Three marketing events within BCIA were also held to market bulls, bred and open replacement heifers. Sixteen individual beef operations participated in the opportunity of retained ownership through educational programming. Fifty-two activities of educational training, advisory board meetings, value-added marketing events, farm visits, and demonstrations totaled to 6,218 contacts for 118 contact reports.

#### Results

By producers utilizing proper management and health protocols, participating beef operations realized an increased revenue of \$118.64 per feeder heifer on average, with an increased price per hundred pounds of \$17.80 for feeder heifers by marketing in these marketing events over weekly livestock auction sales, as reported in the USDA Alabama Weekly Summary Report for the same respective time period. Forty-one Alabama beef cattle operations are represented in 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 #27**

**1. Outcome Measures**

Increase in revenue by participation in retained ownership marketing opportunity

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	28744

**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 and the retained ownership program, 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. Three marketing events within BCIA were also held to market bulls, bred and open replacement heifers. Sixteen individual beef operations participated in the opportunity of retained ownership through educational programming. Fifty-two activities of educational trainings, advisory board meetings, valued-added marketing events, farm visits, and demonstrations totaled to 6,218 contacts for 118 contact reports.

**Results**

The increase in total revenue for participating Alabama beef operations in retained ownership marketing opportunities resulted in \$28,744.97. Two hundred eight feeder calves were assigned a USDA muscle and frame score and current market value based on USDA market report prices for the respective time period, plus \$5.00 per hundred pounds to account for pre-conditioning value, which is a requirement of participation in the retained ownership program. The total assigned value of the calves at the time of shipment from Alabama was \$148,789.54. The total market value at the respective time of harvest resulted in \$177,534.51.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

#### Outcome #28

##### 1. Outcome Measures

Number of commercial and seedstock beef cattle producers committed to the goal to produce better beef and genetics

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	287

##### 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-nine educational meetings, including county, regional and statewide meetings, workshops and field days, were held. Eleven organizational advisory board meetings, 8 reports associated with marketing events and 3 stakeholder organizational meetings were held or attended. From bull evaluations and other marketing events, an economic impact of \$1,040,325 from 548 head marketed for 60 participants to 105 buyers. The 2015-16 state data included the processing of 35 total herds for a state average adjusted weaning weight of 576 lbs. from 3,268 calves. A total of 44 herds are currently enrolled in the BCIA commercial record keeping program for the 2016-17 calf data, with 9 new herds added in 2017.

###### **Results**

The 2017-18 BCIA membership results in 287 total members, consisting of 125 commercial members (51 with 1 to 50 head and 74 with over 50 head), 76 purebred members, 65 commercial and purebred members, 18 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 #29

##### 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
2017	35

##### 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 gained.

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

Twenty-nine educational meetings were held, 11 organizational advisory board meetings and 3 stakeholder organizational meetings were held or attended. Three marketing events within BCIA were also held to market bulls and bred and open heifers. The BCIA Record Keeping Program 2015-16 state data included the processing of 35 total herds.

###### **Results**

Tabulated 2015-16 state data included the processing of 35 total herds for a state average weaning weight of 576 lbs. from 3,268 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

KA Code	Knowledge Area
307	Animal Management Systems

#### Outcome #30

##### 1. Outcome Measures

Number of participants impacted by marketing opportunities and superior genetic selection

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	165

##### 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-nine educational meetings were held, 11 organizational advisory board meetings and 3 stakeholder organizational meetings were held or attended. Three marketing events within BCIA were also held to market bulls and bred and open heifers. The BCIA Record Keeping Program 2015-16 state data included the processing of 35 total herds.

###### **Results**

Overall for 2017 sale events, a total of 165 beef cattle operations were impacted by marketing opportunities and superior genetic selection for an economic impact of \$1,040,325 from 548 head marketed for 60 participants to 105 buyers. Through breeding animal marketing events, 107 bulls were marketed through 2017 BCIA events for an overall gross of \$379,900 with an average price per bull of \$2,616. Bulls were sold by 30 different participants to 40 different buyers. Three hundred seventy-five bred heifers were marketed for an overall gross of \$690,100 with an average price per bred heifer of \$1,840. Bred heifers were sold by 23 different participants to 30 different buyers. Sixty-six open heifers were marketed for an overall gross of \$70,325 with an average price per open heifer of \$1,066. Open heifers were sold by 27 different participants to 15

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.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
307	Animal Management Systems

**Outcome #31**

**1. Outcome Measures**

Economic impact of marketing opportunities for superior genetic breeding animals

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	1040325

**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-nine educational meetings were held, 11 organizational advisory board meetings and 3 stakeholder organizational meetings were held or attended. Three marketing events within BCIA were also held to market bulls and bred and open heifers. The BCIA Record Keeping Program 2015-16 state data included the processing of 35 total herds.

**Results**

Overall for 2017 sale events, an economic impact of \$1,040,325 from 548 head marketed for 60 participants to 105 buyers. Through breeding animal marketing events, 107 bulls were marketed through 2017 BCIA events for an overall gross of \$379,900 with an average price per bull of \$2,616. Bulls were sold by 30 different participants to 40 different buyers. Three hundred seventy-five bred heifers were marketed for an overall gross of \$690,100 with an average price per bred

heifer of \$1,840. Bred heifers were sold by 23 different participants to 30 different buyers. Sixty-six open heifers were marketed for an overall gross of \$70,325 with an average price per open heifer of \$1,066. Open heifers were sold by 27 different participants to 15 different buyers.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
307	Animal Management Systems

**Outcome #32**

**1. Outcome Measures**

Average of increased revenue per 7 to 9 month bred replacement heifers 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>
2017	539

**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-nine educational meetings were held, 11 organizational advisory board meetings and 3 stakeholder organizational meetings were held or attended. Three marketing events within BCIA were also held to market bulls and bred and open heifers. The BCIA Record Keeping Program 2015-16 state data included the processing of 35 total herds.

**Results**

Replacement heifers bred from 7 to 9 months marketed in the fall BCIA marketing event reflected an increased per head revenue on average of \$539.00 as compared to the USDA Alabama Weekly Livestock Summary Report for the same time period.

**4. Associated Knowledge Areas**

**KA Code**    **Knowledge Area**  
307            Animal Management Systems

**Outcome #33**

**1. Outcome Measures**

Average of increased revenue per 4 to 6 month bred replacement heifers marketed in 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>
2017	393

**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-nine educational meetings were held, 11 organizational advisory board meetings and 3 stakeholder organizational meetings were held or attended. Three marketing events within BCIA were also held to market bulls and bred and open heifers. The BCIA Record Keeping Program 2015-16 state data included the processing of 35 total herds.

**Results**

Replacement heifers bred from 4 to 6 months marketed in the fall BCIA marketing event reflected an increased per head revenue on average of \$393.00 as compared to the USDA Alabama Weekly Livestock Summary Report for the same time period.

**4. Associated Knowledge Areas**

**KA Code**    **Knowledge Area**  
307            Animal Management Systems

**Outcome #34**

**1. Outcome Measures**

Average of increased revenue per open replacement heifers marketed in winter 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>
2017	117

**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-nine educational meetings were held, 11 organizational advisory board meetings and 3 stakeholder organizational meetings were held or attended. Three marketing events within BCIA were also held to market bulls and bred and open heifers. The BCIA Record Keeping Program 2015-16 state data included the processing of 35 total herds.

**Results**

Open replacement heifers marketed in the winter BCIA marketing event reflected an increased per head revenue on average of \$117.00 as compared to the 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 #35**

**1. Outcome Measures**

% clientele that adopted recommended IPM practices.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	86

**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, Ag Crops, and Home Ground 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 1,446 routine plant samples for diagnosis/identification and 1,287 nematode samples, not including survey sample. All samples were followed up with control (or prevention) recommendations 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**

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

205	Plant Management Systems
216	Integrated Pest Management Systems

### **Outcome #36**

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

\$ saved by grower clientele following Auburn Plant Diagnostic Lab recommendations.

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

- 1862 Extension

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

Change in Condition Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2017	62450

#### **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**

Timely and accurate diagnoses are provided to growers dealing with disease/insect/plant disorders. Appropriate IPM recommendations can be provided once a pest has been identified. Growers can ultimately prevent economic yield loss from their diagnosis.

##### **Results**

During annual survey of 1% plant sample clientele, clients are also asked if IPM recommendations provided by lab personnel saved them \$ and how much. Success stories are provided from these specific growers, including savings of an estimated \$62,450 with the cooperative help of ACES REAs, Specialists, and Diagnostic Labs.



#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
216	Integrated Pest Management Systems

#### Outcome #37

##### 1. Outcome Measures

Number of teachers who increased knowledge of aquaculture best practices

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	0

##### 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

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

**Results**

23 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 17% increase in knowledge.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
205	Plant Management Systems
307	Animal Management Systems

**Outcome #38**

**1. Outcome Measures**

Number of schools implementing new aquaponics systems

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	12

**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: "I feel that the students will be able to have a more in-depth knowledge of aquaponics units starting earlier due to this information. Another noted, "The information will be helpful to students through a well trained teacher."

**Results**

As a result of the workshop and the materials supplied 12 schools have implemented new aquaponics systems at their schools to use as a platform to teach math, science and agriculture. Teachers from the workshop commented: "I plan to implement this information into my daily lesson plans for instance zoology and environmental science" - "One of the more difficult things is to help my students realize is the very intimate relationship between animals and plants. This includes the commercial aspects of both. This system provides an awesome way to make a connection." and "A fantastic real life holistic/crops=discipline approach to biology and other life sciences."

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
205	Plant Management Systems
307	Animal Management Systems

**Outcome #39**

**1. Outcome Measures**

Monetary value of instruction and resources received

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	20001

**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: "I feel that the students will be able to have a more in-depth knowledge of aquaponics units starting

earlier due to this information. Another noted, "The information will be helpful to students through a well trained teacher."

**Results**

At the 5-day intensive Aquaponics/Aquaculture 101 hands-on workshop for teachers we provided the teachers with a variety of printed and digital resources. In addition to the informational resources the teachers also built small aquaponics systems that they could take back to the schools. In the exit survey we asked teachers to place a monetary value on the resources that they had received at the workshop. Taking the average of the 23 responses equaled \$896.59.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
205	Plant Management Systems
307	Animal Management Systems

**Outcome #40**

**1. Outcome Measures**

TU: Number of disadvantaged of producers constructed better cattle working facilities/infrastructure improvements.

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	110

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

**Issue (Who cares and Why)**

Beef cattle production is a very important source of supplemental income for many limited resource farm families within the Black Belt counties and across the state of Alabama. However, beef cattle production has become very risky for all cattle producers due to the increases in production costs. Many producers have begun to diversify limited resource farms by incorporating

meat goats into their production systems in efforts to increase farm income through the sale of meat goats at least twice a year. However, both species of livestock (cattle and goats) share many of the same production problems including poor nutrition, parasites, health care, and the lack of marketing diversification. These production management issues are costing livestock producers millions of dollars annually in profit from the sale of calves and goats.

**What has been done**

In efforts to assist beef and meat goat producers with production and marketing concerns, the Tuskegee University Agriculture Research, Extension and Outreach programs in partnership with the School of Veterinary Medicine conducted educational programs and assisted small producers in 2016 and 2017 with production problems. Approximately nine hundred (900) contacts made with small scale beef and goat producers through farm and home visits, newsletters, workshops, and field days. Extension and Research has also established Twenty-four (24) research and demonstration sites within the Black Belt and surrounding counties to further teach and demonstrate sound management practices for goat producers in efforts to create alternative nutrition, herd health and marketing strategies for quality goat meat and by-products.

**Results**

Tuskegee Research and Extension-Out of 352 producers that were engaged: 110 producers constructed better cattle working facilities/infrastructure improvements.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
307	Animal Management Systems

**Outcome #41**

**1. Outcome Measures**

TU: The number of research projects yielding increased knowledge in thermal stability of nano-sized cellulose fibrils

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	1

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

**Issue (Who cares and Why)**

Biomass waste utilization from residual crops is very limited and not a value-added. Economical value of biomass from residual crops is relatively very low. Chemicals used in isolation process is not environmentally safe and corrosive in metal. Alternative sustainable methods are needed. Properties of bio-polymeric components from biomass is not clearly determined. Residual crops are potential to be used as value-added products.

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

During the project report period, ultrasonic isolation technique was introduced and investigated as alternative chemical treatment.

Yield and purity of bio-polymeric components from biomass is measured.

Thermal stability of nano-sized cellulose fibrils are investigated.

#### **Results**

Tuskegee Research and Extension Cellulosic materials (cellulose, lignin, and hemicellulose) were extracted from potential biomasses and purified by multiple steps with chemical treatments and centrifugation.

These micro-cellulosic materials could be applied to food packaging systems in various purposes. Additional research was carried out to develop optimal isolation process to increase the yield and purity of cellulose nano fibrils from biomass.

And as an alternative chemical method, ultrasonic treatment was introduced: From the X-ray diffraction analysis, it is showed that crystallinity of bio-materials was increased by ultrasonic treatment compared to sample without ultrasonic treatment. From the results, it is thought that the extracted cellulose nano fibrils could be applied in value-added food packaging systems.

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

<b>KA Code</b>	<b>Knowledge Area</b>
205	Plant Management Systems

#### **Outcome #42**

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

TU: Number of disadvantaged farmers supplying directly to grocery chain- Wal-Mart.

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

- 1890 Extension
- 1890 Research

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

Change in Condition Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2017	1

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

A "small" farm is defined by USDA to be one with revenues up to \$250,000; however, many small, historically disadvantaged, or limited-resource farms in the Southeastern U.S. make significantly less. Most of these farms are diversified, typically including some livestock and produce, and rarely raise commodity crops. Those farmers who grow produce have ready access to small local markets such as on-farm sales, farmers markets, and local groceries. In fact, these farmers are integral to providing healthy, fresh fruits and vegetables to the rural communities that they serve.

#### What has been done

Tuskegee University Agriculture Research, Extension and Outreach programs began, in 2011, a research-outreach effort to determine how small, historically disadvantaged, and limited-resource farmers could be integrated into the supplier pool of a large commercial buyer. Tuskegee helped the group of farmers to: form the Small Farmer Agricultural Cooperative; negotiate agreements with Wal-Mart and each other, and; obtain production equipment and supplies and wells, access to transportation and refrigeration units, and training and technical assistance on commercial-level harvesting and grading, packing and processing, food safety, integrated pest management, and record keeping.

#### Results

Tuskegee University Research and Extension: As a result of this initiative to aggregate these small farmers' produce, one "graduated" to supplying Walmart directly.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
504	Home and Commercial Food Service
607	Consumer Economics

### Outcome #43

#### 1. Outcome Measures

TU: Number of jobs created as a result of Tuskegee University Research and Extension Historically Disadvantaged and Limited-Resource Farmers Go Commercial

#### 2. Associated Institution Types



- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	350

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

**Issue (Who cares and Why)**

A "small" farm is defined by USDA to be one with revenues up to \$250,000; however, many small, historically disadvantaged, or limited-resource farms in the Southeastern U.S. make significantly less. Most of these farms are diversified, typically including some livestock and produce, and rarely raise commodity crops. However, few have access to large, regional commercial markets, which would provide a larger and more stable demand that would potentially provide increased revenues and enhanced sustainability for these farmers, and still allow them to serve their local communities.

**What has been done**

Tuskegee University Agriculture Research, Extension and Outreach programs began, in 2011, a research-outreach effort to determine how small, historically disadvantaged, and limited-resource farmers could be integrated into the supplier pool of a large commercial buyer. Tuskegee helped the group of farmers to: form the Small Farmer Agricultural Cooperative; negotiate agreements with Wal-Mart and each other, and; obtain production equipment and supplies and wells, access to transportation and refrigeration units, and training and technical assistance on commercial-level harvesting and grading, packing and processing, food safety, integrated pest management, and record keeping.

**Results**

impacts to the rural community, additional income from the effort contributed to local agricultural business such as feed/seed/agricultural supply stores. It is estimated that around 350 jobs, full and part-time seasonal, were created over the life of the program.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
205	Plant Management Systems
503	Quality Maintenance in Storing and Marketing Food Products
504	Home and Commercial Food Service
607	Consumer Economics

**Outcome #44**

**1. Outcome Measures**

TU Number of cool-season forage species identified suitable to cultivate in southern-pine silvopasture systems for raising small ruminants.

**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>
2017	8

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

**Issue (Who cares and Why)**

Ruminant livestock production in Alabama is based on pastures and grazing. Highly productive and quality pastures persisting throughout a year or most of the year is important for profitable livestock enterprises. However, most small and limited resource farmers are still lacking good pastures and grazing lands to sustain their animals throughout a year. Research and research-based education are needed to improve this situation.

**What has been done**

Research conducted to identify suitable forages and browse species to incorporate into the grazing systems of small ruminants and sustainable utilization of pastures, silvopastures, and woodlands for expanding grazing opportunity for animals. Research findings were shared with the target audience through training sessions, field days, site tours, and demonstrations.

**Results**

Tuskegee Research and Extension identified eight different cool-season forage species [Marshall ryegrass, rye, MaxQ tall fescue, arrowleaf clover, crimson clover, white clover, hairy vetch, and chicory suitable to cultivate in southern-pine silvopasture systems for raising small ruminants.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems

## **Outcome #45**

### **1. Outcome Measures**

TU: Number of warm season forage species suitable to cultivate in southern-pine silvopasture systems for raising small ruminants.

### **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>
2017	5

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

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

Ruminant livestock production in Alabama is based on pastures and grazing. Highly productive and quality pastures persisting throughout a year or most of the year is important for profitable livestock enterprises. However, most small and limited resource farmers are still lacking good pastures and grazing lands to sustain their animals throughout a year. Research and research-based education are needed to improve this situation.

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

Research conducted on browse species [mimosa (*Albizia julibrissin* Durazz.), white lead tree (*Leucaena leucocephala* Lam.), bush indigo (*Amorpha fruticosa* L.), and mulberry (*Morus alba* L.)] showed that bush indigo was the hardiest species among the four species studied to the potential damage from Kiko wethers and Katahdin rams. Mulberry and mimosa were susceptible to animals? damage; they may require limit grazing.

#### **Results**

Tuskegee Research and Extension identified five warm-season species [sericea lespedeza (*Lespedeza cuneata* Dum. Cours.), bahiagrass (*Paspalum notatum* Flueggé), bermudagrass (*Cynodon dactylon* L.), large crabgrass (*Digitaria sanguinalis* L.), and browntop millet (*Urochloa ramosa* (L.) Nguyen)] suitable to cultivate in southern-pine silvopasture systems for raising small ruminants.

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

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

**Outcome #46**

**1. Outcome Measures**

TU: Number of Black Belt participants who increased knowledge of on pasture improvement and sustainable grazing management

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	118

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

**Issue (Who cares and Why)**

Ruminant livestock production in Alabama is based on pastures and grazing. Highly productive and quality pastures persisting throughout a year or most of the year is important for profitable livestock enterprises. However, most small and limited resource farmers are still lacking good pastures and grazing lands to sustain their animals throughout a year. Research and research-based education are needed to improve this situation.

**What has been done**

Four educational events conducted to educate the target audience (Historically disadvantaged and limited resource livestock producers in Alabama, especially Black Belt Region) on improving pastures and utilizing them with sustainable grazing management, increase the diet variety along with quality and quantity, and grazing opportunity by incorporating browse species into the grazing system and developing woodland grazing and silvopasture systems.

**Results**

Participants increased knowledge and skills on pasture improvement and sustainable grazing management: soil test, application of recommended lime and fertilizers, suitable legume and grass species, rotational grazing, resting and grazing period, grazing height, stocking rate based on available forage biomass, and forage quality

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
205	Plant Management Systems

**Outcome #47**

**1. Outcome Measures**

TU: Number of Black Belt residents who increased skills related to developing and managing agroforestry systems

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	32

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

**Issue (Who cares and Why)**

Ruminant livestock production in Alabama is based on pastures and grazing. Highly productive and quality pastures persisting throughout a year or most of the year is important for profitable livestock enterprises. However, most small and limited resource farmers are still lacking good pastures and grazing lands to sustain their animals throughout a year. Research and research-based education are needed to improve this situation.

**What has been done**

Four educational events conducted to educate the target audience (Historically disadvantaged and limited resource livestock producers in Alabama, especially Black Belt Region) on improving pastures and utilizing them with sustainable grazing management, increase the diet variety along with quality and quantity, and grazing opportunity by incorporating browse species into the grazing system and developing woodland grazing and silvopasture systems.

**Results**

Tuskegee Research and Extension: Participants gained skills on developing and managing agroforestry systems, such as design, soil test, tree management, forage cultivation, animal selection, grazing management and facilities, and mushroom production.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
---------	----------------

102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
216	Integrated Pest Management Systems

## **Outcome #48**

### **1. Outcome Measures**

TU Number of historically disadvantaged and limited resource livestock producers who increased skills on integrated approach for managing diseases and parasites:

### **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>
2017	71

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

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

Conventional method of parasite control using chemical de-wormers is ineffective, especially to control the barber pole worm, a most significant parasite causing a huge loss in small ruminant industry, as this worm is becoming resistant to most chemical dewormers available in the market. Moreover, external parasites, infectious and other diseases, including zoonoses, are crucial in the health and well-being of small ruminants. Producers and professionals must know all these health problems and be able to prevent them.

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

Three educational events conducted for historically disadvantaged and limited resource livestock producers in Alabama, especially Black Belt Region) on the integrated approach for managing diseases and parasites: use of FAMACHA; smart drenching; grazing management; using browse, woodlands, and tannin containing plants and feeds; animal selection; nutrition; general prevention and control strategies of common diseases and parasites. Research conducted to identify suitable browse species and sustainable use of woodlands for expanding grazing opportunity and promote animal health.

#### **Results**

Tuskegee Research and Extension Seventy-one participants increased skills on integrated approach for managing diseases and parasites: use of FAMACHA; smart drenching; grazing

management; using browse, woodlands, and tannin containing plants and feeds; animal selection; nutrition; general prevention and control strategies of common diseases and parasites. They rated presented topics very useful (4.7/5.0) and applicable (4.6/5.0), and would benefit them greatly if applied (4.2/5.0).

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
307	Animal Management Systems
311	Animal Diseases

#### 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

**Animal Production Efficiency** - Four farmers reported an increase in weaning as a result of improving in pasture and forage management, corrected stocking rates and cattle overall health management, some culling and replacing and improving genetic both broods cows and bulls. On an average, weaning weight increased by 90+ pounds. **Historically Disadvantaged Farmers Go Commercial**- 20 to 30 farms supplied one or more of five crops--watermelon, collard and other leafy greens, southern peas, yellow and zucchini squash, and eggplant--to Wal-Mart through the Cooperative. These sales represented over \$2 million in revenues over the 2012 to 2016 seasons, the estimated revenues between all participating farmers was about \$750,000.

**AU Food System Institute:** The projects resulted in increased awareness and knowledge about foodborne illnesses and food safety and food production systems among stakeholders and other researchers. **AU Heifer Reproduction Research:** This research program resulted in increased awareness and knowledge about pregnancy and conception in beef cattle among stakeholders and other researchers. **AU Animal Diseases and Antimicrobials Research:** This research program has resulted in increased awareness and knowledge about animal disease and potential alternatives to traditional antimicrobials in the food system.

**Serv Safe** The Food Safety and Quality Team trained 1,479 food service workers throughout the State of Alabama. 1153 of the participants passed this rigorous exam.

**Reduction of antimicrobial resistance in poultry product production utilizing probiotics** Salmonella heidelberg was incubated in vitro singularly and with probiotics. Several probiotics were able to inhibit pathogen growth in vitro. In vivo research is being conducted and viability will be reported from excreta.

**Food Safety of Aquaponic Products** Despite these massive fish mortalities, which have delayed our experiments, we have been successful in formulating a fish food from canola and insects.

**BCIA-** For 2017 sale events, an economic impact of \$1,040,325 from 548 head marketed for 60 participants to 105 buyers. For 2017 replacement heifer sales, bred heifers 7 to 9 months bred marketed in the fall BCIA marketing event, an average increased per head revenue of \$539 per head was realized as compared to weekly livestock reports for the same time period. Bred heifers 4 to 6 months bred also marketed in the fall BCIA marketing event, an average increased per head revenue of \$393 per head was realized. For open replacement heifers marketed in the winter marketing event an average increased per head revenue of \$117 was realized as compared to weekly livestock reports for the same time period.

## Key Items of Evaluation

**Animal Production Efficiency** - Four farmers reported an increase in weaning as a result of improving in pasture and forage management, corrected stocking rates and cattle overall health management, some culling and replacing and improving genetic both broods cows and bulls. On an average, weaning weight increased by 90+ pounds. **Historically Disadvantaged Farmers Go Commercial-** 20 to 30 farms supplied one or more of five crops--watermelon, collard and other leafy greens, southern peas, yellow and zucchini squash, and eggplant--to Wal-Mart through the Cooperative. These sales represented over \$2 million in revenues over the 2012 to 2016 seasons, the estimated revenues between all participating farmers was about \$750,000.

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**Reduction of antimicrobial resistance in poultry product production utilizing probiotics** Salmonella heidelberg was incubated in vitro singularly and with probiotics. Several probiotics were able to inhibit pathogen growth in vitro. In vivo research is being conducted and viability will be reported from excreta. Two regional poultry production partners are very interested in the nutrition and feeding to reduce gut



pathogen load.

**Food Safety of Aquaponic Products** Despite these massive fish mortalities, which have delayed our experiments, we have been successful in formulating a fish food from canola and insects.

**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%	0%	15%
702	Requirements and Function of Nutrients and Other Food Components	0%	0%	2%	15%
703	Nutrition Education and Behavior	50%	40%	0%	13%
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	0%	0%	7%	5%
724	Healthy Lifestyle	5%	30%	16%	15%
802	Human Development and Family Well-Being	0%	0%	24%	7%
805	Community Institutions, Health, and Social Services	0%	0%	0%	5%
806	Youth Development	0%	0%	3%	20%
903	Communication, Education, and Information Delivery	5%	10%	48%	5%
	<b>Total</b>	100%	100%	100%	100%

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

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	70.3	11.9	25.0	7.0
<b>Actual Paid</b>	80.3	14.8	4.6	6.6
<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
1496605	0	126156	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1372524	0	116338	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
14519310	0	1238756	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	267634	0	307297
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	267634	0	161329
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	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	496092	0	401049
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	441708	0	366600
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**

**Human Nutrition, Well-being, Health and Obesity** Teaching and personal counseling sessions have been conducted with Diabetic clients focusing on the decreasing total intake of sugars and starches from diet.

**Summer Health and Fitness Academy for Youth Obesity Prevention**-The Youth Development Program at Tuskegee University Cooperative Extension continued to offer printed information regarding "My Plate" as well as over 30,000 meals to an underserved target audience of youth ages 0-18.

**Human Nutrition and Health Programs**- AU Obesity-linked Diabetes, Cancer, and Alzheimer's Research: Addresses A) Development of novel, RNA-based therapies to address cancer; B) Identification of new biological targets for diabetes treatment; examination of receptors in the brain that can be exploited to regulate neuronal glucose uptake to prevent or treat diabetes; C) Determination of the linkages between sugary-drinks, fatty liver disease and Alzheimer's.

**Insect-born Disease Research:** Establishes knowledge of the ecology of vector-borne diseases resulting from human contact, direct and indirect, with mosquitoes and ticks needed for the development of diverse vector control interventions.

**Health Disparities Research:** Examines health disparities in minority, low resourced, rural populations resulting from stress, low quality sleep, and lack of access to healthcare. Targets associations between stress and biomarkers of chronic stress exposure and health consequences; sleep quality and its influences on cardiovascular health; access to healthcare support.

**Technology Enhancing Exercise and Nutrition (TEEN)** -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**- lessons on basic nutrition, MyPlate, Dietary Guidelines, food safety, food preparation, food resource management and physical activity are taught by Urban EFNEP program assistants.

**Right Bite** The Right Bite Diabetes Cooking School is a six weeks series of fun ways to learn how to enjoy delicious food that is prepared with less fat, sugar and sodium. Managing diabetes and other chronic diseases doesn't have to be boring or tasteless.

**Live Well Faith Communities** - the Nutrition Program Team (SNAP-Ed; EFNEP; Human Nutrition, Diet and Health Regional Extension Agents; and ALProHealth County Extension Coordinators) collaborated to launch Live Well Faith Communities (LWFC), an initiative to foster partnerships between faith communities and Alabama Extension to improve the quality of life and economic well-being of Alabamians.

## 2. Brief description of the target audience

**Human Nutrition, Well-being, Health and Obesity** adults between the age of 31-78. All have been diagnosed with either Hypertension, Diabetes, or Cardiovascular Problems.

**Summer Health and Fitness Academy for Youth Obesity Prevention** Underserved target audience of youth ages 0-18

**Obesity-linked Diabetes, Cancer, and Alzheimer's Research:** scientists, students, general public, AU  
**Insect-born Disease Research:** general public, health professionals, scientists, students **AU Health**

**Disparities Research:** scientists, policymakers, health practitioners, general public

### **Technology Enhancing Exercise and Nutrition (TEEN)**

TEEN classes were conducted at middle and high schools, boys and girls clubs, youth camps, recreation centers, attention centers and afterschool programs. The audiences demographics (n=944) were 1) Ethnic Background: Blacks (54%), Whites (30%) and Hispanics (12%) 2) Gender: Females (57%) and Males (43%) and 3) Ages: 9-12 (38%), 13-16 (44%) and 17 and above (18%).

### **Urban EFNEP**

Low-income Hispanic individuals and families in five North Alabama Counties; Madison, Dekalb, Limestone, Marshall, and Morgan

### **Right Bite**

Of the 641 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.

**Live Well Faith Communities**

Live Well Faith Communities (LWFC) includes faith communities (organizations) Alabama Extension as well as individuals (individuals) participation; communities with a significant low-income population. A total of 16 Extension personnel teamed to launch LWFC in 14 faith communities in 8 Alabama counties:

**3. How was eXtension used?**

eXtension was not used in this program

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

**1. Standard output measures**

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	37971	0	20355	0

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

**Patent Applications Submitted**

Year: 2017  
 Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2017	Extension	Research	Total
<b>Actual</b>	74	45	0

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

**Output Target**

**Output #1**

**Output Measure**

- Number of basic nutrition classes/workshops conducted

Year	Actual
2017	546

**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

<b>Year</b>	<b>Actual</b>
2017	33

**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

<b>Year</b>	<b>Actual</b>
2017	1

**Output #15**

**Output Measure**

- Number of adult participants

<b>Year</b>	<b>Actual</b>
2017	1059

**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

<b>Year</b>	<b>Actual</b>
2017	362

**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

<b>Year</b>	<b>Actual</b>
2017	2

**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 publications The Endocrine Center for Obesity Research and Education: Animal Model Systems

<b>Year</b>	<b>Actual</b>
2017	2

**Output #29**

**Output Measure**

- Number of professional presentations

<b>Year</b>	<b>Actual</b>
2017	16

**Output #30**

**Output Measure**

- Number of Radio PSAs

<b>Year</b>	<b>Actual</b>
2017	6

**Output #31**

**Output Measure**

- Number of Health Events

<b>Year</b>	<b>Actual</b>
2017	34

**Output #32**

**Output Measure**

- Number of EFNEP nutrition classes/workshops conducted

<b>Year</b>	<b>Actual</b>
2017	11365

**Output #33**

**Output Measure**

- Number of EFNEP adult participants

<b>Year</b>	<b>Actual</b>
2017	2051

**Output #34**

**Output Measure**

- Number of EFNEP youth participants

<b>Year</b>	<b>Actual</b>
2017	4580

**Output #35**

**Output Measure**

- Number of EFNEP in-service trainings

<b>Year</b>	<b>Actual</b>
2017	12

**Output #36**

**Output Measure**

- Number of People in Program Families of Adult EFNEP Participants

<b>Year</b>	<b>Actual</b>
2017	7301

**Output #37**

**Output Measure**

- Number of limited-resource pregnant teens and women

<b>Year</b>	<b>Actual</b>
2017	707

**Output #38**

**Output Measure**

- Number of sessions of basic nutrition education taught directly to adults completing EFNEP

<b>Year</b>	<b>Actual</b>
2017	9550

**Output #39**

**Output Measure**

- Number of sessions of basic nutrition education taught directly to youth completing EFNEP

<b>Year</b>	<b>Actual</b>
2017	1491

**Output #40**

**Output Measure**

- Number of delivery sites for adult and youth EFNEP nutrition education

<b>Year</b>	<b>Actual</b>
2017	472

**Output #41**

**Output Measure**

- Number of EFNEP Educators teaching basic nutrition education, who are members of the community they serve

<b>Year</b>	<b>Actual</b>
2017	28

**Output #42**

**Output Measure**

- Number of volunteers, ages 18 and over, offering support to EFNEP

<b>Year</b>	<b>Actual</b>
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2017 282

**Output #43**

**Output Measure**

- Number of EFNEP community partnerships

<b>Year</b>	<b>Actual</b>
2017	344

**Output #44**

**Output Measure**

- Number of volunteers who are current or former EFNEP participants

<b>Year</b>	<b>Actual</b>
2017	47

**Output #45**

**Output Measure**

- Number of adult EFNEP graduates, completing series of 6 lessons

<b>Year</b>	<b>Actual</b>
2017	1670

**Output #46**

**Output Measure**

- Number of youth EFNEP graduates, completing series of 6 lessons

<b>Year</b>	<b>Actual</b>
2017	4388

**Output #47**

**Output Measure**

- Number of Volunteer Hours Donated to EFNEP

<b>Year</b>	<b>Actual</b>
2017	3224

**Output #48**

**Output Measure**

- Number of people participating in Right Bite nutrition classes

<b>Year</b>	<b>Actual</b>
2017	629

**Output #49**

**Output Measure**

- Number of Right Bite surveys completed

<b>Year</b>	<b>Actual</b>
2017	405

**Output #50**

**Output Measure**

- Number of adults who participated in AU SNAP-Ed nutrition education

<b>Year</b>	<b>Actual</b>
2017	39396

**Output #51**

**Output Measure**

- Number of youth who participated in AU SNAP-Ed nutrition education

<b>Year</b>	<b>Actual</b>
2017	26243

**Output #52**

**Output Measure**

- Number of youth who participated in AU SNAP-Ed nutrition education (contacts - duplicated count)

<b>Year</b>	<b>Actual</b>
2017	96520

**Output #53**

**Output Measure**

- Number of SNAP basic nutrition classes/workshops conducted

<b>Year</b>	<b>Actual</b>
2017	22237

**Output #54**

**Output Measure**

- Number of SNAPin-service trainings

<b>Year</b>	<b>Actual</b>
2017	9

**Output #55**

**Output Measure**

- Number of hours for in-service trainings per educator

<b>Year</b>	<b>Actual</b>
2017	54

**Output #56**

**Output Measure**

- Number of facts sheets, newsletters, etc.

<b>Year</b>	<b>Actual</b>
2017	163682

**Output #57**

**Output Measure**

- Number of students participating in Body Quest: Food of the Warrior.

<b>Year</b>	<b>Actual</b>
2017	5119

**Output #58**

**Output Measure**

- Number of parents participating in Body Quest: Food of the Warrior

<b>Year</b>	<b>Actual</b>
2017	4852

**Output #59**

**Output Measure**

- Number of schools with at least 50% free and reduced price meal rates that participated in Body Quest

<b>Year</b>	<b>Actual</b>
2017	114

**Output #60**

**Output Measure**

- Number of Alabama counties with elementary school participating in Body Quest

<b>Year</b>	<b>Actual</b>
2017	55

**Output #61**

**Output Measure**

- Number of 3rd grade classrooms participating in Body Quest

<b>Year</b>	<b>Actual</b>
2017	338

**Output #62**

**Output Measure**

- Number of billboards used in a social marketing campaign

<b>Year</b>	<b>Actual</b>
2017	168

**Output #63**

**Output Measure**

- Number of impressions for a social marketing billboard campaign

<b>Year</b>	<b>Actual</b>
2017	105896004

**Output #64**

**Output Measure**

- Number of weeks social marketing billboards were displayed

<b>Year</b>	<b>Actual</b>
2017	24

**Output #65**

**Output Measure**

- Number of Alabama counties with nutrition education billboards as part of a social marketing campaign

<b>Year</b>	<b>Actual</b>
2017	51

**Output #66**

**Output Measure**

- Number of Alabama counties participating in focus groups for social marketing billboard campaign

<b>Year</b>	<b>Actual</b>
2017	6

**Output #67**

**Output Measure**

- Number of adults participating in focus groups for social marketing billboard campaign

<b>Year</b>	<b>Actual</b>
2017	64

**Output #68**

**Output Measure**

- Number of adults participating in a phone survey for social marketing billboard campaign

<b>Year</b>	<b>Actual</b>
2017	433

**Output #69**

**Output Measure**

- Number of adults who participated in a text messaging nutrition education program

<b>Year</b>	<b>Actual</b>
2017	782

**Output #70**

**Output Measure**

- Number of Body Quest parents who participated in a text messaging nutrition education program

<b>Year</b>	<b>Actual</b>
2017	4348

**Output #71**

**Output Measure**

- Number of Body Quest parents who participated in a text message nutrition and physical activity survey

<b>Year</b>	<b>Actual</b>
2017	458

**Output #72**

**Output Measure**

- Number of impressions for Live Well Alabama Facebook social media page



<b>Year</b>	<b>Actual</b>
2017	370000

**Output #73**

**Output Measure**

- Number of impressions for Live Well Alabama Twitter social media page

<b>Year</b>	<b>Actual</b>
2017	96510

**Output #74**

**Output Measure**

- Number of average monthly users for Live Well Alabama Pinterest social media page

<b>Year</b>	<b>Actual</b>
2017	4370

**Output #75**

**Output Measure**

- Number of adults and youth reached through policy, systems, environmental and promotional strategies

<b>Year</b>	<b>Actual</b>
2017	29638

**Output #76**

**Output Measure**

- Number of sites where AU SNAP-Ed partners to increase availability and appeal of healthy foods

<b>Year</b>	<b>Actual</b>
2017	119

**Output #77**

**Output Measure**

- Number of sites where AU SNAP-Ed partners to improve physical activity

<b>Year</b>	<b>Actual</b>
2017	5

**Output #78**

**Output Measure**

- Number of retail sites with healthy policy, systems, environmental and promotional changes

<b>Year</b>	<b>Actual</b>
2017	11

**Output #79**

**Output Measure**

- Number of Alabama counties with policy, systems, environmental and promotional changes at retail sites

<b>Year</b>	<b>Actual</b>
2017	8

**Output #80**

**Output Measure**

- Number of community and school gardens with healthy policy, systems, environmental and promotional changes

<b>Year</b>	<b>Actual</b>
2017	27

**Output #81**

**Output Measure**

- Number of Alabama counties with policy, systems, environmental and promotional changes at community and school gardens

<b>Year</b>	<b>Actual</b>
2017	20

**Output #82**

**Output Measure**

- Number of emergency food assistance sites with healthy policy, systems, environmental and promotional changes

<b>Year</b>	<b>Actual</b>
2017	36

**Output #83**

**Output Measure**

- Number of Alabama counties with policy, systems, environmental and promotional changes at emergency food assistance sites

<b>Year</b>	<b>Actual</b>
2017	28

**Output #84**

**Output Measure**

- Number of farmers markets with healthy policy, systems, environmental and promotional changes

<b>Year</b>	<b>Actual</b>
2017	38

**Output #85**

**Output Measure**

- Number of Alabama counties with policy, systems, environmental and promotional changes at farmers markets

<b>Year</b>	<b>Actual</b>
2017	32

**Output #86**

**Output Measure**

- Number of faith communities with healthy policy, systems, environmental and promotional changes

<b>Year</b>	<b>Actual</b>
2017	7

**Output #87**

**Output Measure**

- Number of Alabama counties with policy, systems, environmental and promotional changes at faith communities

<b>Year</b>	<b>Actual</b>
2017	6

**Output #88**

**Output Measure**

- Number of schools with healthy policy, systems, environmental and promotional changes

<b>Year</b>	<b>Actual</b>
2017	19

**Output #89**

**Output Measure**

- Number of Alabama counties with policy, systems, environmental and promotional changes at schools

<b>Year</b>	<b>Actual</b>
2017	13

**Output #90**

**Output Measure**

- Number of parkes and trails with healthy policy, systems, environmental and promotional changes

<b>Year</b>	<b>Actual</b>
2017	5

**Output #91**

**Output Measure**

- Number of Alabama counties with policy, systems, environmental and promotional changes at parks and trails

<b>Year</b>	<b>Actual</b>
2017	2

**Output #92**

**Output Measure**

- Number of LIVE WELL basic nutrition classes/workshops conducted

<b>Year</b>	<b>Actual</b>
2017	32

**Output #93**

**Output Measure**

- Number of people participating in Live Well nutrition classes

<b>Year</b>	<b>Actual</b>
2017	339

**Output #94**

**Output Measure**

- Number of Live Well food resource management classes conducted

<b>Year</b>	<b>Actual</b>
2017	16

**Output #95**

**Output Measure**

- Number of people participating in the food resource management classes

<b>Year</b>	<b>Actual</b>
2017	170

**Output #96**

**Output Measure**

- Number of food safety classes conducted

<b>Year</b>	<b>Actual</b>
2017	8

**Output #97**

**Output Measure**

- Number of people participating in food safety classes

<b>Year</b>	<b>Actual</b>
2017	82

**Output #98**

**Output Measure**

- Number of meal planning classes conducted

<b>Year</b>	<b>Actual</b>
2017	8

**Output #99**

**Output Measure**

- Number of food preparation classes conducted

<b>Year</b>	<b>Actual</b>
2017	8

**Output #100**

**Output Measure**

- Number of people participating in food preparation classes

<b>Year</b>	<b>Actual</b>
2017	79

**Output #101**

**Output Measure**

- Number of food demonstrations conducted

<b>Year</b>	<b>Actual</b>
2017	72

**Output #102**

**Output Measure**

- Number of people participating in food demonstrations

<b>Year</b>	<b>Actual</b>
2017	737

**Output #103**

**Output Measure**

- Number of adult participants

<b>Year</b>	<b>Actual</b>
2017	737

**Output #104**

**Output Measure**

- Number of places that provide healthy food options.

<b>Year</b>	<b>Actual</b>
2017	10

**Output #105**

**Output Measure**

- Number of places that provide opportunities for physical activity.

<b>Year</b>	<b>Actual</b>
2017	8

**Output #106**

**Output Measure**

- Number of facts sheets, newsletters, etc.

<b>Year</b>	<b>Actual</b>
2017	737

**Output #107**

**Output Measure**

- Number of surveys completed

<b>Year</b>	<b>Actual</b>
2017	149

**Output #108**

**Output Measure**

- Number of surveys developed

<b>Year</b>	<b>Actual</b>
2017	2

**Output #109**

**Output Measure**

- Number of in-service trainings

<b>Year</b>	<b>Actual</b>
2017	2

**Output #110**

**Output Measure**

- Number of Extension program teams involved

<b>Year</b>	<b>Actual</b>
2017	4

**Output #111**

**Output Measure**

- Number of Extension personnel involved

<b>Year</b>	<b>Actual</b>
2017	16

**Output #112**

**Output Measure**

- Number of faith communities participating

<b>Year</b>	<b>Actual</b>
2017	14

**Output #113**

**Output Measure**

- Number of counties participating

<b>Year</b>	<b>Actual</b>
2017	8

**Output #114**

**Output Measure**

- Number of U-SNAP basic nutrition classes/workshops conducted

<b>Year</b>	<b>Actual</b>
2017	220

**Output #115**

**Output Measure**

- Number of food resource management classes conducted

<b>Year</b>	<b>Actual</b>
2017	175

**Output #116**

**Output Measure**

- Number of USNAP adult participants

<b>Year</b>	<b>Actual</b>
2017	2694

**Output #117**

**Output Measure**

- Number of USNAP youth participants

<b>Year</b>	<b>Actual</b>
2017	2244

**Output #118**

**Output Measure**

- Number of U SNAP food demonstrations conducted

<b>Year</b>	<b>Actual</b>
2017	344

**Output #119**

**Output Measure**

- Number of USNAP food safety classes conducted



<b>Year</b>	<b>Actual</b>
2017	175

**Output #120**

**Output Measure**

- Number of USNAP meal planning classes conducted

<b>Year</b>	<b>Actual</b>
2017	175

**Output #121**

**Output Measure**

- Number of USNAP in-service trainings

<b>Year</b>	<b>Actual</b>
2017	2

**Output #122**

**Output Measure**

- Number of USNAP facts sheets, newsletters, etc.

<b>Year</b>	<b>Actual</b>
2017	7000

**Output #123**

**Output Measure**

- Number of USNAP raised bed gardens established or replanted

<b>Year</b>	<b>Actual</b>
2017	30

**Output #124**

**Output Measure**

- Number of USNAP physical activity lessons

<b>Year</b>	<b>Actual</b>
2017	175

**Output #125**

**Output Measure**

- Number of nutrition/physical activity related signs placed in Boys and Girls Centers in urban areas

<b>Year</b>	<b>Actual</b>
2017	21

**Output #126**

**Output Measure**

- Number of nutrition/physical activity related signs placed on Public Transit in urban areas

<b>Year</b>	<b>Actual</b>
2017	34

**Output #127**

**Output Measure**

- Number of nutrition/physical activity related Social Marketing Billboards in urban areas

<b>Year</b>	<b>Actual</b>
2017	23

**Output #128**

**Output Measure**

- Number of community coalitions participating in the ALProHealth project

<b>Year</b>	<b>Actual</b>
2017	16

**Output #129**

**Output Measure**

- Number of technical assistance trainings for county staff and coalition members

<b>Year</b>	<b>Actual</b>
2017	2

**Output #130**

**Output Measure**

- Number of ALProHealth in-service trainings

<b>Year</b>	<b>Actual</b>
2017	6

**Output #131**

**Output Measure**

- Number of surveys mailed to households within ALProHealth counties to assess food insecurity among residents in counties with a high obesity rate

<b>Year</b>	<b>Actual</b>
2017	5600

**Output #132**

**Output Measure**

- Number of state partnerships supporting statewide efforts of ALProHealth

<b>Year</b>	<b>Actual</b>
2017	27

**Output #133**

**Output Measure**

- Number of county-level partnerships supporting local community coalitions

<b>Year</b>	<b>Actual</b>
2017	145

**Output #134**

**Output Measure**

- Number of grants applied for using leverage from ALProHealth

<b>Year</b>	<b>Actual</b>
2017	8

**Output #135**

**Output Measure**

- Number of communities conducting Body Quest, a childhood obesity prevention initiative for 3rd graders

<b>Year</b>	<b>Actual</b>
2017	13

**Output #136**

**Output Measure**

- Number of communities conducting food demonstrations at local Farmers Markets

<b>Year</b>	<b>Actual</b>
2017	6

**Output #137**

**Output Measure**

- Number of communities conducting healthy cooking classes

<b>Year</b>	<b>Actual</b>
2017	6

**Output #138**

**Output Measure**

- Number of communities supporting health fairs

<b>Year</b>	<b>Actual</b>
2017	8

**Output #139**

**Output Measure**

- Number of faith-based organizations providing free health screenings

<b>Year</b>	<b>Actual</b>
2017	2

**Output #140**

**Output Measure**

- Number of school systems providing free health screenings on Parents/Grandparents Day

<b>Year</b>	<b>Actual</b>
2017	1

**Output #141**

**Output Measure**

- Number of communities establishing or expanding a school garden

<b>Year</b>	<b>Actual</b>
2017	11

**Output #142**

**Output Measure**

- Number of schools implementing "Just Move! Alabama," a statewide initiative to increase physical activity in children grades K-8

<b>Year</b>	<b>Actual</b>
2017	3

**Output #143**

**Output Measure**

- Number of community gardens established by community coalitions

<b>Year</b>	<b>Actual</b>
2017	11

**Output #144**

**Output Measure**

- Number of existing community gardens enhanced by community coalitions

<b>Year</b>	<b>Actual</b>
2017	17

**Output #145**

**Output Measure**

- Number of communities conducting raised bed or container gardening workshops

<b>Year</b>	<b>Actual</b>
2017	5

**Output #146**

**Output Measure**

- Number of communities providing educational tours of local farms

<b>Year</b>	<b>Actual</b>
2017	4

**Output #147**

**Output Measure**

- Number of communities promoting healthy lifestyle choices through installing signage

<b>Year</b>	<b>Actual</b>
2017	6

**Output #148**

**Output Measure**

- Number of communities establishing or enhancing a Farmers Market

<b>Year</b>	<b>Actual</b>
2017	8

**Output #149**

**Output Measure**

- Number of communities training Farmers Market producers to accept SNAP, WIC, and/or SFMNP vouchers

<b>Year</b>	<b>Actual</b>
2017	7

**Output #150**

**Output Measure**

- Number of counties providing a guide for direct purchase from local producers

<b>Year</b>	<b>Actual</b>
2017	1

**Output #151**

**Output Measure**

- Number of counties working with local convenience or grocery stores to market healthy food choices

<b>Year</b>	<b>Actual</b>
2017	8

**Output #152**

**Output Measure**

- Number of communities increasing the capacity and distribution of fruits and vegetables at food banks

<b>Year</b>	<b>Actual</b>
2017	10

**Output #153**

**Output Measure**

- Number of counties developing a directory of local food banks

<b>Year</b>	<b>Actual</b>
2017	1

**Output #154**

**Output Measure**

- Number of communities installing outdoor fitness equipment

<b>Year</b>	<b>Actual</b>
2017	8

**Output #155**

**Output Measure**

- Number of communities establishing or supporting an indoor community fitness facility

<b>Year</b>	<b>Actual</b>
2017	5

**Output #156**

**Output Measure**

- Number of communities installing or repairing playground equipment in community parks

<b>Year</b>	<b>Actual</b>
2017	12

**Output #157**

**Output Measure**

- Number of communities enhancing aesthetics or amenities of local parks

<b>Year</b>	<b>Actual</b>
2017	5

**Output #158**

**Output Measure**

- Number of communities enhancing safety of local parks

<b>Year</b>	<b>Actual</b>
2017	6

**Output #159**

**Output Measure**

- Number of communities establishing new walking or multiuse trails

<b>Year</b>	<b>Actual</b>
2017	4

**Output #160**

**Output Measure**

- Number of communities repairing or expanding existing trails

<b>Year</b>	<b>Actual</b>
2017	4

**Output #161**

**Output Measure**

- Number of communities establishing or supporting adult or youth sports leagues

<b>Year</b>	<b>Actual</b>
2017	3

**Output #162**

**Output Measure**

- Number of communities participating in Scale Back Alabama, a statewide weight reduction initiative

<b>Year</b>	<b>Actual</b>
2017	9

**Output #163**

**Output Measure**

- Number of communities establishing a walking or exercise group

<b>Year</b>	<b>Actual</b>
2017	6

**Output #164**

**Output Measure**

- Number of communities supporting safer routes for children to walk and bike to school

<b>Year</b>	<b>Actual</b>
2017	2

**Output #165**

**Output Measure**

- Number of communities using signage to promote opportunities for physical activity

<b>Year</b>	<b>Actual</b>
2017	7



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

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

O. No.	OUTCOME NAME
1	The number of participants who increased knowledge of basic nutrition concepts
2	The number of participants that follow MyPlate/Dietary Guidelines recommendations
3	The number of participants who increased physical activity
4	The number of participants who adopted food safety tips
5	The number of participants who read food labels when purchasing food
6	The number of participants who utilize a personal budget
7	The number of participants who plan meals based on what is on hand, on sale, and in season
8	The number of participants who prepare shopping list before shopping
9	The number of participants who modify recipes to make them healthier
10	The number 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 participants who increase eating breakfast from pre- to post-assessment and as compared to control group
15	Number of adults increased physical activity to 30 minutes or more
16	Number of youth increased physical activity to 60 minutes or more
17	The percent change of adult participants weight loss

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18	Means comparison of youth and adults nutritional, physical activity, and chronic disease knowledge retained three (3) months post education
19	Percentage of youth and adults improved eating habits and physical activity time three (3) months post education
20	The number of participants with increase knowledge on healthy behaviors associated with eating.
21	The number of participants with increased knowledge of diabetes.
22	The number of participant who did not run out of food before the month end
23	The number of participants who consumer healthier foods (fruit and vegetable)
24	Number of AAMU students who consumed veggies
25	The number of grocery stores who increased healthier food options
26	The number of Black Belt residents with increased healthy behaviors
27	Number of AU Researchers with increased knowledge in Obesity-linked Diabetes, Cancer, and Alzheimer?s Research
28	Number of AU researchers with increased knowledge in geographic distribution of tick species
29	the number of AU Researchers with increased knowledge of health disparities
30	Number of urban youth who increased knowledge of nutrition education
31	Increased #/% of teenagers' dance steps and calories burned.
32	Increased #/% of teenagers that follow MyPlate/Dietary Guidelines recommendations.
33	Increased #/% of teenagers that were physically active for 60 minutes.
34	Increased % adults fruits, vegetable and physical activity knowledge.
35	Increased in % of participants fruits and vegetables consumption.
36	Increased in % of participants engaged in physical activity.
37	Increased #/% of behavioral habits (fruits and vegetable and physical activity) 3-6 months post delayed.

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38	Increase in % of adult participants who more often thought about healthy food choices when planning meals
39	Increase in the #/% of adults reported their children ate breakfast more often
40	Increase in the #/% of adult participants who used the Nutrition Facts on food labels to make food choices
41	Increase in #/% of adult participants that follow proper thawing techniques
42	Increase #/% of adult participants who follow food safety recommendations of not letting food sit out for more than 2 hours
43	Increased #/% of youth participants fruit and vegetable consumption
44	Increase in the #/% of youth participants who are physically active
45	Increase in the #/% of youth participants that use safe food handling practices
46	Increase in the #/% of youth who consume sugary beverages
47	number of EFNEP participants who increased food resource management skills
48	The number of children who eat more healthier foods
49	Number of adults who adopted MyPlate Recommendations
50	The number of Right Bite participants who increased healthy
51	The number of Right Bite adults with increased healthy nutrition behavior
52	Difference in percent of vegetables consumed between Body Quest treatment group students and control group students at post-analysis as measured through school lunch
53	Difference in percent of vegetables consumed by Body Quest treatment group students from pre- to post-assessment as measured through school lunch
54	Difference in vegetable consumption between Body Quest treatment group students and control group students at post-analysis as measured through self-report
55	Difference in vegetable consumption of Body Quest treatment group students from pre- to post-assessment as measured through self-report
56	Difference in fruit consumption between Body Quest treatment group students and control group students at post-analysis as measured through self-report
57	Difference in fruit consumption of Body Quest treatment group students from pre- to post-assessment as measured through self-report

58	Difference in fruit and vegetable consumption as snacks between Body Quest treatment group students and control group students at post-analysis as measured through self-report
59	Difference in fruit and vegetable consumption as snacks of Body Quest treatment group students from pre- to post-assessment as measured through self-report
60	Difference in variety of vegetables consumed by Body Quest treatment group students from pre- to post-assessment as measured through self-report
61	Difference in variety of fruits consumed between Body Quest treatment group students and control group students at post-analysis as measured through self-report
62	Difference in variety of fruits consumed by Body Quest treatment group students from pre- to post-assessment as measured through self-report
63	Difference in students' report of asking parents to buy vegetables between Body Quest treatment group students and control group students at post-analysis
64	Difference in students' report of asking parents to buy vegetables by Body Quest treatment group students from pre- to post-assessment
65	Difference in availability of vegetables as snacks in the home between Body Quest treatment group students and control group students at post-analysis as measured through self-report
66	Difference in availability of vegetables as snacks in the home of Body Quest treatment group students from pre- to post-assessment as measured through self-report
67	Difference in water consumption between Body Quest treatment group students and control group students at post-analysis as measured through self-report
68	Difference in water consumption of Body Quest treatment group students from pre- to post-assessment as measured through self-report
69	Difference in consumption of SSB including punch, sports drinks or other fruit-flavored drinks between Body Quest treatment group students and control group students at post-analysis as measured through self-report
70	Difference in consumption of SSB including punch, sports drinks or other fruit-flavored drinks by Body Quest treatment group students from pre- to post-assessment as measured through self-report
71	Difference in consumption of SSB including regular non-diet sodas or soft drinks between Body Quest treatment group students and control group students at post-analysis as measured through self-report
72	Difference in consumption of SSB including regular non-diet sodas or soft drinks by Body Quest treatment group students from pre- to post-assessment as measured through self-report
73	Difference in family physical activity between Body Quest treatment group students and control group students at post-analysis as measured through self-report
74	Difference in family physical activity of Body Quest treatment group students from pre- to post-assessment as measured through self-report
75	Percent of treatment group parents who increased healthy food and beverage choices from pre- to post-assessment
76	Percent of treatment group parents who improved shopping behaviors from pre- to post-assessment

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77	Percent of treatment group parents who increased physical activity from pre- to post-assessment
78	Percent of treatment group parents who responded positively to text message poll survey questions
79	Percent of Body Quest parents participating in a statewide phone survey who recalled seeing at least one billboard from a social marketing billboard campaign for healthy eating and physical activity
80	Percent of Body Quest parents participating in a statewide phone survey who as a result of a billboard campaign improved healthy eating and physical activity behaviors
81	Difference in vegetable consumption between Body Quest parents who recalled seeing billboards and those who did not as measured through phone surveys
82	Difference in fruit consumption between Body Quest parents who recalled seeing billboards and those who did not as measured through phone surveys
83	Number of people reached through a healthy retail initiative to increase access and appeal of healthy food and beverages
84	Number of policy, systems, environmental and promotional improvements in community and school gardens
85	Number of people reached through emergency food assistance initiatives to increase access and appeal of healthy food
86	Number of policy, systems, environmental and promotional improvements in emergency food assistance sites
87	Number of people reached through farmers market initiatives to increase access and appeal of healthy food
88	Number of policy, systems, environmental and promotional improvements in farmers markets
89	Number of policy, systems, environmental and promotional improvements in parks and trails
90	Number of faith communities who began providing physical activity opportunities at meetings or functions as a result of participating in LWFC
91	Number of faith communities who began offering exercise classes as a result of participating in LWFC
92	Number of faith communities adopting guidelines requiring fruits to be offered at faith community meals or snacks
93	Number of faith communities adopting guidelines requiring vegetables to be offered at faith community meals or snacks
94	Number of faith communities adopting guidelines requiring non-fried foods to be offered at faith community meals or snacks
95	Number of faith communities adopting guidelines requiring foods with low or no sugar added to be offered at faith community meals or snacks

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96	Number of faith communities who started an onsite garden
97	Change in contemplating healthy food choices when deciding what to feed families (pre to post comparison of individuals participating in LWFC)
98	Change in comparing prices before purchasing food (pre to post comparison of individuals participating in LWFC)
99	Change in using "Nutrition Facts" on the food label to make food choices (pre to post comparison of individuals participating in LWFC)
100	Change in purchasing food with lower added sugar (pre to post comparison of individuals participating in LWFC)
101	Change in average daily vegetable consumption (pre to post comparison of individuals participating in LWFC)
102	Increase in #/% of participants that are physically active
103	Increase in #/% of participants that follow MyPlate/Dietary Guidelines recommendations
104	Increase in the #/% of urban adult participants who use food resource management techniques and modify shopping behavior to spend food dollars/SNAP benefits wisely
105	Number of urban respondents that reported improving nutrition related behavior after seeing healthy message signage placed at boys and girls clubs
106	Increase in the #/% of urban participants who do NOT run out of food before the end of the month
107	Number of households that utilized healthy tips from PENPALs newsletter
108	Increase in overall funding obtained through partner contributions (leveraged funds)
109	Increase in overall funding utilized via volunteer hours (leveraged funds)
110	Increase in overall funding obtained through grants utilizing ALProHealth funds as leverage (leveraged funds)
111	Increase in number of county-level partnerships supporting community coalitions and ALProHealth initiatives at the local level
112	Number of community members positively impacted through the installation of signage promoting healthy lifestyle choices
113	Number of people with increased access to fresh, locally grown produce through enhancement or establishment of a Farmers Market
114	Number of community members positively impacted through marketing of healthy food and beverage choices at local grocery and convenience stores
115	Number of individuals with increased awareness of emergency food options through the development of local food bank guides

116	Number of individuals with increased emergency food preparedness through the enhancement of local food banks
117	Number of people with increased or enhanced access to outdoor exercise or fitness equipment
118	Number of people with increased or enhanced access to an indoor fitness facility
119	Number of children with increased or enhanced access to playground equipment at local parks
120	Number of community members with increased or enhanced access to a new or improved walking trail
121	Number of community members with access to recently improved parks via aesthetic, amenity and safety enhancements
122	Number of students attending schools that have participated in creating safer routes to school for children who walk or bike
123	Number of students with increased exposure to healthy food through school gardens established or enhanced by community coalitions
124	Number of community members with the opportunity to participate in a new or enhanced community garden
125	TU: the number of Black Belt youth who increased the consumption of fruits and veggies
126	TU: the number of Black Belt youth who increased physical activity
127	TU: the number of Black Belt seniors who increased physical activity

**Outcome #1**

**1. Outcome Measures**

The number of participants who increased knowledge of basic nutrition concepts

Not Reporting on this Outcome Measure

**Outcome #2**

**1. Outcome Measures**

The number of participants that follow MyPlate/Dietary Guidelines recommendations

Not Reporting on this Outcome Measure

**Outcome #3**

**1. Outcome Measures**

The number of participants who increased physical activity

Not Reporting on this Outcome Measure

**Outcome #4**

**1. Outcome Measures**

The number of participants who adopted food safety tips

Not Reporting on this Outcome Measure

**Outcome #5**

**1. Outcome Measures**

The number of participants who read food labels when purchasing food

Not Reporting on this Outcome Measure

**Outcome #6**

**1. Outcome Measures**

The number of participants who utilize a personal budget

Not Reporting on this Outcome Measure

**Outcome #7**

**1. Outcome Measures**

The number of participants who plan meals based on what is on hand, on sale, and in season

Not Reporting on this Outcome Measure



**Outcome #8**

**1. Outcome Measures**

The number of participants who prepare shopping list before shopping

Not Reporting on this Outcome Measure

**Outcome #9**

**1. Outcome Measures**

The number of participants who modify recipes to make them healthier

Not Reporting on this Outcome Measure

**Outcome #10**

**1. Outcome Measures**

The number 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 participants who increase eating breakfast from pre- to post-assessment and as compared to control group

Not Reporting on this Outcome Measure

**Outcome #15**

**1. Outcome Measures**

Number of adults increased physical activity to 30 minutes or more

Not Reporting on this Outcome Measure

**Outcome #16**

**1. Outcome Measures**

Number of youth increased physical activity to 60 minutes or more

Not Reporting on this Outcome Measure

**Outcome #17**

**1. Outcome Measures**

The percent change of adult participants weight loss

Not Reporting on this Outcome Measure

**Outcome #18**

**1. Outcome Measures**

Means comparison of youth and adults nutritional, physical activity, and chronic disease knowledge retained three (3) months post education

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension
- 1862 Research
- 1890 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	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**

KA Code	Knowledge Area
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
806	Youth Development
903	Communication, Education, and Information Delivery

**Outcome #19**

**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 #20**

**1. Outcome Measures**

The number of participants with increase knowledge on healthy behaviors associated with eating.

Not Reporting on this Outcome Measure

**Outcome #21**

**1. Outcome Measures**

The number of participants with increased knowledge of diabetes.

Not Reporting on this Outcome Measure

**Outcome #22**

**1. Outcome Measures**

The number of participant who did not run out of food before the month end

Not Reporting on this Outcome Measure

**Outcome #23**

**1. Outcome Measures**

The number of participants who consumer healthier foods (fruit and vegetable)

Not Reporting on this Outcome Measure

**Outcome #24**

**1. Outcome Measures**

Number of AAMU students who consumed veggies

**2. Associated Institution Types**

- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	330

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

**Issue (Who cares and Why)**

The purpose of this study was to evaluate whether a hands-on supermarket tour intervention could increase consumption of fruits and vegetables.

**What has been done**

The questionnaires content was derived from validated surveys found in a USDA funded Compendium of Surveys for Fruit and Vegetable Consumption and Physical Activity (Andy Fourney, 2010-2011).

Institutional Review Board (IRB) request was submitted to the Office of Institutional Research Planning and Sponsored Programs at Alabama A&M University in Normal, Alabama.

Nutrition-focused grocery store tours

The height of each participant was measured using a pre-calibrated Inbody BSM370 Stadiometer. The weight and body fat percentage of the student were measured using an Inbody 570.

**Results**

AAMU Research The results revealed adequate consumption of vegetables (3.79 servings/day) among both groups before excluding fried potatoes from the vegetable group. When excluding fried potatoes, both groups fell below the recommended 3 servings a day. Fruit consumption fell short of recommendations among both groups (~1.81 serving/day). It is important to educate our future leaders on the importance of consuming adequate fruits and vegetables in order to aid in the reduction of many chronic diseases.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

## **Outcome #25**

### **1. Outcome Measures**

The number of grocery stores who increased healthier food options

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

- 1890 Research

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

Change in Action Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2017	92

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

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

Children residing in low-income urban and rural communities are more likely to experience food insecurity. A lack of access to nutrient dense food is a contributing factor in the obesity epidemic. Community store and restaurant environments may contribute to resident eating behaviors.

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

1. Food environments were measured in North Alabama urban and rural communities and food insecurity risk was identified.
2. Low-income communities (urban and rural) having the least healthy nutrition environments were identified for their accessibility to nutrient dense foods in both food retail stores and restaurants.
3. Healthy eating indicators (availability, quality and price) were measured in low-income communities.

#### **Results**

AAMU RESEARCH ?92 store (food retail stores and restaurants) measures were completed.  
?Healthier options were significantly less available in both urban and rural low-income, Alabama, communities across all food categories.  
?The accessibility of nutritionally dense foods were significantly lower in low-income Alabama communities (both urban and rural) and often of lesser quality.  
?In food retail stores the number of aisles were positively correlated with availability scores ( $p < 0.05$ ).

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

**KA Code**    **Knowledge Area**  
703            Nutrition Education and Behavior

**Outcome #26**

**1. Outcome Measures**

The number of Black Belt residents with increased healthy behaviors

**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>
2017	20

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

**Issue (Who cares and Why)**

The main issue with individuals and diseases lies in education. Most people suffering from Diabetes and Hypertension don't understand the disease or understand how foods and exercise work together to help them manage and even alleviate the problems. The finding results lead back to the diet which causes a domino effect with other organ in the body leading to the development of other diseases.

**What has been done**

Four nutritional workshops were held addressing nutritional food consumption, serving portions, seasoning, ingredients when cooking and, the results of unsaturated fats intake in the body associated with Hypertension, Diabetes and, Cardiovascular disorders. Personal counseling sessions were conducted with 20 individuals: Diabetics & Hypertension/Cardio.

**Results**

Tuskegee Research and Extension Diabetic clients reported a reduction in glucose levels to the point that they no longer require insulin shots and the pills are controlling their Diabetes. Hypertension/ Cardiovascular clients reported a reduction in sodium consumption, decrease of fried foods in diet along with soda's, alcohol consumption and, an increase in exercise daily has helped them better manage blood pressure levels plus, lose weight.

**4. Associated Knowledge Areas**

**KA Code**    **Knowledge Area**  
703            Nutrition Education and Behavior

**Outcome #27**

**1. Outcome Measures**

Number of AU Researchers with increased knowledge in Obesity-linked Diabetes, Cancer, and Alzheimer?s Research

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	1

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

**Issue (Who cares and Why)**

Goals are to: A) Develop novel tools for cancer detection and therapy using RNA aptamers that bind exclusively to the targeted cancer cells; B) Determine mechanisms associated with hormones, such as leptin, and receptors in the brain, such as nerve growth factor (NGF)-TrkA receptor, that help to prevent and/or treat diabetes; C) Understand linkages between consumption of sugary drinks, fatty liver-disease and Alzheimer?s.

**What has been done**

A) Completed critical experiments needed to identify aptamers that bind exclusively to colorectal cancer tissue; B) Studied the role of NGF-TrkA in cell culture model; administered leptin within the brain to activate a novel CNS mechanism for insulin-independent normalization of severe diabetic hyperglycemia; C). Conducted multiple studies examining metabolic phenotype of mice consuming sugary drinking water with or without a high fat diet.

**Results**

A) Developed a procedure that reproducibly can separate aptamer candidates from the total RNA; B) NGF found to activate TrkA to form complex with insulin receptor (IR) and insulin receptor substrate-1 (IRS-1) and phosphorylates the downstream signaling protein AKT thereby leading to cell survival in diabetic brain. Results of other experiments are consistent with the hypothesis that leptin treatment decreases the cAMP-signaling pathway in the liver of diabetic animals, inhibiting the ability of the liver to produce glucose; C) Addition of sugary drinking water to the diet enhanced the development and exacerbated the pathophysiology of non-alcoholic fatty liver disease. The addition of sugary drinking water to the diet resulted in the activation of an Alzheimer's disease phenotype in mice.



#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

#### Outcome #28

##### 1. Outcome Measures

Number of AU researchers with increased knowledge in geographic distribution of tick species

##### 2. Associated Institution Types

- 1862 Research

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	1

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

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

Goals are to: A) Investigate the role that anthropogenic disturbance plays in the ecology of vector-borne diseases at the human-animal interface and to develop interdisciplinary vector control interventions that address human-animal-ecosystem needs simultaneously. B) Establish geographic distribution of tick species in Alabama.

###### What has been done

A) Surveyed vertebrate communities in varying land-use sites to identify zoonotic reservoirs vector-borne illnesses, and used density and distribution data in combination with diagnostics to quantify the risk of vector-borne disease establishment in Alabama. B) Conducted field data collection and laboratory testing to establish geographic distribution of tick species.

###### Results

A) Identified *Ae. aegypti* in the state of Alabama, and found *Ae. albopictus* distributions to be heavily influenced by agricultural practices. B) Established a good understanding of the geographic distribution of various tick species across the lower 2/3 of Alabama.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

**Outcome #29**

**1. Outcome Measures**

the number of AU Researchers with increased knowledge of health disparities

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	1

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

**Issue (Who cares and Why)**

Goals are to: A) Elucidate group differences in health longitudinally--focusing on markers of inflammation and cardiovascular risk; B) Test for disparities in sleep and adaptive functioning as a function of social class and ethnicity; C.) Investigate the role of assistive intelligent agent technology in promoting health-related social networking and positive health behavior among rural elderly Alabamians at risk for health disparities.

**What has been done**

A) Blood pressure was assessed in African American and European American young children on 6 occasions between the ages of 24 and 78 months. Neighborhood socioeconomic disadvantage was assessed; B) Data were gathered children's sleep patterns and examined psychological and physiological (heart rate, respiration) outcomes; C) Designed a virtual pharmacist and sampled older adult users to provide evaluation feedback using structured surveys.

**Results**

A) Racial differences found in blood pressure emerged in early childhood; neighborhood socioeconomic disadvantage accounted for a portion of racial disparities. B) Sleep habits were found to contribute to ethnic differences in cardiovascular health in adulthood. C) Perceived ease of use due to virtual pharmacist assistance led to seniors' increased self-efficacy of using the e-pharmacy, and enhanced perceived social support and trust in the ability of the e-pharmacy to meet their needs.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #30**

**1. Outcome Measures**

Number of urban youth who increased knowledge of nutrition education

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	944

**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**

Eight Urban Regional Extension Agents (UREAs) taught six modules on nutrition, nutrients, food labels, portion control, sports nutrition, and chronic diseases to teenagers in the metropolitan areas.

**Results**

AAMU Extension Teens' increased nutrition, nutrients, food labels, portion control, and chronic diseases knowledge from pre (n=944)- 34% to post (n=921)- 53%.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #31**

**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
2017	500

**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**

Four iDance exercises were conducted per UREA, 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 1.2 million. The average calories burned per teen were 500.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle
806	Youth Development

**Outcome #32**

**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**

<b>Year</b>	<b>Actual</b>
2017	500

**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**

Based on the nutrition, nutrients, food labels, and portion control information when eating at home or out.

**Results**

Teens' consumption of food groups: Vegetables- pre (31%), post (54%), Fruits- pre (68%), post (82%), Whole grains- pre (16%), post (33%), Proteins- pre (84%), post (86%), Dairy- pre (43%), post (44%), High Fat Foods- pre (67%), post (46%).

**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

**Outcome #33**

**1. Outcome Measures**

Increased #/% of teenagers that were physically active for 60 minutes.

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	944

### 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

Eight Urban Regional Extension Agents (UREAs) taught four physical activity activities each class.

#### Results

Teenagers increased physical activity to 60 minutes per day: pre (46%) and post (67%).

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle
802	Human Development and Family Well-Being
806	Youth Development

### Outcome #34

#### 1. Outcome Measures

Increased % adults fruits, vegetable and physical activity knowledge.

#### 2. Associated Institution Types

- 1890 Extension

#### 3a. Outcome Type:

Change in Knowledge Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2017	1059

#### 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**

The behavioral change curriculum was implemented by six UREAs. The program was a series of four lessons each on fruits and vegetables and physical activity. The intervention method focused on the 'Small Steps' strategy using only two concepts to transform or modify existing behaviors to live a healthy lifestyle. This was the pilot year to learn about behavioral change best practices within urban audiences.

**Results**

Adults? before (n=1059) and after (n=1042) nutrition, chronic diseases and physical activity knowledge increased from pretest (43%) to posttest (82%).

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior

**Outcome #35**

**1. Outcome Measures**

Increased in % of participants fruits and vegetables consumption.

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	1059

**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**

The behavioral change curriculum was implemented by six UREAs. The program was a series of four lessons each on fruits and vegetables and physical activity. The intervention method focused on the "Small Steps" strategy using only two concepts to transform or modify existing behaviors to live a healthy lifestyle. This was the pilot year to learn about behavioral change best practices within urban audiences.

**Results**

Eating habits of participants before (n=1059) and after (n=1042) were assessed for fruit and vegetable consumption. The majority of consumed fruits- before (73%), after (87%) and vegetable- before (68%), after (73%). Increased fruits consumption to 2 cups per day and vegetables to 1 1/2 cups per day.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #36**

**1. Outcome Measures**

Increased in % of participants engaged in physical activity.

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	1059

**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**



The behavioral change curriculum was implemented by six UREAs. The program was a series of four lessons each on fruits and vegetables and physical activity. The intervention method focused on the "Small Steps" strategy using only two concepts to transform or modify existing behaviors to live a healthy lifestyle. This was the pilot year to learn about behavioral change best practices within urban audiences.

**Results**

Exercise habits of participants before (n=1059)- 53% and after (n=1042)- 59% engaged in some form of physical activity. Physical activity goals increased for 10-20 minutes per day to 30 minutes per day. Majority of participants exercised 3-5 days per week, engaging in aerobic activities 2-3 days per week for 10-30 minutes and strength training 1-3 days per week for 10-20 minutes.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #37**

**1. Outcome Measures**

Increased #/% of behavioral habits (fruits and vegetable and physical activity) 3-6 months post delayed.

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	632

**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**

The behavioral change curriculum was implemented by six UREAs. The program was a series of four lessons each on fruits and vegetables and physical activity. The intervention method focused on the "Small Steps" strategy using only two concepts to transform or modify existing behaviors to live a healthy lifestyle. This was the pilot year to learn about behavioral change best practices within urban audiences.

### Results

Behavioral habits of adults three-six months post-delayed (n=632) were assessed for consumption of fruits and vegetables. The majority consumed 1) Fruits 1-2 cups/day (72%) and 2) Vegetables were consumed 1-2 cups/day (58%). Participants engaged in physical activity for 3-5 days per week for 30 minutes (44%).

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle
802	Human Development and Family Well-Being

### Outcome #38

#### 1. Outcome Measures

Increase in % of adult participants who more often thought about healthy food choices when planning meals

#### 2. Associated Institution Types

- 1862 Extension

#### 3a. Outcome Type:

Change in Action Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2017	48

#### 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 and the Dietary Guidelines for Americans.

**Results**

62% more often thought about healthy food choices when deciding what to feed their families.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #39**

**1. Outcome Measures**

Increase in the #/% of adults reported their children ate breakfast more often

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	48

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

**Issue (Who cares and Why)**

Healthy eating in childhood and adolescence is important for proper growth and development and to prevent various health conditions. Eating a healthy breakfast is associated with improved cognitive function (especially memory), reduced absenteeism, and improved mood. Based on the 2015 High School Youth Risk Behavior Survey, 69.5% of Alabama High School youth completing the survey did not eat breakfast.

**What has been done**

Adult participants are taught the importance of providing and encouraging their children to consume breakfast daily.

**Results**

48% of the adult participants reported their children ate breakfast more often.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

#### Outcome #40

##### 1. Outcome Measures

Increase in the #/% of adult participants who used the Nutrition Facts on food labels to make food choices

##### 2. Associated Institution Types

- 1890 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	48

##### 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

83% of adult participants more often used the Nutrition Facts on food labels to make food choices

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #41**

**1. Outcome Measures**

Increase in #/% of adult participants that follow proper thawing techniques

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	48

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

**Issue (Who cares and Why)**

CDC estimates 48 million people get sick, 128,000 are hospitalized, and 3,000 die from foodborne diseases each year in the United States.

**What has been done**

UEFNEP adult participants were taught lessons on basic food safety, including safe thawing techniques.

**Results**

48% 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 #42**

**1. Outcome Measures**

Increase #/% of adult participants who follow food safety recommendations of not letting food sit out for more than 2 hours

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	48

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

**Issue (Who cares and Why)**

CDC estimates 48 million people get sick, 128,000 are hospitalized, and 3,000 die from foodborne diseases each year in the United States.

**What has been done**

UEFNEP adult participants were taught lessons on basic food safety, including refrigerating perishable food items within in 2 hours

**Results**

29% more often followed the recommended practices of not allowing meat and dairy foods to sit out for more than two hours.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #43**

**1. Outcome Measures**

Increased #/% of youth participants fruit and vegetable consumption

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2017	292

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Consuming fruits and vegetables are an important part of a healthy lifestyle. MyPlate and Dietary Guidelines emphasize consuming fruits and vegetables daily.

#### What has been done

UEFNEP Youth participants were taught lessons on basic nutrition, MyPlate and the 2015 Dietary Guidelines for Americans

#### Results

48% of 3rd-5th graders improved vegetable consumption

36% of 3rd-5th graders improved fruit consumption

81% of 6th to 8th graders improved vegetable consumption

63% of 6th to 8th graders improved fruit consumption

74% of 9th to 12th graders improved vegetable consumption

44% of 9th to 12th graders improved fruit consumption

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

### Outcome #44

#### 1. Outcome Measures

Increase in the #/% of youth participants who are physically active

#### 2. Associated Institution Types

- 1890 Extension

#### 3a. Outcome Type:

Change in Action Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2017	270

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Childhood obesity continues to be an issue across the United States. Increasing physical activity is important in reducing the prevalence of childhood obesity.

#### What has been done

UEFNEP participants were taught lessons on the importance of physical activity, and how healthy eating and physical activity work together for overall well being.

#### Results

33% of children and youth improved their physical activity practices.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle
806	Youth Development

### Outcome #45

#### 1. Outcome Measures

Increase in the #/% of youth participants that use safe food handling practices

#### 2. Associated Institution Types

- 1890 Extension

#### 3a. Outcome Type:

Change in Action Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2017	270

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



**Issue (Who cares and Why)**

CDC estimates 48 million people get sick, 128,000 are hospitalized, and 3,000 die from foodborne diseases each year in the United States. Utilizing safe food handling practices can help reduce the risk of foodborne diseases.

**What has been done**

UEFNEP youth participants were taught safe food handling practices.

**Results**

48% of the children and youth use safe food handling practices

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle
806	Youth Development

**Outcome #46**

**1. Outcome Measures**

Increase in the #/% of youth who consume sugary beverages

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	270

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

**Issue (Who cares and Why)**

According to the CDC, frequently drinking sugar-sweetened beverages is associated with weight gain/obesity, type 2 diabetes, heart disease, kidney diseases, non-alcoholic liver disease, tooth decay and cavities. Limiting the amount of sugary beverage intake can help individuals maintain a healthy weight and have a healthy diet.

**What has been done**

UEFNEP youth participants were taught about the health consequences of consuming sugary beverages, empty calories and alternative beverages options that are healthier.

**Results**

25% reduced their consumption of sugary beverages

**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

**Outcome #47**

**1. Outcome Measures**

number of EFNEP participants who increased food resource management skills

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	597

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

**Issue (Who cares and Why)**

Limited-resource families are more likely to 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 purchase food directly, get food from assistance programs, and identify ways to better manage food resources.

**What has been done**

In 2017, 28 peer educators in 26 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 (i.e., WIC, SNAP benefits, dollars, gardens, food bank) to not run out of money for food before the end of the month. Peer educators stay abreast of community resources so as to offer hunger reducing solutions and make referrals to the target audience.

**Results**

As a result of participating in EFNEP, 36% or 597 graduates showed improvement in their food resource management practices and less often ran out of food before the end of the month.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #48**

**1. Outcome Measures**

The number of children who eat more healthier foods

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	3817

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

**Issue (Who cares and Why)**

Childhood obesity is one the greatest and most pressing child health issues in the state of Alabama. Children of limite-resource families are at particular risk.

**What has been done**

Through school enrichment, short term programs, and after-school programming, 4580 Alabama children and youth, in grades kindergarten and grades 4-8, participated in CATCH (Coordinated Approach to Child Health) to increase nutrition education and physical activity levels.

**Results**

After 1,482 lessons and 4388 graduates, 87% of children and youth improved their abilities to choose foods according to Federal Dietary Recommendations while 49% improved their physical activity practices. 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>
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703 Nutrition Education and Behavior  
724 Healthy Lifestyle

### **Outcome #49**

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

Number of adults who adopted MyPlate Recommendations

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

- 1862 Extension

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

Change in Action Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2017	1670

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

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

Poor nutrition is a significant health concern and disproportionately affects minorities and other limited-resource Alabama populations. Through EFNEP, nutrition education opportunities and resources are increased.

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

In 2017, EFNEP reached 2051 limited-resource families directly and 7301 family members indirectly, helping them improve their diets and food-related behaviors. A total of 1670 completed the series of 6 or more lessons.

##### **Results**

For the 1670 adult EFNEP graduates, data reported through diet recalls show that EFNEP graduates eat more closely to MyPlate.gov recommendations by program exit.

Regarding the MyPlate recommendation to consume 6.0 ounces of grains daily, EFNEP graduates consume 6.3 ounces at program entry and 6.6 ounces at program exit.

Regarding the MyPlate recommendation to consume 2.5 cups of vegetables daily, EFNEP graduates consume 1.5 cups at program entry and 1.9 cups at program exit.

Regarding the MyPlate recommendation to consume 1.5 cups of fruit daily, EFNEP graduates consume 1.0 cups at program entry and 1.7 cups at program exit.

Regarding the MyPlate recommendation to consume 3.0 cups of dairy daily, EFNEP graduates consume 1.3 cups at program entry and 1.6 cups at program exit.

Regarding the MyPlate recommendation to consume 5.0 ounces of protein food daily, EFNEP graduates consume 6.5 ounces at program entry and 7.5 ounces at program exit.

The data also show there is still a need for nutrition education.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

#### Outcome #50

##### 1. Outcome Measures

The number of Right Bite participants who increased healthy

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	405

##### 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**

Paired sample t-tests were conducted on 10 paired healthy behavior variables. Of the 10 pairs analyzed, 1 pair was significantly different at the .005 level.

Use the nutrition facts on the food label

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #51**

**1. Outcome Measures**

The number of Right Bite adults with increased healthy nutrition behavior

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	0

**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**

Paired sample t-tests were conducted on 10 paired healthy behavior variables. Of the 10 pairs analyzed, 9 pairs were significantly differently at the .001 level.

- Salt your foods at the table
- Eat foods with 2-3 grams of fiber per serving
- Eat 3 veggies per day
- Eat a non-starchy veggie at lunch and dinner
- Drink sugar sweetened beverages
- Drink 8 glasses of water in a day
- Drink water before a meal to reduce hunger
- Use your hand to show portion size
- Use canola, peanut, or olive oil in place of other oils
- Drink sugar sweetened beverages

Paired sample t-tests were conducted on 10 paired healthy behavior variables. Of the 10 pairs analyzed, 1 pair was significantly different at the .005 level.

Use the nutrition facts on the food label

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #52**

**1. Outcome Measures**

Difference in percent of vegetables consumed between Body Quest treatment group students and control group students at post-analysis as measured through school lunch

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	3394

**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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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 ANOVA:

Body Quest treatment group students (n=1,861) reported significantly higher ( $F(1,3391)=4.383$ ;  $p=0.036$ ;  $\eta^2=0.001$ ) vegetable consumption through the School Lunch Program compared to control group students (n=1,533) at post-analysis.

## **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

### **Outcome #53**

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

Difference in percent of vegetables consumed by Body Quest treatment group students from pre- to post-assessment as measured through school lunch

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

- 1862 Extension

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

Change in Action Outcome Measure



### 3b. Quantitative Outcome

Year	Actual
2017	1861

### 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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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=1,861) reported a significant increase (t=2.5, p<0.05) in percent of vegetable consumed through the School Lunch Program from pre- to post-assessment.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

#### Outcome #54

##### 1. Outcome Measures

Difference in vegetable consumption between Body Quest treatment group students and control group students at post-analysis as measured through self-report

##### 2. Associated Institution Types

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	4034

**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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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=2,189) reported significantly higher (t=6.67, p<0.001) vegetable consumption compared to control group students (n=1,845) at post-analysis.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

## **Outcome #55**

### **1. Outcome Measures**

Difference in vegetable consumption of Body Quest treatment group students from pre- to post-assessment as measured through self-report

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

- 1862 Extension

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

Change in Action Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2017	2189

### **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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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=2,189) reported a significant increase (t=7.57, p<0.001) in vegetable consumption from pre- to post-assessment.

### **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**

Difference in fruit consumption between Body Quest treatment group students and control group students at post-analysis as measured through self-report

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	4028

**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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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**

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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #57**

**1. Outcome Measures**

Difference in fruit consumption of Body Quest treatment group students from pre- to post-assessment as measured through self-report

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	2188

**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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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=2,188) reported a significant increase (t=6.47, p<0.001) in fruit consumption from pre- to post-assessment.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

### Outcome #58

#### 1. Outcome Measures

Difference in fruit and vegetable consumption as snacks between Body Quest treatment group students and control group students at post-analysis as measured through self-report

#### 2. Associated Institution Types

- 1862 Extension

#### 3a. Outcome Type:

Change in Action Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2017	4021

#### 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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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=2,186) reported significantly higher (t=11.35, p<0.001) fruit and vegetable consumption as snacks compared to control group students (n=1,835) at post-analysis.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior

**Outcome #59**

**1. Outcome Measures**

Difference in fruit and vegetable consumption as snacks of Body Quest treatment group students from pre- to post-assessment as measured through self-report

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	2186

**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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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=2,186) reported a significant increase (t=9.38, p<0.001) in fruit and vegetable consumption as snacks from pre- to post-assessment.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #60**

**1. Outcome Measures**

Difference in variety of vegetables consumed by Body Quest treatment group students from pre- to post-assessment as measured through self-report

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	2178

**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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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=2,178) reported a significant increase (t=3.64, p<0.001) in variety of vegetables consumed from pre- to post-assessment.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #61**

**1. Outcome Measures**

Difference in variety of fruits consumed between Body Quest treatment group students and control group students at post-analysis as measured through self-report

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	4020

**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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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=2,186) reported significantly greater (t=5.68, p<0.001) variety of fruits consumed compared to control group students (n=1,834) at post-analysis.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #62**

**1. Outcome Measures**

Difference in variety of fruits consumed by Body Quest treatment group students from pre- to post-assessment as measured through self-report

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	2186

**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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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=2,186) reported a significant increase (t=3.82, p<0.001) in variety of fruits consumed from pre- to post-assessment.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #63**

**1. Outcome Measures**

Difference in students' report of asking parents to buy vegetables between Body Quest treatment group students and control group students at post-analysis

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	3396

**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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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=2,172) reported a significantly higher (t=4.92, p<0.001) incidence of asking parents to buy vegetables compared to control group students (n=1,824) at post-analysis.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #64**

**1. Outcome Measures**

Difference in students' report of asking parents to buy vegetables by Body Quest treatment group students 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>
2017	2172

### 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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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=2,172) reported a significant increase (t=4.40, p<0.001) in reporting asking parents to buy vegetables from pre- to post-assessment.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

#### Outcome #65

##### 1. Outcome Measures

Difference in availability of vegetables as snacks in the home between Body Quest treatment group students and control group students at post-analysis as measured through self-report

##### 2. Associated Institution Types

- 1862 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)

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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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=2,183) reported significantly greater (t=3.59, p<0.001) availability of vegetables as snacks in the home compared to control group students (n=1,827) at post-analysis.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

#### Outcome #66

##### 1. Outcome Measures

Difference in availability of vegetables as snacks in the home of Body Quest treatment group students from pre- to post-assessment as measured through self-report

##### 2. Associated Institution Types

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	2183

**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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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=2,183) reported a significant increase (t=4.43, p<0.001) in reporting availability of vegetables as snacks in the home from pre- to post-assessment.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle

**Outcome #67**

**1. Outcome Measures**

Difference in water consumption between Body Quest treatment group students and control group students at post-analysis as measured through self-report

## 2. Associated Institution Types

- 1862 Extension

### 3a. Outcome Type:

Change in Action Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2017	4007

### 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 high sugar-sweetened beverage (SSB) consumption. Currently, Alabama children exceed recommendations for SSB 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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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=2,186) reported significantly higher (7.41,  $p < 0.001$ ) water consumption compared to control group students (n=1,821) at post-analysis.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior



## **Outcome #68**

### **1. Outcome Measures**

Difference in water consumption of Body Quest treatment group students from pre- to post-assessment as measured through self-report

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

- 1862 Extension

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

Change in Action Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2017	2186

### **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 high sugar-sweetened beverage (SSB) consumption. Currently, Alabama children exceed recommendations for SSB 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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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=2,186) reported a significant increase (t=3.32, p<0.001) in water consumption from pre- to post-assessment.

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

**KA Code**    **Knowledge Area**  
703            Nutrition Education and Behavior

**Outcome #69**

**1. Outcome Measures**

Difference in consumption of SSB including punch, sports drinks or other fruit-flavored drinks between Body Quest treatment group students and control group students at post-analysis as measured through self-report

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	4006

**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 high sugar-sweetened beverage (SSB) consumption. Currently, Alabama children exceed recommendations for SSB 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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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=2,183) reported significantly lower (6.79, p<0.001) SSB

consumption including punch, sports drinks or other fruit-flavored drinks compared to control group students (n=1,823) at post-analysis.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #70**

**1. Outcome Measures**

Difference in consumption of SSB including punch, sports drinks or other fruit-flavored drinks by Body Quest treatment group students from pre- to post-assessment as measured through self-report

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	2183

**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 high sugar-sweetened beverage (SSB) consumption. Currently, Alabama children exceed recommendations for SSB 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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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=2,183) reported a significant decrease (t=8.00, p<0.001) in SSB consumption including punch, sports drinks or other fruit-flavored drinks from pre- to post-assessment.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

### Outcome #71

#### 1. Outcome Measures

Difference in consumption of SSB including regular non-diet sodas or soft drinks between Body Quest treatment group students and control group students at post-analysis as measured through self-report

#### 2. Associated Institution Types

- 1862 Extension

#### 3a. Outcome Type:

Change in Action Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2017	4012

#### 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 high sugar-sweetened beverage (SSB) consumption. Currently, Alabama children exceed recommendations for SSB 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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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=2,180) reported significantly lower (6.51,  $p < 0.001$ ) SSB consumption including regular non-diet sodas or soft drinks compared to control group students (n=1,832) at post-analysis.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

### Outcome #72

#### 1. Outcome Measures

Difference in consumption of SSB including regular non-diet sodas or soft drinks by Body Quest treatment group students from pre- to post-assessment as measured through self-report

#### 2. Associated Institution Types

- 1862 Extension

#### 3a. Outcome Type:

Change in Action Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2017	2180

#### 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 high sugar-sweetened beverage (SSB) consumption. Currently, Alabama children exceed recommendations for SSB 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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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=2,180) reported a significant decrease (t=7.97, p<0.001) in SSB consumption including regular non-diet sodas or soft drinks from pre- to post-assessment.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #73**

**1. Outcome Measures**

Difference in family physical activity between Body Quest treatment group students and control group students at post-analysis as measured through self-report

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	3979

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

**Issue (Who cares and Why)**

Nineteen percent of Alabama's children ages 10-17 are obese. Dietary and physical activity patterns begin in childhood making child nutrition and physical activity 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 physical activity rates. Currently, Alabama children do not meet recommendations for physical activity. 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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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 analysis:

Body Quest treatment group students (n=2,167) reported significantly more (&#967;2=4.817, p=0.028) family physical activity compared to control group students (n=1,812) at post-analysis.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior

**Outcome #74**

**1. Outcome Measures**

Difference in family physical activity of Body Quest treatment group students from pre- to post-assessment as measured through self-report

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	2167

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

**Issue (Who cares and Why)**

Nineteen percent of Alabama's children ages 10-17 are obese. Dietary and physical activity patterns begin in childhood making child nutrition and physical activity 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 physical activity rates. Currently, Alabama children do not meet recommendations for physical activity. 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 FY17, each SNAP-Ed Extension, full-time nutrition educator (n=33) 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 analysis:

Body Quest treatment group students (n=2,167) reported a significant increase ( $\chi^2=6.932$ ,  $p=0.008$ ) in family physical activity from pre- to post-assessment.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #75**

**1. Outcome Measures**

Percent of treatment group parents who increased healthy food and beverage choices from pre- to post-assessment

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	1153



### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Thirty-five percent of Alabama's adults are obese. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. Reaching adults in low-income communities through SNAP-Ed is a key strategy for tackling Alabama's obesity and health issues. One critical strategy is educating parents of Body Quest students to influence food and beverage choices of adults.

#### 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:

- 31% ate more vegetables
- 36% ate more fruit
- 27% ate a variety of vegetables more often
- 28% ate a variety of fruit more often
- 20% drank more water
- 36% drank fewer sugary beverages
- 26% drank more low-fat or fat-free milk

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

#### Outcome #76

##### 1. Outcome Measures

Percent of treatment group parents who improved 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>
2017	1164

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

**Issue (Who cares and Why)**

Thirty-five percent of Alabama's adults are obese. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. Reaching adults in low-income communities through SNAP-Ed is a key strategy for tackling Alabama's obesity and health issues. One critical strategy is educating parents of Body Quest students to influence shopping behaviors of adults.

**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:

- 25% ran out of food less often
- 28% compared prices at grocery stores more often
- 29% changed meals to include budget-friendly ingredients more often
- 29% shopped with a list more often
- 32% chose more healthy foods for their family more often
- 34% read Nutrition Facts labels more often
- 34% bought low-fat or fat-free dairy more often
- 32% bought foods with lower added sugar more often
- 33% bought lower sodium foods more often

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #77**

**1. Outcome Measures**

Percent of treatment group parents who increased physical activity 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>
2017	1153

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

**Issue (Who cares and Why)**

Thirty-five percent of Alabama's adults are obese. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. Reaching adults in low-income communities through SNAP-Ed is a key strategy for tackling Alabama's obesity and health issues. One critical strategy is educating parents of Body Quest students to influence physical activity behaviors of adults.

**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:

32% were more physically active

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #78**

**1. Outcome Measures**

Percent of treatment group parents who responded positively to text message poll survey questions

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	458

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

**Issue (Who cares and Why)**

Thirty-five percent of Alabama's adults are obese. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. Reaching adults in low-income communities through SNAP-Ed is a key strategy for tackling Alabama's obesity and health issues. One critical strategy is educating parents of Body Quest students through text messaging.

**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 given text messaging poll survey questions to determine effectiveness of text program and individual parent and student healthy eating and physical activity behaviors. An Institutional Review Board approved this study.

**Results**

Based on data analyzed by increased frequency from pre- to post-assessment:

- 97% enjoyed Body Quest texts
- 99% used tips in text messages at least sometimes
- 55% used tips often or every week
- 79% bought more fruits and vegetables
- 77% said their 3rd graders eats more vegetables
- 82% drink fewer sugary beverages
- 93% have found more ways to be active with their 3rd grader
- 88% said their 3rd grader asks them to buy vegetables

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

#### Outcome #79

##### 1. Outcome Measures

Percent of Body Quest parents participating in a statewide phone survey who recalled seeing at least one billboard from a social marketing billboard campaign for healthy eating and physical activity

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	433

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

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

Thirty-five percent of Alabama's adults are obese. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. Reaching adults in low-income communities through SNAP-Ed is a key strategy for tackling Alabama's obesity and health issues. One critical strategy is educating parents of Body Quest students through social marketing billboard campaign.

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

Live Well Alabama messages of Eat Better, Move More and Make a Change blanketed the state through an outdoor advertising campaign including billboards and banners. For 12 weeks, from January through March 2017, 93 billboards in 51 counties displayed each of the three core messages, changing every 4 weeks. Billboards resulted in over 55 million impressions on Alabamians. A phone survey was conducted with Body Quest parents to examine individual diet and physical activity behaviors based on influence of billboard campaign.

###### **Results**

Based on phone survey results:

38% of Body Quest parents surveyed recalled seeing at least one of the three Live Well Alabama outdoor billboards

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

#### Outcome #80

##### 1. Outcome Measures

Percent of Body Quest parents participating in a statewide phone survey who as a result of a billboard campaign improved healthy eating and physical activity behaviors

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	165

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

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

Thirty-five percent of Alabama's adults are obese. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. Reaching adults in low-income communities through SNAP-Ed is a key strategy for tackling Alabama's obesity and health issues. One critical strategy is educating parents of Body Quest students through social marketing billboard campaign.

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

Live Well Alabama messages of Eat Better, Move More and Make a Change blanketed the state through an outdoor advertising campaign including billboards and banners. For 12 weeks, from January through March 2017, 93 billboards in 51 counties displayed each of the three core messages, changing every 4 weeks. Billboards resulted in over 55 million impressions on Alabamians. A phone survey was conducted with Body Quest parents to examine individual diet and physical activity behaviors based on influence of billboard campaign.

###### **Results**

Respondents who were exposed to the billboard campaign were asked if seeing the messages led them to try something new or do something different for themselves or their families. Some common responses were:

- 46% planned healthy meals
- 45% ate more fruits and vegetables

- 41% bought more fruits and vegetables
- 39% drank more water
- 34% exercised more

#### 4. Associated Knowledge Areas

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

#### Outcome #81

##### 1. Outcome Measures

Difference in vegetable consumption between Body Quest parents who recalled seeing billboards and those who did not as measured through phone surveys

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	433

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

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

Thirty-five percent of Alabama's adults are obese. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. Reaching adults in low-income communities through SNAP-Ed is a key strategy for tackling Alabama's obesity and health issues. One critical strategy is educating parents of Body Quest students through social marketing billboard campaign.

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

Live Well Alabama messages of Eat Better, Move More and Make a Change blanketed the state through an outdoor advertising campaign including billboards and banners. For 12 weeks, from January through March 2017, 93 billboards in 51 counties displayed each of the three core messages, changing every 4 weeks. Billboards resulted in over 55 million impressions on Alabamians. A phone survey was conducted with Body Quest parents to examine individual diet and physical activity behaviors based on influence of billboard campaign.

###### **Results**

A comparison of behaviors was made between those parents who recalled seeing the billboards and those who did not. Two-sided t-tests of independent samples were conducted to compare fruit and vegetable consumption in the exposed and not exposed respondents.

Respondents who were exposed to the billboard campaign ate more cups of vegetables per day than those who were not exposed (1.9 and 1.6 cups, respectively) ( $p = 0.001$ ).

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

#### Outcome #82

##### 1. Outcome Measures

Difference in fruit consumption between Body Quest parents who recalled seeing billboards and those who did not as measured through phone surveys

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	433

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

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

Thirty-five percent of Alabama's adults are obese. Alabama has among the highest obesity rates and obesity-related disease rates in the nation. Reaching adults in low-income communities through SNAP-Ed is a key strategy for tackling Alabama's obesity and health issues. One critical strategy is educating parents of Body Quest students through social marketing billboard campaign.

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

Live Well Alabama messages of Eat Better, Move More and Make a Change blanketed the state through an outdoor advertising campaign including billboards and banners. For 12 weeks, from January through March 2017, 93 billboards in 51 counties displayed each of the three core messages, changing every 4 weeks. Billboards resulted in over 55 million impressions on Alabamians. A phone survey was conducted with Body Quest parents to examine individual diet and physical activity behaviors based on influence of billboard campaign.

###### **Results**



A comparison of behaviors was made between those parents who recalled seeing the billboards and those who did not. Two-sided t-tests of independent samples were conducted to compare fruit and vegetable consumption in the exposed and not exposed respondents.

Respondents who were exposed to the billboard campaign ate more cups of fruit per day than those who were not exposed (1.8 and 1.3 cups, respectively) ( $p < 0.001$ ).

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior

**Outcome #83**

**1. Outcome Measures**

Number of people reached through a healthy retail initiative to increase access and appeal of healthy food and beverages

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	7980

**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 SNAP-Ed to tackle obesity and health issues in Alabama is working with partners to change health-related policies, systems and environments.

**What has been done**

SNAP-Ed facilitated local and state policy changes, systems changes, environmental improvements and promotional efforts to make it easier for individuals with limited resources to choose healthy foods, healthy beverages and physically active lifestyles through collaborations with local, state and national leaders and stakeholders.

**Results**

Based on reach calculation in retail environment:

7,980 individuals reached per day

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #84**

**1. Outcome Measures**

Number of policy, systems, environmental and promotional improvements in community and school gardens

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	53

**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 SNAP-Ed to tackle obesity and health issues in Alabama is working with partners to change health-related policies, systems and environments.

**What has been done**

SNAP-Ed facilitated local and state policy changes, systems changes, environmental improvements and promotional efforts to make it easier for individuals with limited resources to choose healthy foods, healthy beverages and physically active lifestyles through collaborations with local, state and national leaders and stakeholders.

**Results**

11 systems changes meant processes at food pantries, hospitals and schools were adjusted to allow acceptance of fresh, local produce from gardens.

27 environmental improvements enhanced row-based, raised bed, hoop house and container

gardening practices. Small tools and other supplies also were provided.

15 promotional efforts provided recipe demonstrations, tastings and information materials to encourage use of fresh fruits and vegetables grown in the gardens.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #85**

**1. Outcome Measures**

Number of people reached through emergency food assistance initiatives to increase access and appeal of healthy food

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	3257

**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 SNAP-Ed to tackle obesity and health issues in Alabama is working with partners to change health-related policies, systems and environments.

**What has been done**

SNAP-Ed facilitated local and state policy changes, systems changes, environmental improvements and promotional efforts to make it easier for individuals with limited resources to choose healthy foods, healthy beverages and physically active lifestyles through collaborations with local, state and national leaders and stakeholders.

**Results**

Based on reach calculation for emergency food assistance sites:

3,257 individuals

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

#### Outcome #86

##### 1. Outcome Measures

Number of policy, systems, environmental and promotional improvements in emergency food assistance sites

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	0

##### 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 SNAP-Ed to tackle obesity and health issues in Alabama is working with partners to change health-related policies, systems and environments.

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

SNAP-Ed facilitated local and state policy changes, systems changes, environmental improvements and promotional efforts to make it easier for individuals with limited resources to choose healthy foods, healthy beverages and physically active lifestyles through collaborations with local, state and national leaders and stakeholders.

###### **Results**

16 systems changes expanded public transportation routes to food pantries, adjusted donation rules at food pantries to allow and encourage fresh produce and adjusted donation rules with backpack programs to encourage healthy foods.

13 environmental improvements increased shelf space for healthy foods and beverages; established, reinvigorated or sustained edible gardens to increase availability of fresh produce at food pantries; and in partnership with CDC ALProHealth, improved facilities for stocking fresh produce.

73 promotional efforts provided recipe demonstrations, tastings and distribution prompts.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior

**Outcome #87**

**1. Outcome Measures**

Number of people reached through farmers market initiatives to increase access and appeal of healthy food

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	6275

**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 SNAP-Ed to tackle obesity and health issues in Alabama is working with partners to change health-related policies, systems and environments.

**What has been done**

SNAP-Ed facilitated local and state policy changes, systems changes, environmental improvements and promotional efforts to make it easier for individuals with limited resources to choose healthy foods, healthy beverages and physically active lifestyles through collaborations with local, state and national leaders and stakeholders.

**Results**

Based on reach calculation for farmers markets:

6,275 individuals

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #88**

**1. Outcome Measures**

Number of policy, systems, environmental and promotional improvements in 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>
2017	84

**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 SNAP-Ed to tackle obesity and health issues in Alabama is working with partners to change health-related policies, systems and environments.

**What has been done**

SNAP-Ed facilitated local and state policy changes, systems changes, environmental improvements and promotional efforts to make it easier for individuals with limited resources to choose healthy foods, healthy beverages and physically active lifestyles through collaborations with local, state and national leaders and stakeholders.

**Results**

11 policy changes improved days and hours of operation to make farmers markets more convenient for local residents.

13 systems changes expanded public transportation routes to farmers markets, began a coupon

initiative and promoted acceptance of SNAP EBT payment for produce.

4 environmental improvements supported facility upgrades through partnership with CDC ALProHealth.

56 promotional efforts provided recipe demonstrations, tastings and signage.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

**Outcome #89**

**1. Outcome Measures**

Number of policy, systems, environmental and promotional improvements in parks and trails

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	6

**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 SNAP-Ed to tackle obesity and health issues in Alabama is working with partners to change health-related policies, systems and environments.

**What has been done**

SNAP-Ed facilitated local and state policy changes, systems changes, environmental improvements and promotional efforts to make it easier for individuals with limited resources to choose healthy foods, healthy beverages and physically active lifestyles through collaborations with local, state and national leaders and stakeholders.

**Results**

4 environmental improvements enhanced physical activity facilities.

2 promotional efforts advertised physical activity opportunities.

#### 4. Associated Knowledge Areas

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

#### Outcome #90

##### 1. Outcome Measures

Number of faith communities who began providing physical activity opportunities at meetings or functions as a result of participating in LWFC

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	1

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

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

Overweight and obesity affect more than two-thirds of adults in the US. The southeastern region exhibits higher obesity rates than other regions. Further, rates of obesity are disproportionately higher among rural and limited resource populations. Alabama ranks second nationally with 35.6% of adults being obese. Obesity is a major public health itself, and obesity contributes to other chronic diseases. Approaches to reduce obesity and chronic disease are expanding to include multiple levels of the social ecological model, such as policy, systems and environmental strategies in community settings and behavior change strategies at the individual level. Because of this, faith communities are opportunistic settings for multi-level efforts. Growing evidence supports the efficacy of faith community health interventions.

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

LWFC seeks to promote healthy eating and active living by shifting the culture to more healthful behaviors, practices, environments, systems and policies through the use of direct education and policy, systems and environmental (PSE) strategies. Specifically, LWFC seeks to increase the number of faith communities promoting and supporting healthy eating and physical activity. LWFC also seeks to improve individual behaviors related to planning, shopping and preparation practices; fruit and vegetable consumption; water consumption; and regular physical activity



### Results

Based on pre- and post-assessment descriptive statistics, one faith community participating in LWFC began providing physical activity opportunities at meetings or functions.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

### Outcome #91

#### 1. Outcome Measures

Number of faith communities who began offering exercise classes as a result of participating in LWFC

#### 2. Associated Institution Types

- 1862 Extension

#### 3a. Outcome Type:

Change in Action Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2017	1

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

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

Overweight and obesity affect more than two-thirds of adults in the US. The southeastern region exhibits higher obesity rates than other regions. Further, rates of obesity are disproportionately higher among rural and limited resource populations. Alabama ranks second nationally with 35.6% of adults being obese. Obesity is a major public health itself, and obesity contributes to other chronic diseases. Approaches to reduce obesity and chronic disease are expanding to include multiple levels of the social ecological model, such as policy, systems and environmental strategies in community settings and behavior change strategies at the individual level. Because of this, faith communities are opportunistic settings for multi-level efforts. Growing evidence supports the efficacy of faith community health interventions.

##### What has been done

LWFC seeks to promote healthy eating and active living by shifting the culture to more healthful behaviors, practices, environments, systems and policies through the use of direct education and policy, systems and environmental (PSE) strategies. Specifically, LWFC seeks to increase the number of faith communities promoting and supporting healthy eating and physical activity. LWFC

also seeks to improve individual behaviors related to planning, shopping and preparation practices; fruit and vegetable consumption; water consumption; and regular physical activity participation.

**Results**

Based on pre- and post-assessment descriptive statistics, one faith community participating in LWFC began offering exercise classes.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior

**Outcome #92**

**1. Outcome Measures**

Number of faith communities adopting guidelines requiring fruits to be offered at faith community meals or snacks

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	2

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

**Issue (Who cares and Why)**

Overweight and obesity affect more than two-thirds of adults in the US. The southeastern region exhibits higher obesity rates than other regions. Further, rates of obesity are disproportionately higher among rural and limited resource populations. Alabama ranks second nationally with 35.6% of adults being obese. Obesity is a major public health itself, and obesity contributes to other chronic diseases. Approaches to reduce obesity and chronic disease are expanding to include multiple levels of the social ecological model, such as policy, systems and environmental strategies in community settings and behavior change strategies at the individual level. Because of this, faith communities are opportunistic settings for multi-level efforts. Growing evidence supports the efficacy of faith community health interventions.

**What has been done**

LWFC seeks to promote healthy eating and active living by shifting the culture to more healthful behaviors, practices, environments, systems and policies through the use of direct education and policy, systems and environmental (PSE) strategies. Specifically, LWFC seeks to increase the

number of faith communities promoting and supporting healthy eating and physical activity. LWFC also seeks to improve individual behaviors related to planning, shopping and preparation practices; fruit and vegetable consumption; water consumption; and regular physical activity participation.

**Results**

Based on pre- and post-assessment descriptive statistics, two faith communities participating in LWFC adopted guidelines requiring fruits to be offered at faith community meals or snacks.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #93**

**1. Outcome Measures**

Number of faith communities adopting guidelines requiring vegetables to be offered at faith community meals or snacks

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	3

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

**Issue (Who cares and Why)**

Overweight and obesity affect more than two-thirds of adults in the US. The southeastern region exhibits higher obesity rates than other regions. Further, rates of obesity are disproportionately higher among rural and limited resource populations. Alabama ranks second nationally with 35.6% of adults being obese. Obesity is a major public health itself, and obesity contributes to other chronic diseases. Approaches to reduce obesity and chronic disease are expanding to include multiple levels of the social ecological model, such as policy, systems and environmental strategies in community settings and behavior change strategies at the individual level. Because of this, faith communities are opportunistic settings for multi-level efforts. Growing evidence supports the efficacy of faith community health interventions.

**What has been done**

LWFC seeks to promote healthy eating and active living by shifting the culture to more healthful behaviors, practices, environments, systems and policies through the use of direct education and policy, systems and environmental (PSE) strategies. Specifically, LWFC seeks to increase the number of faith communities promoting and supporting healthy eating and physical activity. LWFC also seeks to improve individual behaviors related to planning, shopping and preparation practices; fruit and vegetable consumption; water consumption; and regular physical activity participation.

**Results**

Based on pre- and post-assessment descriptive statistics, three faith communities participating in LWFC adopted guidelines requiring vegetables to be offered at faith community meals or snacks.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #94**

**1. Outcome Measures**

Number of faith communities adopting guidelines requiring non-fried foods to be offered at faith community meals or snacks

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	2

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

**Issue (Who cares and Why)**

Overweight and obesity affect more than two-thirds of adults in the US. The southeastern region exhibits higher obesity rates than other regions. Further, rates of obesity are disproportionately higher among rural and limited resource populations. Alabama ranks second nationally with 35.6% of adults being obese. Obesity is a major public health itself, and obesity contributes to other chronic diseases. Approaches to reduce obesity and chronic disease are expanding to include multiple levels of the social ecological model, such as policy, systems and environmental strategies in community settings and behavior change strategies at the individual level. Because of this, faith communities are opportunistic settings for multi-level efforts. Growing evidence

supports the efficacy of faith community health interventions.

**What has been done**

LWFC seeks to promote healthy eating and active living by shifting the culture to more healthful behaviors, practices, environments, systems and policies through the use of direct education and policy, systems and environmental (PSE) strategies. Specifically, LWFC seeks to increase the number of faith communities promoting and supporting healthy eating and physical activity. LWFC also seeks to improve individual behaviors related to planning, shopping and preparation practices; fruit and vegetable consumption; water consumption; and regular physical activity participation.

**Results**

Based on pre- and post-assessment descriptive statistics, two faith communities participating in LWFC adopted guidelines requiring non-fried foods to be offered at faith community meals or snacks.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #95**

**1. Outcome Measures**

Number of faith communities adopting guidelines requiring foods with low or no sugar added to be offered at faith community meals or snacks

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	1

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

**Issue (Who cares and Why)**

Overweight and obesity affect more than two-thirds of adults in the US. The southeastern region exhibits higher obesity rates than other regions. Further, rates of obesity are disproportionately higher among rural and limited resource populations. Alabama ranks second nationally with 35.6% of adults being obese. Obesity is a major public health itself, and obesity contributes to

other chronic diseases. Approaches to reduce obesity and chronic disease are expanding to include multiple levels of the social ecological model, such as policy, systems and environmental strategies in community settings and behavior change strategies at the individual level. Because of this, faith communities are opportunistic settings for multi-level efforts. Growing evidence supports the efficacy of faith community health interventions.

**What has been done**

LWFC seeks to promote healthy eating and active living by shifting the culture to more healthful behaviors, practices, environments, systems and policies through the use of direct education and policy, systems and environmental (PSE) strategies. Specifically, LWFC seeks to increase the number of faith communities promoting and supporting healthy eating and physical activity. LWFC also seeks to improve individual behaviors related to planning, shopping and preparation practices; fruit and vegetable consumption; water consumption; and regular physical activity participation.

**Results**

Based on pre- and post-assessment descriptive statistics, one faith community participating in LWFC adopted guidelines requiring foods with low or no sugar added to be offered at faith community meals or snacks.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #96**

**1. Outcome Measures**

Number of faith communities who started an onsite garden

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	1

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

**Issue (Who cares and Why)**

Overweight and obesity affect more than two-thirds of adults in the US. The southeastern region exhibits higher obesity rates than other regions. Further, rates of obesity are disproportionately higher among rural and limited resource populations. Alabama ranks second nationally with 35.6% of adults being obese. Obesity is a major public health itself, and obesity contributes to other chronic diseases. Approaches to reduce obesity and chronic disease are expanding to include multiple levels of the social ecological model, such as policy, systems and environmental strategies in community settings and behavior change strategies at the individual level. Because of this, faith communities are opportunistic settings for multi-level efforts. Growing evidence supports the efficacy of faith community health interventions.

**What has been done**

LWFC seeks to promote healthy eating and active living by shifting the culture to more healthful behaviors, practices, environments, systems and policies through the use of direct education and policy, systems and environmental (PSE) strategies. Specifically, LWFC seeks to increase the number of faith communities promoting and supporting healthy eating and physical activity. LWFC also seeks to improve individual behaviors related to planning, shopping and preparation practices; fruit and vegetable consumption; water consumption; and regular physical activity participation.

**Results**

Based on pre- and post-assessment descriptive statistics, one faith community participating in LWFC launched an onsite garden.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #97**

**1. Outcome Measures**

Change in contemplating healthy food choices when deciding what to feed families (pre to post comparison of individuals participating in LWFC)

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	121

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Overweight and obesity affect more than two-thirds of adults in the US. The southeastern region exhibits higher obesity rates than other regions. Further, rates of obesity are disproportionately higher among rural and limited resource populations. Alabama ranks second nationally with 35.6% of adults being obese. Obesity is a major public health itself, and obesity contributes to other chronic diseases. Approaches to reduce obesity and chronic disease are expanding to include multiple levels of the social ecological model, such as policy, systems and environmental strategies in community settings and behavior change strategies at the individual level. Because of this, faith communities are opportunistic settings for multi-level efforts. Growing evidence supports the efficacy of faith community health interventions.

#### What has been done

LWFC seeks to promote healthy eating and active living by shifting the culture to more healthful behaviors, practices, environments, systems and policies through the use of direct education and policy, systems and environmental (PSE) strategies. Specifically, LWFC seeks to increase the number of faith communities promoting and supporting healthy eating and physical activity. LWFC also seeks to improve individual behaviors related to planning, shopping and preparation practices; fruit and vegetable consumption; water consumption; and regular physical activity participation.

#### Results

Individuals participating in Live Well Faith Communities (n=121) reported a significant [t(119)=-3.435, p=.001] improvement from pre to post assessment in how often they think about healthy food choices when deciding what to feed their families.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

### Outcome #98

#### 1. Outcome Measures

Change in comparing prices before purchasing food (pre to post comparison of individuals participating in LWFC)

#### 2. Associated Institution Types

- 1862 Extension

#### 3a. Outcome Type:

Change in Action Outcome Measure



### 3b. Quantitative Outcome

Year	Actual
2017	120

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Overweight and obesity affect more than two-thirds of adults in the US. The southeastern region exhibits higher obesity rates than other regions. Further, rates of obesity are disproportionately higher among rural and limited resource populations. Alabama ranks second nationally with 35.6% of adults being obese. Obesity is a major public health itself, and obesity contributes to other chronic diseases. Approaches to reduce obesity and chronic disease are expanding to include multiple levels of the social ecological model, such as policy, systems and environmental strategies in community settings and behavior change strategies at the individual level. Because of this, faith communities are opportunistic settings for multi-level efforts. Growing evidence supports the efficacy of faith community health interventions.

#### What has been done

LWFC seeks to promote healthy eating and active living by shifting the culture to more healthful behaviors, practices, environments, systems and policies through the use of direct education and policy, systems and environmental (PSE) strategies. Specifically, LWFC seeks to increase the number of faith communities promoting and supporting healthy eating and physical activity. LWFC also seeks to improve individual behaviors related to planning, shopping and preparation practices; fruit and vegetable consumption; water consumption; and regular physical activity participation.

#### Results

Individuals participating in Live Well Faith Communities (n=120) reported a significant [t(118)=-2.523, p=.013] improvement from pre to post assessment in how often they compare prices before purchasing food.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

### Outcome #99

#### 1. Outcome Measures

Change in using "Nutrition Facts" on the food label to make food choices (pre to post comparison of individuals participating in LWFC)

#### 2. Associated Institution Types

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	122

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

**Issue (Who cares and Why)**

Overweight and obesity affect more than two-thirds of adults in the US. The southeastern region exhibits higher obesity rates than other regions. Further, rates of obesity are disproportionately higher among rural and limited resource populations. Alabama ranks second nationally with 35.6% of adults being obese. Obesity is a major public health itself, and obesity contributes to other chronic diseases. Approaches to reduce obesity and chronic disease are expanding to include multiple levels of the social ecological model, such as policy, systems and environmental strategies in community settings and behavior change strategies at the individual level. Because of this, faith communities are opportunistic settings for multi-level efforts. Growing evidence supports the efficacy of faith community health interventions.

**What has been done**

LWFC seeks to promote healthy eating and active living by shifting the culture to more healthful behaviors, practices, environments, systems and policies through the use of direct education and policy, systems and environmental (PSE) strategies. Specifically, LWFC seeks to increase the number of faith communities promoting and supporting healthy eating and physical activity. LWFC also seeks to improve individual behaviors related to planning, shopping and preparation practices; fruit and vegetable consumption; water consumption; and regular physical activity participation.

**Results**

Individuals participating in Live Well Faith Communities (n=122) reported a significant [t(120)=-2.595, p=.011] improvement from pre to post assessment in how often they use the "Nutrition Facts" on the food label to make food choices.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

## **Outcome #100**

### **1. Outcome Measures**

Change in purchasing food with lower added sugar (pre to post comparison of individuals participating in LWFC)

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

- 1862 Extension

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

Change in Action Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2017	122

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

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

Overweight and obesity affect more than two-thirds of adults in the US. The southeastern region exhibits higher obesity rates than other regions. Further, rates of obesity are disproportionately higher among rural and limited resource populations. Alabama ranks second nationally with 35.6% of adults being obese. Obesity is a major public health itself, and obesity contributes to other chronic diseases. Approaches to reduce obesity and chronic disease are expanding to include multiple levels of the social ecological model, such as policy, systems and environmental strategies in community settings and behavior change strategies at the individual level. Because of this, faith communities are opportunistic settings for multi-level efforts. Growing evidence supports the efficacy of faith community health interventions.

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

LWFC seeks to promote healthy eating and active living by shifting the culture to more healthful behaviors, practices, environments, systems and policies through the use of direct education and policy, systems and environmental (PSE) strategies. Specifically, LWFC seeks to increase the number of faith communities promoting and supporting healthy eating and physical activity. LWFC also seeks to improve individual behaviors related to planning, shopping and preparation practices; fruit and vegetable consumption; water consumption; and regular physical activity participation.

#### **Results**

Individuals participating in Live Well Faith Communities (n=122) reported a significant [t(120)=-2.227, p=.028] improvement from pre to post assessment in how often they purchase food with lower added sugar.

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

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #101**

**1. Outcome Measures**

Change in average daily vegetable consumption (pre to post comparison of individuals participating in LWFC)

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	121

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

**Issue (Who cares and Why)**

Overweight and obesity affect more than two-thirds of adults in the US. The southeastern region exhibits higher obesity rates than other regions. Further, rates of obesity are disproportionately higher among rural and limited resource populations. Alabama ranks second nationally with 35.6% of adults being obese. Obesity is a major public health itself, and obesity contributes to other chronic diseases. Approaches to reduce obesity and chronic disease are expanding to include multiple levels of the social ecological model, such as policy, systems and environmental strategies in community settings and behavior change strategies at the individual level. Because of this, faith communities are opportunistic settings for multi-level efforts. Growing evidence supports the efficacy of faith community health interventions.

**What has been done**

LWFC seeks to promote healthy eating and active living by shifting the culture to more healthful behaviors, practices, environments, systems and policies through the use of direct education and policy, systems and environmental (PSE) strategies. Specifically, LWFC seeks to increase the number of faith communities promoting and supporting healthy eating and physical activity. LWFC also seeks to improve individual behaviors related to planning, shopping and preparation practices; fruit and vegetable consumption; water consumption; and regular physical activity participation.

**Results**

Individuals participating in Live Well Faith Communities (n=121) reported a significant [(119)=-2.503, p=.014] increase in average daily vegetable consumption from 1.49 cups (sd=.

785) at pre assessment to 1.81 cups (sd=.627) at post assessment.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

#### Outcome #102

##### 1. Outcome Measures

Increase in #/% of participants that are physically active

##### 2. Associated Institution Types

- 1890 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	3735

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

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

Alabama adults who are physically (aerobically) active at least 150 minutes a week is 44.6 percent, with 29.4% report engaging in no leisure time physical activity. For adolescents (9-12th graders) in Alabama, 25.4% are physically active for 1 hour or more daily.

###### **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**

AAMU Extension The percentage of adult participants who engaged in some type of physical activity each day, such as walking, jogging, or swimming increased from 61% to 86%, a 25 percent increase. The percentage of youth participants who engaged in physical activity each day increased from 57% to 74%, a 17 percent increase.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

#### Outcome #103

##### 1. Outcome Measures

Increase in #/% of 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
2017	3735

##### 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, In 2016, 35.7% of adult Alabamians report being obese, while 33.9% reported being overweight on the Behavioral Risk Factor Surveillance System (BRFSS). On the 2015 Youth Risk Behavior Surveillance System (YRBSS), 16.1% students in grades 9-12 reported being overweight, and 17.5% reported being overweight.

###### **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 ADULT participants who:

?ate more than one kind of FRUIT each day increased from 65% to 90%, resulting in a 25 percent increase.

?ate more than one kind of VEGETABLES each day increased from 76% to 93%, resulting in a 17 percent increase.

?ate the recommended servings of GRAIN each day increased from 66% to 87%, resulting in a 21 percent increase.

?ate the recommended servings of PROTEIN per day increased from 80% to 92%, resulting in a 12 percent increase.

?ate fat, oils, salt and sugar sparingly, increased from 64% to 87%, resulting in a 23 percent

increase.

?consumed low-fat or fat-free milk/milk products, increased from 60% to 85%, resulting in a 25 percent increase.

The percentage of YOUTH participants who:

?ate more than one kind of FRUIT each day increased from 42% to 75%, resulting in a 33 percent increase.

?ate more than one kind of VEGETABLES each day increased from 36% to 77%, resulting in a 41 percent increase.

?choose foods based on MyPlate, increased from 32% to 62%, resulting a 30 percent increase.

?consumed low-fat or fat-free milk/milk products, increased from 39% to 74%, resulting in a 35 percent increase.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #104**

**1. Outcome Measures**

Increase in the #/% of urban adult participants who use food resource management techniques and modify shopping behavior to spend food dollars/SNAP benefits wisely

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	1436

**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**

Participants are educated on establishing a food budget, read food labels, comparison shopping techniques, how to calculate unit pricing. In addition, adult participants are 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 participant who identify foods on sale or use coupons to save money, increased from 59% to 84%, resulting in a 25 percent increase.
- The percentage of adult participants who shop with a grocery list, increased from 50% to 85%, resulting in a 25 percent increase.
- The percentage of adult participants who compare prices before buying food increased from 64% to 91%, resulting in a 27 percent increase.
- The percentage of adult participants who choose healthy foods on a budget increased from 68% to 89%, resulting in a 21 percent increase.
- The percentage of adult participants who read nutrition facts labels and nutrition ingredient lists, increased from 49% to 86%, resulting in a 37 percent increase.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #105**

**1. Outcome Measures**

Number of urban respondents that reported improving nutrition related behavior after seeing healthy message signage placed at boys and girls clubs

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	253

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

**Issue (Who cares and Why)**

Youth are often bombarded with ads depicting unhealthy eating behaviors, on the television, billboards, vending machines, etc. These signs can entice young people to consume fast food meals regularly, consume too many unhealthy snacks and sugary beverages and spend time watching television or engaging in other screen time activities. The sum of these behaviors can



lead to youth becoming overweight or obese.

**What has been done**

The Urban Supplemental Nutrition Education Program (USNAP-Ed), expanded the state wide social marketing billboard campaign to include placing signs in boys and girls clubs that advertise healthy behaviors to include eating more fruits and vegetables, drinking more water, and being physically active every day.

**Results**

Signs with three healthy behavior messages were placed at seven North Alabama Boys and Girls Clubs and rotated out every 2 weeks.

48% of the youth that saw the signs indicated they switched from sugary drinks to water, 24% indicated eating healthier food options and 22% indicated that they were more physically active, after seeing the signs placed in the boys and girls club.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #106**

**1. Outcome Measures**

Increase in the #/% of urban participants who do NOT run out of food before the end of the month

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	1436

**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

**What has been done**

Participants are educated on on to stretch their food dollars/SNAP benefits by establishing a food budget, reading food labels, utilizing comparison shopping techniques, calculating unit pricing

**Results**

The percentage of adult participants who do NOT run out of food before the end of the month, increased from 32% to 77%, resulting in a 45 percent increase

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #107**

**1. Outcome Measures**

Number of households that utilized healthy tips from PENPALs newsletter

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	1632

**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**

USNAP-Ed sent home newsletters as part of our Policy, System and Environmental efforts. Parents Encouraging Nutrition and Physical Activity Lessons (PENPALs) newsletters were sent home with children who participated in the youth nutrition classes. The newsletters included a brief recap of the lessons, along with tips and

challenges for the family to utilize within the home.

**Results**

7000 news letters were disseminated. 23% or 1,632 newsletters were returned indicating that the family utilized the healthy tips.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #108**

**1. Outcome Measures**

Increase in overall funding obtained through partner contributions (leveraged funds)

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	415245

**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 Barbour (\$99,080), Bibb (\$11,000), Bullock (\$15,750), Chambers (\$10,575), Coosa (\$2,181), Crenshaw (\$60), Cullman (\$7,000), Escambia (\$9,950), Greene (\$18,045), Lowndes (\$72,100), Pickens (\$143,000) and Sumter (\$10,444) were able to obtain additional funding through partner contributions by leveraging their ALProHealth funds.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle
802	Human Development and Family Well-Being
805	Community Institutions, Health, and Social Services

**Outcome #109**

**1. Outcome Measures**

Increase in overall funding utilized via volunteer hours (leveraged funds)

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	802609

**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 Barbour (\$85,577), Bibb (\$4,730), Bullock (\$620,109), Chambers (\$1,449), Coosa (\$21,921), Crenshaw (\$435), Cullman (\$616), Escambia (\$604), Greene (\$33,432), Lowndes (\$5,915), Macon (\$2,414), Pickens (\$11,587) and Sumter (\$35,170) were able to obtain additional funding through volunteer hours from community and coalition members. This allowed for grant funds to be utilized in other areas, increasing the overall impact of the funds obtained.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle
802	Human Development and Family Well-Being
805	Community Institutions, Health, and Social Services

**Outcome #110**

**1. Outcome Measures**

Increase in overall funding obtained through grants utilizing ALProHealth funds as leverage (leveraged funds)

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	97152

**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 Barbour (\$50,000), Bibb (\$16,000), Coosa (\$4,000), Cullman (\$18,055) and Lowndes (\$9,097) were able to obtain additional funding in the form of external grants utilizing initial ALProHealth funds as leverage.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle
802	Human Development and Family Well-Being
805	Community Institutions, Health, and Social Services

**Outcome #111**

**1. Outcome Measures**

Increase in number of county-level partnerships supporting community coalitions and ALProHealth initiatives at the local level

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	6

**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 2017, ALProHealth community coalitions throughout the fourteen counties added six additional county-level partnerships to support community coalitions and ALProHealth initiatives at the local

level. County-level partnerships are crucial to the success of community coalitions, due to decisions that need to be made at the local level.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle
802	Human Development and Family Well-Being
805	Community Institutions, Health, and Social Services

**Outcome #112**

**1. Outcome Measures**

Number of community members positively impacted through the 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>
2017	12096

**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 signs were installed in the cities of Aliceville, Eutaw, Ft. Deposit, Panola, Rockford and Union Springs. These banners promote the benefits of eating more fruits and vegetables, being more physically active, and cooking meals together as a family.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle
802	Human Development and Family Well-Being
805	Community Institutions, Health, and Social Services

**Outcome #113**

**1. Outcome Measures**

Number of people 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>
2017	51596

**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 Aliceville, Camden, Cullman, Eufaula, Goodwater, Lafayette, Rockford, Tuskegee and Union Springs established new or enhanced existing Farmers Markets. Enhancements were accomplished through marketing, purchasing of shade structures and creation of food displays.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #114**

**1. Outcome Measures**

Number of community members positively impacted through marketing of healthy food and beverage choices at local grocery and convenience stores

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	28056

**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**

Local coalitions were involved with promoting and marketing healthy food choices at local grocery and convenience stores in the communities of Aliceville, Brent, Eutaw, Ft. Deposit, Geiger, Goodwater, Notasulga, Society Hill, Tuskegee and Union Springs. These coalitions actively work with store owners to improve the food choices available to community members and to promote healthy choices through signs and displays that encourage shoppers to choose healthy options.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle

**Outcome #115**

**1. Outcome Measures**

Number of individuals with increased awareness of emergency food options through the development of local food bank guides

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	10864

**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 community coalition for Coosa County worked with county-wide food banks to develop a directory for citizens of the county. This guide allows for better promotion of food-emergency options within communities and can help to ensure that those who need food assistance have the resources to locate options within their area.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle

**Outcome #116**

**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**

<b>Year</b>	<b>Actual</b>
2017	129057

**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 communities of Aliceville, Eufaula, Ft. Deposit, Gordo and Union Springs and county-wide food banks in the counties of Coosa, Crenshaw and Cullman were provided with new

equipment to expand the ability to process and store greater amounts of food donations. Food banks often receive large quantities of fresh produce that they are unable to dispense. Equipment such as refrigeration, freezer and dehydration units allow food banks to process and store food until distributions occur.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle

**Outcome #117**

**1. Outcome Measures**

Number of people with increased or enhanced access to outdoor exercise or fitness equipment

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	32507

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

**Issue (Who cares and Why)**

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**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**

32,507 community members age 10 and older in the communities of Cullman, Eufaula, Geiger, Goodwater, Lafayette, Panola, Rockford and Union Springs have increased or enhanced access to outdoor exercise fitness equipment. The outdoor exercise equipment pieces are located in local and parks and around trails. This allows for public access to exercise machines free of charge on a schedule that is convenient to the user.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #118**

**1. Outcome Measures**

Number of people with increased or enhanced access to an indoor fitness facility

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	14247

**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**

14,247 community members age 10 and older in the communities of Eufaula, Gainesville, Lafayette, Panola and Weogufka now have access to a new or enhanced indoor fitness facility through efforts of local community coalitions. Each community manages the facility differently. However, the common theme is that these facilities are either free or low-cost to use, as opposed to a traditional gym membership. This allows for access to fitness equipment for individuals who would previously be restricted by the cost of a gym membership.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #119**

**1. Outcome Measures**

Number of children with increased or enhanced access to playground equipment at local parks

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	6505

**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**

6,505 children age 14 and younger in the communities of Aliceville, Catherine, Eufaula, Eutaw, Ft. Deposit, Geiger, Lafayette, Midway, Pine Hill, Rockford, Union Springs and West Blocton now have access to enhanced playgrounds with new or refurbished equipment. Playgrounds are an important piece in obesity-prevention for children, as they provide free and safe places for children to participate in physical activity.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle

**Outcome #120**

**1. Outcome Measures**

Number of community members with increased or enhanced access to a new or improved walking trail

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	55558

**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**

Community members in Coosa County and the cities of Atmore, Cullman, Eufaula, Lafayette and Union Springs have access to new or enhanced walking trails in their local communities. Walking trails have been shown to be a popular way for the public to increase physical activity due to their popularity and prevalence in both urban and rural areas. Walking trails offer opportunities for people of all ages and abilities to participate in free and safe physical activity.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle

**Outcome #121**

**1. Outcome Measures**

Number of community members with access to recently improved parks via aesthetic, amenity and safety enhancements

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	36961

**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**

36,961 community members in Coosa County and the communities of Aliceville, Cullman, Eutaw, Ft. Deposit, Lafayette and Panola now have access to local parks and trails with recently

improved aesthetics and amenities. This includes the addition of features like water fountains, trash cans, rest benches, shade structures, trees, restrooms and fences. Enhancements to local parks are often simple fixes that can increase community use of the park or trail, ultimately leading to more participation in physical activity.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle

**Outcome #122**

**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 Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	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 is a source of active transportation for children that provides physical activity multiple times per week. 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**

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #123**

**1. Outcome Measures**

Number of students with increased exposure to healthy food through school gardens established or enhanced by community coalitions

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	5259

**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 public schools in the counties of Barbour, Crenshaw, Lowndes, Macon, Sumter and Wilcox 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 4 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 #124**

**1. Outcome Measures**

Number of community members with the opportunity to participate in a new or enhanced community garden

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	57679

**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 Atmore, Cullman, Eufaula, Eutaw, Fitzpatrick, Geiger, Lafayette, Midway, Rockford, Tuskegee and Union Springs 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 environment. Growing techniques and demonstrations provide members of the community garden an opportunity to learn techniques that will maximize harvest output. Community gardens are often low-cost or free and increase the availability of fresh and healthy food.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle

**Outcome #125**

**1. Outcome Measures**

TU: the number of Black Belt youth who increased the consumption of fruits and veggies

**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>
2017	46

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

**Issue (Who cares and Why)**

Children who are overweight are more likely to become overweight adults. Being overweight can lead to problems such as stress, low self-esteem in children. Childhood obesity remains the biggest health challenge within rural West Alabama. In Greene and Hale County 98% of the middle school youth receive free or reduced school/lunches. Summer Health and Fitness Academy/ SHAFAs Camp/ ignited USDA recommend educational training through physical educational and hands on cooking demonstration for youth ages 8-18 utilizing an integrative approach to preventative and reduction of overweight and childhood obesity in rural West Alabama.

**What has been done**

A 6-week integrative approach was utilized to provide solutions to the nutrition, diet and life styles disparities that affect children who are predisposed to childhood obesity. Educational classes placed emphasis on traditional vegetable intake and preparation, which may help to reduce energy intake. The classes introduced healthy eating and preparation options along with the importance of the combination of healthy diet and physical activity. Creative approaches were utilized to place emphases on anytime foods and sometime foods concepts, interactive games, hands on preparation and healthy food flash cards to help reinforce the nutrition and physical activity concept.

**Results**

Tuskegee Research and Extension: There were a total of 46 youth participants (18 male youth and 28 female youth) range from ages 8-18. All 46 youth completed the 6-week educational training. All 46 of the youth participants were able to display skills in selection and preparation of traditional vegetables and fresh, frozen and canned. Also fruits in a different manner for consumption.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle



## **Outcome #126**

### **1. Outcome Measures**

TU: the number of Black Belt youth who increased physical activity

### **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>
2017	46

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

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

Children who are overweight are more likely to become overweight adults. Being overweight can lead to problems such as stress, low self-esteem in children. Childhood obesity remains the biggest health challenge within rural West Alabama. In Greene and Hale County 98% of the middle school youth receive free or reduced school/lunches. Summer Health and Fitness Academy/ SHAFAs Camp/ ignited USDA recommend educational training through physical educational and hands on cooking demonstration for youth ages 8-18 utilizing an Integrative approach to preventative and reduction of overweight and childhood obesity in rural West Alabama.

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

A 6-week integrative approach was utilized to provide solutions to the nutrition, diet and life styles disparities that affect children who are predisposed to childhood obesity. Educational classes placed emphasis on traditional vegetable intake and preparation, which may help to reduce energy intake. The classes introduced healthy eating and preparation options along with the importance of the combination of healthy diet and physical activity. Creative approaches were utilized to place emphasis on anytime foods and sometime foods concepts, interactive games, hands on preparation and healthy food flash cards to help reinforce the nutrition and physical activity concept.

#### **Results**

Tuskegee Research and Extension: There were a total of 46 youth participants (18 male youth and 28 female youth) range from ages 8-18. All 46 youth completed the 6-week educational training. All 46 youth participated in physical activities on a daily basis. Results were

demonstrated through observation, attitude change and pre and post assessments.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #127**

**1. Outcome Measures**

TU: the number of Black Belt seniors who increased physical activity

**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>
2017	494

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

**Issue (Who cares and Why)**

Exercise is a direct part of senior's health and wellness, but too often its forgotten in the wake of illness, declining functionality and a lack of overall health. Dailey exercise is away for seniors to help preserve their quality of life. In Greene County there are approximately 2 Senior Citizen Nutrition sites, with a total of 82 participants and Hale County has 4 Senior Citizen Nutrition sites with approximately 232 participants.

**What has been done**

The senior series promote an interrelationship of nutrition, physical activity and having a social support system. Dietary and physical practice is a major contribution to the health and physical well-being of Greene and Hale County Senior citizens ages 55 and up. Educational bi-weekly classes were conducted to address healthy lifestyle issues which seniors can improve through long term dietary practices. By conducting demonstrations participants/seniors are educated in setting individual goals to improve dietary practices and incorporate physical activity within their daily lives. Pre and post assessments indicate the total 163 participating seniors have been able to demonstrate healthy nutritional choices, being physically active, and money management skills. Senior especially were able to demonstrate and know the benefits of keeping their bodies hydrated, and how important water is to functioning of the body. All participants were able to

check their credit report; prior to the class they were not aware of the importance of their FICO score or how it impacts their credit. All of the participants work with the support system as it relates to budget/financial management and a buddy system for grocery shopping for sales and nutrition benefits at the local stores for purchasing power.

### Results

Tuskegee Research and Extension: A total of 494 participants join together and indulge in a culminating event which supports the opportunity for competition and fellowship through physical activity, nutrition education and health awareness. This event encourages seniors to stay active and provides them a reason to renew past skills and acquire new skills.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
802	Human Development and Family Well-Being

### 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

Human Nutrition, Well-being, Health and Obesity Diabetic clients reported a reduction in glucose levels to the point that they no longer require insulin shots and the pills are controlling their Diabetes. Hypertension/ Cardiovascular clients reported a reduction in sodium consumption, decrease of fried foods in diet along with soda's, alcohol consumption and, an increase in exercise daily has helped them better manage blood pressure levels plus, lose weight.

Summer Health and Fitness Academy for Youth Obesity Prevention 100% of students surveyed expressed a positive impact of the knowledge gained through "My Plate." 100% of students and parents surveyed expressed their intents to change their eating habits and food choices to practice the 3210 nutrition guide. One student expressed, "You just don't know how much I need this food. I don't get to eat anything when I get home."

**AU Obesity, Diabetes and Cancer Research:** A) An emerging technology expected to have significant impact on personalized treatment for diverse cancers; B) Effective regulation of neuronal glucose uptake, and effective leptin treatment to regulate blood glucose concentrations, to prevent or treat diabetes; **AU Insect-borne Disease Research:** A) Growing capacity to better predict, survey, control, and ultimately prevent emerging vector-borne zoonoses in human populations; B) Understanding needed for development of predictive models for projecting tick-borne illnesses in Alabama and regional variation in the risk of acquiring disease. **AU Health Disparities Research:** A) Markers of inflammation and cardiovascular risk resulting from socio-economic- geographic- and ethnically-related sources of health disparities; B) Child sleep as an influence on the development of health disparities;

**Technology Enhancing Exercise and Nutrition (TEEN)** Teens' increased nutrition, nutrients, food labels, portion control, and chronic diseases knowledge from pre (n=944)- 34% to post (n=921)- 53%. The total number of steps at endline was over 1.2 million. Teenagers increased physical activity to 60 minutes per day: pre (46%) and post (67%). During physical activity classes using iDance teenagers burned approximately 500 calories each. **Urban EFNEP Youth-** 33% of youth improved their physical activity practices; 81% of youth improved vegetable consumption 63% of youth improved fruit consumption; Adults- 83% of adult participants more often used the Nutrition Facts on food labels to make food choices

#### **Right Bite**

Paired sample t-tests were conducted on 10 paired healthy behavior variables. Of the 10 pairs analyzed, 9 pairs with statistical difference at the <.001 level.

Salt your foods at the table; Eat foods with 2-3 grams of fiber per serving ; Eat 3 veggies a day Eat non-starchy veggie; Drink sweetened beverages; Drink 8 glasses of water ; Drink water before a meal; Use your hand to show portion size; Use canola, olive oil;

AU EX Live Well Faith Communities A total of 737 individuals learned about nutrition, health and physical activity ; Planning meals ahead of time (n=48); Contemplating healthy food choices when deciding what to feed one's family (n=60); Checking foods at home before shopping for food (n=63); Shopping with a grocery list (n=51); Comparing prices before purchasing food (n=72

### **Key Items of Evaluation**

Human Nutrition, Well-being, Health and Obesity Diabetic clients reported a reduction in glucose levels to the point that they no longer require insulin shots and the pills are controlling their Diabetes. Hypertension/ Cardiovascular clients reported a reduction in sodium consumption, decrease of fried foods in diet along with soda's, alcohol consumption and, an increase in exercise daily has helped them better manage blood pressure levels plus, lose weight.

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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%	5%	0%
102	Soil, Plant, Water, Nutrient Relationships	20%	0%	5%	5%
125	Agroforestry	0%	0%	0%	10%
201	Plant Genome, Genetics, and Genetic Mechanisms	0%	0%	0%	10%
202	Plant Genetic Resources	0%	0%	3%	10%
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%	0%	12%	5%
205	Plant Management Systems	0%	0%	16%	10%
211	Insects, Mites, and Other Arthropods Affecting Plants	0%	0%	24%	5%
212	Pathogens and Nematodes Affecting Plants	0%	0%	7%	5%
216	Integrated Pest Management Systems	20%	0%	0%	10%
402	Engineering Systems and Equipment	20%	0%	15%	0%
403	Waste Disposal, Recycling, and Reuse	20%	0%	2%	0%
405	Drainage and Irrigation Systems and Facilities	0%	0%	6%	0%
601	Economics of Agricultural Production and Farm Management	0%	50%	2%	10%
603	Market Economics	10%	0%	2%	5%
605	Natural Resource and Environmental Economics	0%	0%	1%	10%
607	Consumer Economics	0%	50%	0%	5%
	<b>Total</b>	100%	100%	100%	100%

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

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

Year: 2017	Extension		Research	
	1862	1890	1862	1890

2017 Tuskegee University and Auburn University and Alabama A&M University Combined Research and Extension Annual Report of Accomplishments and Results

<b>Plan</b>	1.9	1.3	18.0	6.0
<b>Actual Paid</b>	1.9	1.6	9.5	6.1
<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
32470	0	682211	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
64986	0	629117	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
245731	0	1696299	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	0	0	128041
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	67220
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	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	93205	0	355647
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	82988	0	325063
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 developing alternative crops such as forage and sweet sorghum, carinata and algae for the production of biofuels and bioenergy. These crops can be used for the production of fuels, chemicals and products using hydrothermal liquefaction, fermentation, hydrodeoxygenation and transesterification.

AAMU Research: Agricultural wastes will be collected from farms in North Alabama and their nutrient content will be evaluated. Then the wastes will be converted either to lipids rich in polyunsaturated fatty acids that can be used for human nutrition or to bulk lipids that can be used as biofuels.

AAMU Research: Interest in agricultural and non-agricultural crops for biofuels has reached a new peak, particularly with the government's bid to become energy sufficient by tapping domestic bioenergy resources. 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 is rising in the southeastern states and farmers are including the crop in their winter rotation, 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.

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

AU Biomass Production and Conversion Research: Target audiences are mainly undergraduate, graduate students, practicing engineers, biofuel start-up companies, producers, crop consultants, county and regional extension agents, policy makers and general public.

AAMU Research: African-American students are being trained in food biotechnology and especially lipid biotechnology.

AAMU Research: A component of this project is to introduce urban population in food-desert areas the concept of producing food in a closed-system.

#### 3. How was eXtension used?

eXtension was not used in this program

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

#### 1. Standard output measures



2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	1313	0	0	0

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

Year: 2017  
 Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2017	Extension	Research	Total
Actual	0	7	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 graduate thesis/dissertation completed in bioenergy, biofuels and bioproducts

<b>Year</b>	<b>Actual</b>
2017	2

**Output #11**

**Output Measure**

- Number of graduate students trained in bioenergy, biofuels and bioproducts

<b>Year</b>	<b>Actual</b>
2017	6

**Output #12**

**Output Measure**

- Number of research projects conducted on preprocessing, preparation and conversion of algal biomass into fuels, chemicals and products using hydrothermal liquefaction process.

<b>Year</b>	<b>Actual</b>
2017	1

**Output #13**

**Output Measure**

- Number of AU metabolic engineering studies carried to increase the efficiency of biobutanol fermentation from glycerol.

<b>Year</b>	<b>Actual</b>
2017	1

**Output #14**

**Output Measure**

- Number of studies conducted on sweet sorghum cultural practices towards the production of biofuels and chemicals

<b>Year</b>	<b>Actual</b>
2017	1

**Output #15**

**Output Measure**

- Number of research project conducted on disease management program for the brassica oil-seed crop carinata

<b>Year</b>	<b>Actual</b>
2017	1

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

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

O. No.	OUTCOME NAME
1	The amount of bioenergy increased
2	Development and demonstration of logistics for bioenergy production
3	The number of participants who adopt sustainable energy recommendations
4	The amount of energy saved
5	The number of participants with increased knowledge of sustainable energy
6	The amount of energy produced
7	Knowledge gain for the production of biofuels from algae hydrothermal liquefaction
8	Development of sweet sorghum cultural practices towards ethanol production
9	Increased biobutanol production from crude glycerol.

**Outcome #1**

**1. Outcome Measures**

The amount of bioenergy increased

Not Reporting on this Outcome Measure

**Outcome #2**

**1. Outcome Measures**

Development and demonstration of logistics for bioenergy production

Not Reporting on this Outcome Measure

**Outcome #3**

**1. Outcome Measures**

The number of participants who adopt sustainable energy recommendations

Not Reporting on this Outcome Measure

**Outcome #4**

**1. Outcome Measures**

The amount of energy saved

Not Reporting on this Outcome Measure

**Outcome #5**

**1. Outcome Measures**

The number of participants with increased knowledge of sustainable energy

Not Reporting on this Outcome Measure

**Outcome #6**

**1. Outcome Measures**

The amount of energy produced

Not Reporting on this Outcome Measure

**Outcome #7**

**1. Outcome Measures**

Knowledge gain for the production of biofuels from algae hydrothermal liquefaction

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	4

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

**Issue (Who cares and Why)**

The third generation of 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 in under conditions which are not suitable for conventional crops production. In addition, algal production relieves food-versus-fuel

**What has been done**

Understanding the composition of algae during hydrothermal liquefaction is ongoing. Also, the efforts are focused on maximizing carbon recovery from aqueous phase of hydrothermal liquefaction.

**Results**

Results showed that lipids yield much higher bio-crude compared to protein and carbohydrates. Empirical relations were developed to determine the bio-crude once the content of protein, lipids and carbohydrates in algae is known. Also, researchers have demonstrated the possibility of recovering phosphorus and producing methane gas from the aqueous phase of hydrothermal liquefaction of algae.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment

#### Outcome #8

##### 1. Outcome Measures

Development of sweet sorghum cultural practices towards ethanol production

##### 2. Associated Institution Types

- 1862 Research

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	1

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

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

Biofuels are being developed as renewable energy sources from a variety of biomass as a possible replacement for fossil fuels. While most U.S. biofuels are primarily derived from corn as ethanol, the process suffers from poor conversion efficiency and high input costs provide the opportunity to develop alternative crops as sources of biofuel feedstock. Forage and sweet sorghum are alternative biofuel crops that can be easily incorporated into existing row crop production systems common to Alabama and surrounding states. However, the impact of cropping system and diseases and insect pests on yield are not well established in Alabama.

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

The influence of tillage practices, sorghum cropping frequency and sorghum type on biomass and sugar yield along with the severity of the leaf blight phase of anthracnose and other foliar diseases was assessed annually from 2012 through 2017.

###### **Results**

On the forage/biomass sorghum cultivar SS405 in 2017, anthracnose was disease observed while the sweet sorghum cultivar Topper 76-6 suffered noticeable leaf blight due to zonate leaf spot. Anthracnose severity differed by tillage, sorghum rotation frequency and cultivar. Regardless of tillage practices and sorghum cropping frequency, anthracnose was not observed on Topper 76-6. Tillage did not impact anthracnose severity for one year out (sorghum-sorghum-sorghum) and two consecutive years of sorghum following one year of cotton (Cotton-Sorghum-Sorghum). Aboveground dry matter (ADM) and sugar yield differed by sorghum cropping frequency and cultivar whereas it was not influenced by tillage. Also, continuously cropped

Topper 76-6 had lower ADM yield than the Cotton-Sorghum-Sorghum rotation with SS405.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics

#### Outcome #9

##### 1. Outcome Measures

Increased biobutanol production from crude glycerol.

##### 2. Associated Institution Types

- 1862 Research

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	10

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

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

Biobutanol production from renewable carbon sources has been a great interest. However, the cost of biobutanol fermentation is still high. Exploration of inexpensive and easily-degraded feedstocks is desirable to improve the economics of the biobutanol production. Glycerol is a byproduct during ethanol and biodiesel production. By converting glycerol to butanol, the economics of biorefinery would be much favorable.

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

Auburn researchers are utilizing genome-engineering system to knock out competing pathways during glycerol conversion to maximize biobutanol yield. Additionally, new strains were screened for enhanced butanol production from glycerol.

###### **Results**

AU researchers systematically engineered *C. pasteurianum* for enhanced production of biobutanol from glycerol feedstocks. The project generated knowledge in terms of microbial metabolic engineering using innovative CRISPR-Cas system, and also glycerol metabolism for biofuel/biochemical production. The biobutanol yield in *C. pasteurianum* was increased by 10% compared to the wild type ( $0.33 \pm 0.01$  g/g vs  $0.3 \pm 0.02$  g/g). However, this mutant showed poor biobutanol production with 50% reduction of biobutanol titer and yield compared to the wild type.



#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment

#### 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: Yield potential and resistant to diseases were used to evaluate different sorghum and carinata varieties along with different cropping practices. Similarly, biobutanol yield (gram per gram) from glycerol fermentation was used to determine the efficacy of glycerol conversion to biobutanol. Further, bio-crude yield and energy efficiency was used to evaluate hydrothermal liquefaction of algae.

AAMU Research: Fish tanks were stocked with fish from Davis Fish Farms (Leesburg, AL) with approximately 1,600 juvenile hybrid bluegills (*L. macrochirus* x *cyaneus*) and 400 Largemouth Basses (*M. salmoides*) for grow out. Three feeding treatments: 50 % Canola - 50 % Mealworm, 25 % Canola - 75 % Mealworm, and 100 % commercial feed were used through the duration of the experiment.

AAMU Research: Water was continuously cycled through the system throughout the entire study and water temperature and pH were measured twice a week using a Eutech Instruments Oakton Waterproof pH/Temperature Testr30. Canola (25%) + Mealworm (75%) feed has higher protein and calories, but did not prove to be sufficient for the overall growth and survival of the Largemouth Bass. Commercial feed was the most satisfactory for the overall survival of experimental fish in treatments used for this preliminary study.

##### Key Items of Evaluation

AU Biomass Production and Conversion Research: Yield potential and resistant to diseases were used to evaluate different sorghum and carinata varieties along with different cropping practices. Similarly, biobutanol yield (gram per gram) from glycerol fermentation was used to determine the efficacy of glycerol conversion to biobutanol. Further, bio-crude yield and energy efficiency was used to evaluate hydrothermal liquefaction of algae.

AAMU Research: Fish tanks were stocked with fish from Davis Fish Farms (Leesburg, AL) with approximately 1,600 juvenile hybrid bluegills (*L. macrochirus* x *cyaneus*) and 400

Largemouth Basses (*M. salmoides*) for grow out. Three feeding treatments: 50 % Canola - 50 % Mealworm, 25 % Canola - 75 % Mealworm, and 100 % commercial feed were used through the duration of the experiment.

AAMU Research: Water was continuously cycled through the system throughout the entire study and water temperature and pH were measured twice a week using a Eutech Instruments Oakton Waterproof pH/Temperature Testr30. Canola (25%) + Mealworm (75%) feed has higher protein and calories, but did not prove to be sufficient for the overall growth and survival of the Largemouth Bass. Commercial feed was the most satisfactory for the overall survival of experimental fish in treatments used for this preliminary study.

**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	25%	20%	0%	0%
605	Natural Resource and Environmental Economics	25%	10%	0%	0%
608	Community Resource Planning and Development	15%	50%	0%	0%
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	25%	10%	100%	100%
805	Community Institutions, Health, and Social Services	10%	10%	0%	0%
	<b>Total</b>	100%	100%	100%	100%

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

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	30.2	6.6	0.0	1.0
<b>Actual Paid</b>	25.4	9.2	2.8	2.8
<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
425125	0	93550	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
422163	0	86270	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1856821	0	967999	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	221808	0	486554
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	221808	0	255438
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	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	240530	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	214161	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**

**AAMU EX Career Countdown-** This program broadly aims to upgrade and uplift the state's urban and nontraditional audience's economic capacity by engaging them in activities/training that: (a) simulates economic deterioration; (b) educates them on the causes of economic deterioration, (c) provides direction and training on career planning, and (d) provides direction and training on education planning

**Succession for Farmers:** planning Problems created if there is no estate plan Basic documents in an estate plan Avoiding probate Issues specific to estates owning land Estate (death) taxes Problems with joint ownership/management Using a business entity to hold land and which entity to choose Is a trust a better structure than a business entity

**Tuskegee University Agriculture Research, Extension and Outreach Programs operate a volunteer income tax assistance (VITA)** site out of Macon County to assist low-income taxpayers and the elderly in the neighboring Black Belt counties with tax return preparation while providing educational resources on budgeting, saving strategies, and credit management.

## 2. Brief description of the target audience

Career Count Down- Community leaders, decision makers, and local and state governmental officials and youth in communities

Succession Planning for Farmers: Farmers and other landowners that are interested in ensuring that their estate ownership and management. VITA low-income taxpayers and the elderly in the neighboring Black Belt counties

## 3. How was eXtension used?

eXtension was not used in this program

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

### 1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	55866	0	29776	0

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

#### Patent Applications Submitted

Year: 2017

Actual: 0

#### Patents listed

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

#### Number of Peer Reviewed Publications

2017	Extension	Research	Total

<b>Actual</b>	2	0	0
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**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Number of individuals enrolled in economic development certification program  
Not reporting on this Output for this Annual Report

**Output #2**

**Output Measure**

- Number of career exploration and education planning workshops conducted  
Not reporting on this Output for this Annual Report

**Output #3**

**Output Measure**

- Number of employment simulations conducted  
Not reporting on this Output for this Annual Report

**Output #4**

**Output Measure**

- Number of partnerships created  
Not reporting on this Output for this Annual Report

**Output #5**

**Output Measure**

- Number of individuals trained in leadership skills development  
Not reporting on this Output for this Annual Report

**Output #6**

**Output Measure**

- Number of individuals trained in business management  
Not reporting on this Output for this Annual Report

**Output #7**

**Output Measure**

- Number of sessions conducted on managing credit  
Not reporting on this Output for this Annual Report

**Output #8**

**Output Measure**

- Number of individuals enrolled in entrepreneurship training programs

Not reporting on this Output for this Annual Report

**Output #9**

**Output Measure**

- Number of Entrepreneurship workshops conducted

Not reporting on this Output for this Annual Report

**Output #10**

**Output Measure**

- Number of Entrepreneurship training modules developed

Not reporting on this Output for this Annual Report

**Output #11**

**Output Measure**

- Number of Extension e-bulletins and fact sheets

Not reporting on this Output for this Annual Report

**Output #12**

**Output Measure**

- Number of refereed publications

Not reporting on this Output for this Annual Report

**Output #13**

**Output Measure**

- Number of Requests for Technical Assistance

<b>Year</b>	<b>Actual</b>
2017	0

**Output #14**

**Output Measure**

- Number of workshops on estate planning

<b>Year</b>	<b>Actual</b>
2017	22

**Output #15**

**Output Measure**

- Number of workshops on leadership  
Not reporting on this Output for this Annual Report

**Output #16**

**Output Measure**

- Number of workshops on volunteerism  
Not reporting on this Output for this Annual Report

**Output #17**

**Output Measure**

- Number of graduate thesis

<b>Year</b>	<b>Actual</b>
2017	1

**Output #18**

**Output Measure**

- Number of heir property book chapters written

<b>Year</b>	<b>Actual</b>
2017	1

**Output #19**

**Output Measure**

- Number of new heir property courses developed and sponsored by Federal Reserve Bank of Atlanta

<b>Year</b>	<b>Actual</b>
2017	2

**Output #20**

**Output Measure**

- Number of policy forums organized- BTW Summit and Federal Reserve of Atlanta

<b>Year</b>	<b>Actual</b>
2017	2



**Output #21**

**Output Measure**

- Number of heir property workshops conducted at Tuskegee University's Farmer's Conference

<b>Year</b>	<b>Actual</b>
2017	3

**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 of community economic development
2	Percentage / number of program participants who demonstrate an increased knowledge on resources for small business creation and development
3	Percentage/ number of program participants who demonstrate and increased knowledge financial management practices
4	The number of individuals with improved study habits
5	Percentage / number of program participants who seek post-secondary education
6	Number of people completing financial management education programs who decrease consumer credit debt
7	Number of program participants that demonstrated and increase knowledge on debit reduction
8	Number of people adopt retirement plan recommendations
9	Number of program participants who start and or expand a business
10	Number of program participants who develop a business plan
11	Number of program participants who develop new jobs skills
12	Number of program participants who obtain personal and or business loans to start or expand their business
13	Number of program participants that demonstrate an increased knowledge of estate planning
14	Number of program participants that demonstrate and increased knowledge on volunteerism
15	Number of program participants that demonstrate an increase in community and organization volunteering
16	The number of participants who secure employment
17	Number of people completing financial management education programs who increase assets

18	The number of people who adopted estate planning recommendations
19	Value of land protected by individuals who adopted estate planning recommendations
20	The number of participants who adopted career development recommendations
21	The number of people who increased study skills
22	TU: The number of students who gain employment after conducting heir property research
23	TU: The number of people who adopted financial management recommendations
24	TU: Dollar amount received by participants in VITA program
25	TU: Dollar amount saved by participants in VITA program

**Outcome #1**

**1. Outcome Measures**

Percentage / number of program participants who demonstrate an increased knowledge in the strategies 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 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 and increased knowledge financial management practices

Not Reporting on this Outcome Measure

**Outcome #4**

**1. Outcome Measures**

The number of individuals with improved study habits

Not Reporting on this Outcome Measure

**Outcome #5**

**1. Outcome Measures**

Percentage / number of program participants who seek post-secondary education

Not Reporting on this Outcome Measure

**Outcome #6**

**1. Outcome Measures**

Number of people completing financial management education programs who decrease consumer credit debt

Not Reporting on this Outcome Measure

**Outcome #7**

**1. Outcome Measures**

Number of program participants that demonstrated and increase knowledge on debit reduction

Not Reporting on this Outcome Measure

**Outcome #8**

**1. Outcome Measures**

Number of people adopt retirement plan recommendations

Not Reporting on this Outcome Measure

**Outcome #9**

**1. Outcome Measures**

Number of program participants who start and or expand a business

Not Reporting on this Outcome Measure

**Outcome #10**

**1. Outcome Measures**

Number of program participants who develop a business plan

Not Reporting on this Outcome Measure

**Outcome #11**

**1. Outcome Measures**

Number of program participants who develop new jobs skills

Not Reporting on this Outcome Measure

**Outcome #12**

**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 #13**

**1. Outcome Measures**

Number of program participants that demonstrate an increased knowledge of estate planning

Not Reporting on this Outcome Measure

**Outcome #14**

**1. Outcome Measures**

Number of program participants that demonstrate and increased knowledge on volunteerism

Not Reporting on this Outcome Measure

**Outcome #15**

**1. Outcome Measures**

Number of program participants that demonstrate an increase in community and organization volunteering

Not Reporting on this Outcome Measure

**Outcome #16**

**1. Outcome Measures**

The number of participants who secure employment

Not Reporting on this Outcome Measure

**Outcome #17**

**1. Outcome Measures**

Number of people completing financial management education programs who increase assets

Not Reporting on this Outcome Measure

**Outcome #18**

**1. Outcome Measures**

The number of people who adopted estate planning recommendations

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	85

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

**Issue (Who cares and Why)**

Help farmers and other landowners determine how their family may keep the farm, who will manage the land and pay the taxes, ensure that the farming children will have use of the land and provide benefits to non-farming children by developing an estate plan.

**What has been done**

An estate attorney provide educational programming that helped participants learn more about estate planning, problems that may occur with no estate plan, the basic document needed for an estate plan, specific issues related to owning land, estate taxes, problems with joint ownership, and the most appropriate structure for estate planning.

**Results**

85 attendees indicated that they would develop an estate plan. This is 74% of the attendees that did not have an estate plan before the workshop. 66% of the participants indicated that they did have an estate plan and 25% did not have an estate plan.

**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**

Value of land protected by individuals who adopted estate planning recommendations

**2. Associated Institution Types**

- 1862 Extension

### 3a. Outcome Type:

Change in Condition Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2017	194000

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Help farmers and other landowners determine how their family may keep the farm, who will manage the land and pay the taxes, ensure that the farming children will have use of the land and provide benefits to non-farming children by developing an estate plan.

#### What has been done

An estate attorney provide educational programming that helped participants learn more about estate planning, problems that may occur with no estate plan, the basic document needed for an estate plan, specific issues related to owning land, estate taxes, problems with joint ownership, and the most appropriate structure for estate planning.

#### Results

78% or 172 farmers and other landowners operate either as a business or investment as opposed to 22% that operate as a hobby.

Of participants polled, 54.55% indicate that they own or manage over 300 acres each. Survey results indicate that there are 66,000 acres that are owned or managed by the participants have a calculated value of over \$191,400,000. This does not include assets other than land.

## 4. Associated Knowledge Areas

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



**Outcome #20**

**1. Outcome Measures**

The number of participants who adopted career development recommendations

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	4010

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

**Issue (Who cares and Why)**

Education Planning and Career Exploration: Improve workforce awareness, knowledge, and skills throughout Alabama, with particular emphasis on post-secondary education, STEM, career education and planning, and technology applications that support workforce development.

**What has been done**

During each of the programs individuals were lead through a career exploration activity that required them to select a desired career. Each individual was also lead through an education planning activity based on the selected career.

**Results**

Of the 4521 program participants 4010 of them successfully completed an education and career plan.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
608	Community Resource Planning and Development

**Outcome #21**

**1. Outcome Measures**

The number of people who increased study skills

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	2034

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

**Issue (Who cares and Why)**

Study habits are uniquely tied to grades as well as to post-secondary education success. The career countdown program is designed to impress upon young people the importance of actively preparing themselves for future education and career opportunities.

**What has been done**

During the program participants are complete a skills and interest inventory. Based on their responses they are introduced to various career clusters. Within their chosen career cluster they are assisted with selecting a career and developing an education plan. The importance of education as well as career planning is highlighted throughout the activities. Participants are provided with data and cases studies that point out the advantages of career planning.

**Results**

Of the program participants 45% or 2034 reported an improvement in study habits and or grades

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
608	Community Resource Planning and Development

## **Outcome #22**

### **1. Outcome Measures**

TU: The number of students who gain employment after conducting heir property research

### **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>
2017	1

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

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

Heir Property serves as a significant barrier to the creation of generational wealth for many landowners as well as a drive for community development. Specifically within the African-American community, the presence of heir property has led to the decline of landownership, which has consequently decreased farming participation.

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

Information sharing at professional meetings: Poster presentation at Annual Professional Agricultural Workers Conference, Tuskegee University; paper presentation at annual meeting of the Southern Rural Sociological Association (SRSA), Mobile, AL, Graduate Student awarded 1st place in Graduate student paper competition; paper presentation at the Biennial Meeting of the Association of 1890 Research Directors (ARD), Atlanta, GA, Graduate Student awarded outstanding presentation in the area of community development

#### **Results**

TU Extension and Research: A recent graduate credits this course and her thesis work for securing a job at a nonprofit organization that deals with developing farmers' incomes and wealth creation.

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

<b>KA Code</b>	<b>Knowledge Area</b>
608	Community Resource Planning and Development

**Outcome #23**

**1. Outcome Measures**

TU: The number of people who adopted financial management recommendations

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	325

**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. The IRS estimates that 15% or more of EITC refunds are unclaimed by low-income families, amounting to about \$2.7 billion each year. Many consumers are also convinced to take out a Refund Anticipation Loan (RAL) from the proceeds of their tax refund, at exorbitantly high interest rates, ranging from about 50% to 800% APR.

**What has been done**

Tuskegee University Agriculture Research, Extension and Outreach Programs therefore operate a volunteer income tax assistance (VITA) site out of Macon County to assist low-income taxpayers and the elderly in the neighboring Black Belt counties with tax return preparation while providing educational resources on budgeting, saving strategies, and credit management. The focus is to assist low-income households and the elderly to keep more money in their pockets by applying for such as EITC and also by avoiding tax preparation and refund anticipation loan the tax credits costs.

**Results**

Over the 2013-2017 tax filing seasons, more than 500 tax returns were prepared at the Tuskegee and Selma sites. About 65% of the taxpayers using the sites receive their tax refunds by direct deposit and 5% of taxpayers have been referred to a local bank to open new bank accounts in order to be able to receive their refunds by direct deposit. This is an important step towards savings and investment.

**4. Associated Knowledge Areas**

**KA Code**    **Knowledge Area**  
608            Community Resource Planning and Development

**Outcome #24**

**1. Outcome Measures**

TU: Dollar amount received by participants in 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>
2017	750000

**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. The IRS estimates that 15% or more of EITC refunds are unclaimed by low-income families, amounting to about \$2.7 billion each year. Many consumers are also convinced to take out a Refund Anticipation Loan (RAL) from the proceeds of their tax refund, at exorbitantly high interest rates, ranging from about 50% to 800% APR

**What has been done**

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**Results**

Over the 2013-2017 tax filing seasons, more than 500 tax returns were prepared at the Tuskegee and Selma sites. Taxpayers have received refunds totaling more than \$750,000 translating into an average of about \$ 1,500 annually per taxpayer.

**4. Associated Knowledge Areas**

**KA Code**    **Knowledge Area**  
608            Community Resource Planning and Development

**Outcome #25**

**1. Outcome Measures**

TU: Dollar amount saved by participants in 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>
2017	60000

**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. The IRS estimates that 15% or more of EITC refunds are unclaimed by low-income families, amounting to about \$2.7 billion each year. Many consumers are also convinced to take out a Refund Anticipation Loan (RAL) from the proceeds of their tax refund, at exorbitantly high interest rates, ranging from about 50% to 800% APR

**What has been done**

Tuskegee University Agriculture Research, Extension and Outreach Programs therefore operate a volunteer income tax assistance (VITA) site out of Macon County to assist low-income taxpayers and the elderly in the neighboring Black Belt counties with tax return preparation while providing educational resources on budgeting, saving strategies, and credit management. The focus is to assist low-income households and the elderly to keep more money in their pockets by applying for such as EITC and also by avoiding tax preparation and refund anticipation loan the tax credits costs.

**Results**

Over the 2013-2017 tax filing seasons, more than 500 tax returns were prepared at the Tuskegee and Selma sites. Participants have saved an average of about \$120 each year adding up to more than \$60,000 in tax preparation fees avoided

**4. Associated Knowledge Areas**

**KA Code**    **Knowledge Area**  
608            Community Resource Planning and 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**

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

**Evaluation Results**

Career Count Down After the program was over, 3702 students were contacted to see what changes they had made in their life as a result of having participated in career countdown. 25% began to studying for the ACT, 45% started studying harder, 61% improved grades, and 3% applied for post-secondary education institutions. Before the program only 19% of participants reported that they had an education plan after the program this number increased to 83%. Before the program only 17% reported that they had a career plan after the program this number increased to 72%.

VITA: Over the 2013-2017 tax filing seasons, more than 500 tax returns were prepared at the Tuskegee and Selma sites. Taxpayers have received refunds totaling more than \$750,000. Participants have saved more than \$60,000 in tax preparation fees . About 65% of the taxpayers using the sites receive their tax refunds by direct deposit and 5% of taxpayers have been referred to a local bank to open new bank accounts in order to be able to receive their refunds by direct deposit. This is an important step towards savings and investment.

Succession Planning for Farmers: Farmers and other landowners that are interested in ensuring that their estate ownership and management is transitioned according to their wishes. Of participants polled, 54.55% indicate that they own or manage over 300 acres each. Survey results indicate that there are 66,000 acres that are owned or managed by the participants have a calculated value of over \$191,400,000 in estate values. This does not include assets other than land.

**Key Items of Evaluation**

Career Count Down After the program was over, 3702 students were contacted to see what changes they had made in their life as a result of having participated in career countdown. 25% began to studying for the ACT, 45% started studying harder, 61%

improved grades, and 3% applied for post-secondary education institutions. Before the program only 19% of participants reported that they had an education plan after the program this number increased to 83%. Before the program only 17% reported that they had a career plan after the program this number increased to 72%.

VITA: Over the 2013-2017 tax filing seasons, more than 500 tax returns were prepared at the Tuskegee and Selma sites. Taxpayers have received refunds totaling more than \$750,000. Participants have saved more than \$60,000 in tax preparation fees . About 65% of the taxpayers using the sites receive their tax refunds by direct deposit and 5% of taxpayers have been referred to a local bank to open new bank accounts in order to be able to receive their refunds by direct deposit. This is an important step towards savings and investment.

Succession Planning for Farmers: Farmers and other landowners that are interested in ensuring that their estate ownership and management is transitioned according to their wishes. Of participants polled, 54.55% indicate that they own or manage over 300 acres each. Survey results indicate that there are 66,000 acres that are owned or managed by the participants have a calculated value of over \$191,400,000 in estate values. This does not include assets other than land.



**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: 2017	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	146.3	12.9	0.0	0.0
<b>Actual Paid</b>	144.2	16.6	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
2878561	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
2555357	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
14939491	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	497037	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	497037	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	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	324715	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	289118	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**

### **Promoting Readiness for Employment Possibilities (PREP)**

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 that were taught in a series or as stand-alone lessons throughout urban areas in 15 counties in the state. The focus of the lessons was on resume writing, interview skill development, job applications, and appropriate dress.

### **Parent-Child Reading Enhancement Program (PCREP)**

The Parent Child Reading Enhancement Program (PCREP) is based on Urie Bronfenbrenner's ecological systems theory which notes how everything in a child's environment works together to affect how a child develops. This program teaches parents in low-income areas of Madison County, Alabama various reading strategies they can use in teaching their children how to read or improve their reading skills. The PCREP program consists of six weeks of instructions twice a week for 1.5 hours. 4H

### **Alabama 4-H**

From rockets to wildlife, Alabama 4-H provides an array of programs to meet the needs and interest of today's youth.

### **Be SAFE Bullying Prevention**

Be SAFE, a bullying prevention curriculum, was implemented as a series program for ages 11-15 across the state by Family and Child Development Regional Agents.

### **STEAM (Science, Technology, Agriculture and Math Enhancement Program)**

For the past several years, the test scores in science classes at schools in the under-served communities of the Black Belt have been reported as extremely low. This has become a major issue facing our K-12 educators and parents.

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

### **Promoting Readiness for Employment Possibilities (PREP)**

Approximately 2,069 individuals participated in this urban program. Nearly 3% of the participants were from rural areas and 97% were from urban areas. Females made up 46% of the total participants and male made up 54%. More than 57% of them were adults, while approximately 43% were youth. African Americans made up 86% of the participants, and Whites made up approximately 12%. Hispanics, American Indians, Asians, Multi-racial, and those of Other races made up only 2% of the total participants.

### **Parent-Child Reading Enhancement Program (PCREP)**

A total of 42 individuals completed the program before the end of May. The completers met for 1.5 hours twice a week for six weeks. Of those who completed (N=42), approximately 21% of them were fathers and 79% were either mothers or grandmothers. The average age of the participants was 35 years. Nearly one-quarter (21%) of the participants were Hispanic. The majority of the participants were African Americans (71%) while White Americans, American Indian, and Asians made up approximately 8%. The majority of the participants (55%) were employed full-time, and 17% were employed part-time. More than one-quarter of them (28%) were unemployed. Parents with a High School Diploma or less made up 26% of participants while those with some college or an Associate degree made up 33%. Parents having a Bachelor degree or higher made up of 40% of the participants. Of the participants, 5% were on active duty within the military.

### **Be SAFE Bullying Prevention**

All youth, ages 11-15, in rural schools across the state of Alabama.

### **STEAM (Science, Technology, Agriculture and Math Enhancement Program)**

Extension agents, program coordinators and directors collaborated with Tuskegee University faculty and other stakeholders to offer as well as develop hands-on STEAM experiences to a target audience comprised of 98% Black, 1% Hispanic and 1% White.

### **Alabama 4-H**

Youth ages 9 through 18; families; volunteers; and Clover Buds K-3.

### 3. How was eXtension used?

eXtension was not used in this program

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

#### 1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

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

##### Patent Applications Submitted

Year: 2017

Actual: 0

##### Patents listed

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

##### Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	19	2	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  
Not reporting on this Output for this Annual Report

**Output #16**

**Output Measure**

- Number of participants in 4-H After-school  
Not reporting on this Output for this Annual Report

**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  
Not reporting on this Output for this Annual Report

**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  
Not reporting on this Output for this Annual Report

**Output #23**

**Output Measure**

- Number of participants in Enrichment Programs  
Not reporting on this Output for this Annual Report

**Output #24**

**Output Measure**

- Number of military clubs  
Not reporting on this Output for this Annual Report

**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  
Not reporting on this Output for this Annual Report

**Output #29**

**Output Measure**

- Number of participants in Health Rock Activities

<b>Year</b>	<b>Actual</b>
2017	3503

**Output #30**

**Output Measure**

- Number of Parent-Child Reading Enhancement Program (PCREP)surveys developed

<b>Year</b>	<b>Actual</b>
2017	3

**Output #31**

**Output Measure**

- Number of PCREP surveys completed

<b>Year</b>	<b>Actual</b>
2017	119

**Output #32**

**Output Measure**

- Number of Family Fun and Education Event

<b>Year</b>	<b>Actual</b>
2017	1

**Output #33**

**Output Measure**

- Number of participants in Making Money Count Activities



<b>Year</b>	<b>Actual</b>
2017	2399

**Output #34**

**Output Measure**

- Number of Making Money Count surveys developed

<b>Year</b>	<b>Actual</b>
2017	13

**Output #35**

**Output Measure**

- Number of individuals who applied for their Credit Report

<b>Year</b>	<b>Actual</b>
2017	417

**Output #36**

**Output Measure**

- Number of individuals trained on debt management software

<b>Year</b>	<b>Actual</b>
2017	216

**Output #37**

**Output Measure**

- Number of PREP surveys completed

<b>Year</b>	<b>Actual</b>
2017	554

**Output #38**

**Output Measure**

- Number of PREP surveys developed

<b>Year</b>	<b>Actual</b>
2017	3

**Output #39**

**Output Measure**

- Number of participants in SAI Activities

<b>Year</b>	<b>Actual</b>
2017	2069

**Output #40**

**Output Measure**

- the number of Grand RAPP surveys completed

<b>Year</b>	<b>Actual</b>
2017	169

**Output #41**

**Output Measure**

- Number of participants in GRAND RAPPS Activities

<b>Year</b>	<b>Actual</b>
2017	711

**Output #42**

**Output Measure**

- Number of GRAND RAPP program activities

<b>Year</b>	<b>Actual</b>
2017	59

**Output #43**

**Output Measure**

- Number of GRAND RAPP support groups.

<b>Year</b>	<b>Actual</b>
2017	7

**Output #44**

**Output Measure**

- Number of surveys FACES completed

<b>Year</b>	<b>Actual</b>
2017	525

**Output #45**

**Output Measure**

- Number of participants in FACES Activities

<b>Year</b>	<b>Actual</b>
2017	2289

**Output #46**

**Output Measure**

- Number of program FACES activities

<b>Year</b>	<b>Actual</b>
2017	146

**Output #47**

**Output Measure**

- Number of financial series workshops conducted

<b>Year</b>	<b>Actual</b>
2017	54

**Output #48**

**Output Measure**

- Number of financial classes taught

<b>Year</b>	<b>Actual</b>
2017	160

**Output #49**

**Output Measure**

- Number of participants in financial management Activities

<b>Year</b>	<b>Actual</b>
2017	2733

**Output #50**

**Output Measure**

- Number of credit report applications issued and completed

<b>Year</b>	<b>Actual</b>
2017	1275

**Output #51**

**Output Measure**

- Number of curriculum utilized.

<b>Year</b>	<b>Actual</b>
2017	1

**Output #52**

**Output Measure**

- Number of participants in financial management Group discussions

<b>Year</b>	<b>Actual</b>
2017	1436

**Output #53**

**Output Measure**

- Number of participants in financial management Activities

<b>Year</b>	<b>Actual</b>
2017	1436

**Output #54**

**Output Measure**

- Number of VIP volunteers

<b>Year</b>	<b>Actual</b>
2017	453

**Output #55**

**Output Measure**

- Number of AAMU college student volunteers

<b>Year</b>	<b>Actual</b>
2017	78

**Output #56**

**Output Measure**

- Number of former Urban Youth Development volunteers

<b>Year</b>	<b>Actual</b>
2017	10

**Output #57**

**Output Measure**

- Number of VIP partnerships

<b>Year</b>	<b>Actual</b>
2017	18

**Output #58**

**Output Measure**

- Number of volunteers who are former Extension employees

<b>Year</b>	<b>Actual</b>
2017	5

**Output #59**

**Output Measure**

- Number of volunteer hours donated

<b>Year</b>	<b>Actual</b>
2017	8496

**Output #60**

**Output Measure**

- Number of new volunteers

<b>Year</b>	<b>Actual</b>
2017	237

**Output #61**

**Output Measure**

- Number of returning volunteers

<b>Year</b>	<b>Actual</b>
2017	186

**Output #62**

**Output Measure**

- Number of participants in TMI Activities

<b>Year</b>	<b>Actual</b>
2017	818

**Output #63**

**Output Measure**

- Number of TMI partnerships

<b>Year</b>	<b>Actual</b>
2017	20

**Output #64**

**Output Measure**

- Number of participants in TMI Leadership Conference

<b>Year</b>	<b>Actual</b>
2017	90

**Output #65**

**Output Measure**

- Number of TMI surveys completed

<b>Year</b>	<b>Actual</b>
2017	439

**Output #66**

**Output Measure**

- Number of Community Service Projects

<b>Year</b>	<b>Actual</b>
2017	23

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

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

O. No.	OUTCOME NAME
1	Number of participants who increased knowledge of life-skills
2	Number of participants who gain knowledge about leadership
3	Number of participants who increased knowledge about starting a business.
4	Number of participants who adopt personal financial management best practices
5	Number of dollars saved as a result of estate planning.
6	Number of participants who improved application of life skills
7	TU: Number of Black Belt youth who increased skills related to the scientific method
8	TU Number of Black Belt youth who increased scientific method knowledge
9	The number of urban youth who increase knowledge of scientific method
10	The number of parent who increased reading readiness knowledge
11	The number of parents who adopted reading readiness best practices
12	The number of urban participants who increased knowledge of debt management best practices
13	The number of urban participants who adopted money management best practices
14	The number of urban participants who increased job readiness skills
15	the number of urban participants who adopted career readiness recommendations
16	The number of urban seniors who increased knowledge of successful aging
17	the number of urban seniors who increased knowledge related to fall prevention

18	the number of urban grandparents who increased knowledge of parenting practices
19	The number of urban seniors who adopted parenting recommendations
20	the number of urban participants who increased knowledge of family advocacy best practices
21	the number of urban participants who increased family advocacy skills
22	Number of participants who develop Life-skills
23	The number of participants who adopted career readiness recommendations
24	Number of Reality Check youth who set goals
25	Number of youth who increased knowledge of tracking spending
26	Economic impact of VIP
27	the number of urban youth who increased knowledge related to healthy choices
28	Economic impact of 4-H volunteers
29	TU: Percent of HBCU students who adopted money management recommendations
30	TU:Percent of HBCU students who developed a spending plan.
31	TU: Amount Black Belt citizens saved by adopting recommending housing practices
32	TU: the economic value of home ownership
33	TU: economic impact of Financial management housing workshop

**Outcome #1**

**1. Outcome Measures**

Number of participants who increased knowledge of life-skills

Not Reporting on this Outcome Measure



**Outcome #2**

**1. Outcome Measures**

Number of participants who gain knowledge about 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 financial management best practices

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 skills

Not Reporting on this Outcome Measure

**Outcome #7**

**1. Outcome Measures**

TU: Number of Black Belt youth who increased skills related to the scientific method

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	54

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

**Issue (Who cares and Why)**

For the past several years, the test scores in science classes at schools in the under-served communities of the Black Belt have been reported as extremely low. This has become a major issue facing our K-12 educators and parents.

**What has been done**

The Youth Development component of The Tuskegee University Extension Program offered experiential STEAM activities to supplement the present science curricula, add more exposure to laboratory experiences and develop better stewards of our natural resources. Extension agents, program coordinators and directors collaborated with Tuskegee University faculty and other stakeholders to offer as well as develop hands-on STEAM experiences to a target audience comprised of 98% Black, 1% Hispanic and 1% White.

**Results**

Tuskegee Research and Extension All 90 participants created individual experiments culminating in science projects. Post test scores evidenced a 60% increase in the knowledge of the scientific method.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
802	Human Development and Family Well-Being
806	Youth Development

**Outcome #8**

**1. Outcome Measures**

TU Number of Black Belt youth who increased scientific method knowledge

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	400

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

**Issue (Who cares and Why)**

For the past several years, the test scores in science classes at schools in the under-served communities of the Black Belt have been reported as extremely low. This has become a major issue facing our K-12 educators and parents.

**What has been done**

The Youth Development component of The Tuskegee University Extension Program set out to offer experiential STEAM activities to supplement the present science curricula, add more exposure to laboratory experiences and develop better stewards of our natural resources. Extension agents, program coordinators and directors collaborated with Tuskegee University faculty and other stakeholders to offer as well as develop hands-on STEAM experiences to a target audience comprised of 98% Black, 1% Hispanic and 1% White.

**Results**

As a result, over 400 local students, grades 4-8 participated in individual experiments and created 420 science projects during the Spring 2017. Surveys from local science educators indicated an average of +9 on science class grades as a result of this endeavor.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
802	Human Development and Family Well-Being
806	Youth Development

**Outcome #9**

**1. Outcome Measures**

The number of urban youth who increase knowledge of scientific method

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	550

**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**

Urban Regional Extension Agents taught a minimum of six STEAM lessons to help students identify and understand STEAM related concepts, STEAM careers and the scientific method.

**Results**

AAMU Extension:As a result of the implementation of STEAM lessons and activities, there was an increased knowledge of the use of the scientific method in its application of STEAM concepts and understanding. The use of data to draw conclusions showed that 63% of the participants showed in increase in their knowledge of the scientific method by completing the steps to the scientific method using a lab notebook and drawing graphs to represent the data.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

## **Outcome #10**

### **1. Outcome Measures**

The number of parent who increased reading readiness knowledge

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

- 1890 Extension

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2017	42

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

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

In 2011, approximately 82% of Alabama's low income students in grade four performed below the National Assessment of Educational Progress reading proficiency. In a climate where a certain section of the population's children is continuously scoring below the national reading proficiency level, helping parents understand why and how to teach their children to read must become a priority for many

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

Five facilitators implemented six classes on the five basic elements of reading . The parents and their children met twice a week for 18 weeks (2 semesters). The classes were conducted in Madison County.

#### **Results**

AAMU Extension After participating in the Parent-Child Reading Enhancement Program, parent's knowledge and understanding of:

?phonemic awareness (pretest, m = 1.79, posttest, m = 4.68; t = -12.88, p = .00) increased significantly.

?phonics (pretest, m = 2.37, posttest, m = 4.68; t = -8.65, p = .00) increased significantly.

?vocabulary (pretest, m = 2.26, posttest, m = 4.79; t = -9.37, p = .00) increased significantly.

?comprehension (pretest, m = 2.42, posttest, m = 4.84; t = -8.29, p = .00) increased significantly.

?fluency (pretest, m = 2.16, posttest, m = 4.68; t = -9.05, p = .00) increased significantly.

?how a child is taught reading (pretest, m = 2.91, posttest, m = 4.17; t = -5.34, p = .00) increased significantly.

?how to use things in a child's environment to teach reading (pretest, m = 3.35, posttest, m = 5.00; t = -8.96, p = .00) increased significantly.

?how to use games to teach reading skills (pretest, m = 3.48, posttest, m = 5.00; t = -9.24, p = .00) increased significantly.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

#### Outcome #11

##### 1. Outcome Measures

The number of parents who adopted reading readiness best practices

##### 2. Associated Institution Types

- 1890 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	119

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

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

In 2011, approximately 82% of Alabama's low income students in grade four performed below the National Assessment of Educational Progress reading proficiency. In a climate where a certain section of the population's children is continuously scoring below the national reading proficiency level, helping parents understand why and how to teach their children to read must become a priority for many

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

Five facilitators implemented six classes on the five basic elements of reading . The parents and their children met twice a week for 18 weeks (2 semesters). The classes were conducted in Madison County.

###### **Results**

AAMU Extension After participating in the program, the frequency of parents' behavior relative to: ?allowing the child to select the book (pretest, m = 2.43, posttest, m = 3.09; t = -3.17, p = .00) increased significantly.

?asking the child to guess what happens next in the story (pretest, m = 1.86, posttest, m = 3.17; t = -5.89, p = .00) increased significantly.

?asking the child to describe/name pictures in the story (pretest, m = 1.91, posttest, m = 3.35; t = -6.72, p = .00) increased significantly.

?asking the child to retell the story (pretest, m = 1.96, posttest, m = 3.39; t = -6.81, p = .00) increased significantly.

?pointing out new words (pretest, m = 1.87, posttest, m = 3.22; t = -5.68, p = .00) increased significantly.

?using expression in their voice when reading (pretest, m = 2.43, posttest, m = 3.43; t = -4.66, p = .00) increased significantly.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

#### Outcome #12

##### 1. Outcome Measures

The number of urban participants who increased knowledge of debt management best practices

##### 2. Associated Institution Types

- 1890 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	385

##### 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, nearly 9.6 million households in 2013 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 lessons in the urban areas of 15 counties throughout the state.

### Results

AAMU Extension Based on the pretest and posttest data, participants' knowledge increased significantly regarding how to:

- a) write out their financial goals (t=17.21, p=.00)
  - b) track their spending (t=12.92, p=.00)
  - c) maintain a written spending plan (t=17.04, p=.00)
  - d) include their children in family conversations about money (t=18.42, p=.00)
  - e) make financial decisions less impulsively and more deliberately (t=19.54, p=.00)
  - f) maintain a checking account (t=11.40, p=.00)
  - g) maintain a saving account (t=13.90, p=.00)
  - h) request their credit report (t=34.84, p=.00)
  - i) reduce their use on alternative lending sources (t=42.41, p=.00)
  - j) identify who can check their credit report (t=17.20, p=.00)
  - k) determine methods used by predatory lenders to create debt traps (t=20.56, p=.00)
- Of the 184 participants who had never requested their credit report, 172 participants (93%) were sure of their ability to request their credit report
- Of the 120 participants who use alternative sources of credit (i.e. payday loans, cash advances, title loans, etc.), 106 participants (88%) were sure of their ability to reduce use of alternative sources of credit.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
607	Consumer Economics
802	Human Development and Family Well-Being

### Outcome #13

#### 1. Outcome Measures

The number of urban participants who adopted money management best practices

#### 2. Associated Institution Types

- 1890 Extension

#### 3a. Outcome Type:

Change in Action Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2017	176

#### 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, nearly 9.6 million households in 2013 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 lessons in the urban areas of 15 counties throughout the state.

**Results**

AAMU Extension A total of 176 individuals responded to the Post Delayed Survey 1-3 months after participating in the program. The post-delayed data was used to determine the percentage of respondents who were doing the listed actions after 1-3 months.

- a)92% were tracking their spending
- b)79% were making financial decision less impulsively (on the spur of the moment)
- c)79% were reducing their use of alternative sources of credit (i.e. payday loans, cash advances, title loans, etc.)
- d)75% were using spending plans
- e)57% were including their children in family conversations about money
- f)53% were identifying ways to reduce spending with an average amount of \$70
- g)27% were using a debt management software (Powerpay)

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
607	Consumer Economics

**Outcome #14**

**1. Outcome Measures**

The number of urban participants who increased job readiness skills

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	369

**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, expos, and classes to increase individuals understanding of how to effectively write resumes, complete written and online job applications, interviews, and how to 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 15 counties throughout the state.

**Results**

Based on the pretest and posttest data, participants' knowledge of the following increased significantly after attending the program:

- a) what to say and do at an interview (t=19.06, p=.00)
- b) choose appropriate dress for an interview (t=11.05, p=.00)
- c) how to conduct a job search (t=13.01, p=.00)
- d) the importance of soft skills relative to employment (t=10.45, p=.00)
- e) how to complete job applications (paper) (t=11.42, p=.00)
- f) how to complete job applications (computer) (t=12.27, p=.00)
- g) revise and update a resume (t=12.89, p=.00)

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
607	Consumer Economics

**Outcome #15**

**1. Outcome Measures**

the number of urban participants who adopted career readiness recommendations

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	185

**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, expos, and classes to increase individuals understanding of how to effectively write resumes, complete written and online job applications, interviews, and how to 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 15 counties throughout the state.

**Results**

A total of 185 individuals responded to the Post Delayed Survey 2 months after participating in the program. The post-delayed data were used to determine the percentage of respondents who had did listed actions after 2 months.

- a)86% had revised their resume
- b)85% completed a job application (paper)
- c)85% had used skills learned from the program to answer questions appropriately in a face-to-face interview
- d)84% had used skills learned from the program to choose appropriate dress for an interview
- e)78% completed a job application (on-line)
- f)71% had created a new resume
- g)66% had used their resume developed in the program to obtain employment

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
607	Consumer Economics

## **Outcome #16**

### **1. Outcome Measures**

The number of urban seniors who increased knowledge of successful aging

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

- 1890 Extension

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2017	273

### **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 LegalEASE publications, and Estate Planning Basics, A Guide to Life Organization were used. The program was implemented by six Urban Regional 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.

The Virginia Caples Lifelong Learning Institute, through the help and assistance of 79 volunteers, offered 23 classes that focused on topics such as gardening, genealogy, smartphones, computer basics, fitness, fraud and scams, healthy cooking, etc.

#### **Results**

Based on the pretest and posttest results, participants' knowledge increased significantly regarding local resources such as:

- a) Paid work for older adults (t=12.97, p=.00)
  - b) Formal volunteer work for older adults (t=12.05, p=.00)
  - c) Educational opportunities for older adults (t=12.41, p=.00)
  - d) Organizations that are of interest to older adults (t=10.97, p=.00)
- agencies or organizations that could help them with:

a)Medication cost (t=13.56, p=.00)

b)Food (t=12.55, p=.00)

c)Home expenses (t=13.94, p=.00)

d)Legal issues (t=11.31, p=.00)

at least five ways to cut cost:

a)Prescription Medication (t=12.73, p=.00)

b)Food (t=11.57, p=.00)

c)Clothing, Household Items and Supplies (t=5.58, p=.00)

d)Entertainment (t=13.38, p=.00)

e)Cleaning Products (t=12.06, p=.00)

Based on the pretest and posttest results, the knowledge of the 273 participants increased significantly regarding how age-related changes increases their risk of falling (t=6.93, p=.00) and how their choices/behavior increases their risk of falling (t=8.13, p=.00).

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
607	Consumer Economics

#### Outcome #17

##### 1. Outcome Measures

the number of urban seniors who increased knowledge related to fall prevention

##### 2. Associated Institution Types

- 1890 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	273

##### 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 LegalEASE publications, and Estate Planning Basics, A Guide to Life Organization were used. The program was implemented by six Urban Regional 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.

The Virginia Caples Lifelong Learning Institute, through the help and assistance of 79 volunteers, offered 23 classes that focused on topics such as gardening, genealogy, smartphones, computer basics, fitness, fraud and scams, healthy cooking, etc.

**Results**

Participants' confidence in their ability (self-efficacy) to do the following increased significantly:

- a) Check their home for fall risks (t=9.30, p=.00)
- b) Identify at least 5 things inside their home that could increase their chances of falling (t=9.35, p=.00)
- c) Identify at least 5 ways or things they could do to decrease their chances of falling inside their home (t=11.14, p=.00)

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
802	Human Development and Family Well-Being

**Outcome #18**

**1. Outcome Measures**

the number of urban grandparents who increased knowledge of parenting practices

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	117

**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**

Based on the pretest and posttest results, the participants' knowledge increased significantly regarding how to do the following:

- a) use solution-focused communication (t=11.07, p=.00)
- b) use children books or movies to discuss issues with grandchildren or children (t=9.35, p=.00)
- c) recognize the difference between discipline and punishment (t=9.63, p=.00)
- d) use logical and natural consequences in disciplining (t=11.28, p=.00)
- e) effectively discipline without the use of punishment (t=9.61, p=.00)
- f) recognize risky behavior in a child (t=12.35, p=.00)
- g) identify community resources that can help make their life less stressful (t=12.12, p=.00)
- h) identify activities that can assist in reducing stress (t=11.09, p=.00)
- i) recognize the different stages of development of a child (t=11.16, p=.00)
- j) use different strategies for dealing with a child's temperament (t=11.38, p=.00)

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

<b>KA Code</b>	<b>Knowledge Area</b>
802	Human Development and Family Well-Being

#### **Outcome #19**

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

The number of urban seniors who adopted parenting recommendations

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

- 1890 Extension

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

Change in Action Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2017	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

Post-delayed data was used to determine the frequency at which respondents carried out the following actions, either always or very often, 1-2 months after participating in the program.

- a)96% teach and guide their grandchildren/children (t=11.07, p=.00)
- b)94% take time to get to truly know their grandchildren/children
- c)92% set clear rules
- d)88% maintains consistency with enforcing their rules
- e)84% focus on solutions to their problems, not on the people who caused the problem
- f)84% stop talking bad about their grandchild's parent
- g)64% used children books and movies to discuss difficult issues with their grandchildren/children

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

#### Outcome #20

##### 1. Outcome Measures

the number of urban participants who increased knowledge of family advocacy best practices

##### 2. Associated Institution Types



- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	413

**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, and manage stress. The Family Advocacy through Caring Engagement Strategies, a relationship building curriculum, was implemented as a series of four lessons or a stand-alone program in urban areas of 18 counties.

**Results**

AAMU Extension: Based on the pretest and posttest results, the 413 participants' knowledge increased significantly regarding:

- a) how to create opportunities for their family to become stronger (t=17.89, p=.00)
- b) the impact of verbal and nonverbal communication on family relationships (t=16.62, p=.00)
- c) the effects of nonverbal communication on verbal communication (t=22.22, p=.00)
- d) how to listen actively (t=19.91, p=.00)
- e) the importance of paying as much attention to nonverbal messages as to verbal messages in relationships (t=12.79, p=.00)
- f) how to use the "win-win" solution in resolving conflicts (t=16.82, p=.00)
- g) use negotiation skills when dealing with family conflicts (t=17.41, p=.00)
- h) how to resolve conflicts without anyone feeling hurt or unheard (t=18.50, p=.00)
- i) stress and stressors (t=21.94, p=.00)
- j) how to recognize the effects of stress on the body (t=16.87, p=.00)
- k) how to recognize the effects of stress on relationships (ripple effect) (t=21.34, p=.00)
- l) identify signs and symptoms of stress (t=18.96, p=.00)
- m) use different techniques for managing stress (t=24.15, p=.00)
- n) identify things that cause oneself to stress (t=19.29, p=.00)
- o) to be sensitive to the stress level of family members (t=15.62, p=.00)

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
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**Outcome #21**

**1. Outcome Measures**

the number of urban participants who increased family advocacy skills

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	112

**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, and manage stress. The Family Advocacy through Caring Engagement Strategies, a relationship building curriculum, was implemented as a series of four lessons or a stand-alone program in urban areas of 18 counties.

**Results**

AAMU Extension A total of 112 individuals responded to the Post Delayed Survey 5-6 months after participating in the program. The pretest and post-delayed data were compared to determine differences in the frequency at which respondents carried out the actions (t-test) and to determine percentage of respondents either always or very often doing the listed actions after 5-6 months.

- a)96% deliberately trying to make their family relationship stronger and healthier (t=14.95, p=.00)
- b)94% deliberately creating chances for their family to spend time together (t=8.17, p=.00)
- c)93% practicing active listening (t=10.39, p=.00)
- d)91% identifying things that stress them (t=10.89, p=.00)
- e)89% paying as much attention to nonverbal messages as they do verbal messages (t=3.95, p=.00)
- f)86% looking for signs of stress in family members (t=7.21, p=.00)

- g)82% practicing stress management techniques (t=7.87, p=.00)
- h)80% using negotiation skills when dealing with conflicts in the family (t=6.42, p=.00)
- i)78% resolving family conflicts without anyone feeling hurt or unheard (t=6.18, p=.00)

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
802	Human Development and Family Well-Being

**Outcome #22**

**1. Outcome Measures**

Number of participants who develop Life-skills

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	1884

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

**Issue (Who cares and Why)**

The number of Alabama bankruptcy filings in 2016 was 25,249 which rose 2 percent from 2015. This has been the biggest increase of any state indicating 5.36 filings per 1,000 residents (Flessner, 2016). Whether you are saving, spending, or borrowing money, this is information we can't afford to overlook. Unfortunately, Alabama still ranks second for bankruptcy filings which is an indication of why financial education is warranted.

**What has been done**

Making Money Count Curriculum was implemented as a series of four workshops or as single stand-alone lesson in all 67 counties. Nine REA's targeted limited-resource individuals and families to conducted workshops, classes, and software training sessions. Awareness and knowledge were increased by implementing decision-making for personal or family finances, utilization of spending plans, sharing techniques and strategies used by alternative credit sources, banking, PowerPay, and ordering credit reports.

**Results**

Statistically significant knowledge change took place in the following categories:

- ?Maintaining a checking account (t=13.35, p =.00)
- ?Maintaining a savings account (t=9.8, p=.00)

- ?Finding best interest rate (t=19.77, p=.00)
- ?Keeping accurate bank account records (t=14.18, p=.00)
- ?Deliberately generate list of options before making financial decisions (t=22.55, p=.00)
- ?Track their spending (t=21.67, p=.00)
- ?Use debt management software (t=43.8, p=.00)
- ?Use PowerPay techniques (t=48.21, t=.00)

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

#### Outcome #23

##### 1. Outcome Measures

The number of participants who adopted career readiness recommendations

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2017	617

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

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

Family financial stability is essential for vibrant communities and state economic vitality. In Alabama, many families struggle to achieve economic stability due to unemployment or low-wage employment. In 2016 the state had a poverty rate of 18.5% and an unemployment rate of 6.0%. Employers continued to have difficulty finding suitable candidates for positions. Lack of relevant work experience and technical skills, poor attitude, poor attendance history, lack of soft skills and failed drug screenings were reasons for candidate rejection. Worker demand will continue to exceed the supply in the future. This project provides career preparation training to equip jobseekers to conduct a successful job search that leads to employment.

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

A resume writing lesson was taught in a group setting. Agents provided individualized assistance to participants that requested it.

### Results

?The percentage of participants that had a resume to use in a job search increased from 33% (n617) to 96% (n353).

?Before the program, 61% (602n) of respondents rated their ability to choose appropriate dress for an interview six or above. After the program, 97% (489n) rated their ability to choose appropriate dress for an interview six or above.

?Before the program, 57% (486n) of respondents rated their interview skills six or above. After the program 91% (487n) rated their interview skills six or above.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
802	Human Development and Family Well-Being

### Outcome #24

#### 1. Outcome Measures

Number of Reality Check youth who set goals

#### 2. Associated Institution Types

- 1862 Extension

#### 3a. Outcome Type:

Change in Knowledge Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2017	1884

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

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

Financial literacy among adults and youth is a major issue and has increased significantly during the last decade. From learning how to manage an allowance or paycheck to setting up a budget, balancing a checkbook, understanding credit, saving money, paying for financial obligations, or setting and obtaining financial goals, financial literacy is a critical component to creating a knowledgeable consumers. Unfortunately, youth have no problem with spending but they are lacking the training needed to help them manage their money. Fortunately, it has been mandated that Alabama's curriculum includes a required career preparedness class for graduation. It requires Ninth-graders to take the yearlong course, which includes personal finance.

**What has been done**

Nine Extension educators and ten County Extension Coordinators conducted 194 Reality Check simulations for 11,102 young people, 13 to 20 years of age. Activities also involved 1,999 adult volunteers. Agents collaborated with CEC's and diverse community partners to implement the Reality Check activity.

**Results**

Seventeen percent (1,899) evaluations were collected from program participants. 953 participants reported they were likely to set short- and long-term financial goals.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
802	Human Development and Family Well-Being
806	Youth Development

**Outcome #25**

**1. Outcome Measures**

Number of youth who increased knowledge of tracking spending

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	1141

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

**Issue (Who cares and Why)**

Financial literacy among adults and youth is a major issue and has increased significantly during the last decade. From learning how to manage an allowance or paycheck to setting up a budget, balancing a checkbook, understanding credit, saving money, paying for financial obligations, or setting and obtaining financial goals, financial literacy is a critical component to creating a knowledgeable consumers. Unfortunately, youth have no problem with spending but they are lacking the training needed to help them manage their money. Fortunately, it has been mandated that Alabama's curriculum includes a required career preparedness class for graduation. It requires Ninth-graders to take the yearlong course, which includes personal finance.

**What has been done**

Nine Extension educators and ten County Extension Coordinators conducted 194 Reality Check simulations for 11,102 young people, 13 to 20 years of age. Activities also involved 1,999 adult volunteers. Agents collaborated with CEC's and diverse community partners to implement the Reality Check activity.

**Results**

1,141 (76%) respondents reported they are likely to track spending.

**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**

Economic impact of VIP

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2017	205000

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

**Issue (Who cares and Why)**

There is a need to strengthen the capacity of young people to live productive lives. Voices for Alabama's Children report that Alabama's children and youth face poverty, obesity, youth violence, and food insecurity at alarming rates. Glaring statistics show that 34% of children are in single-parent families, 27% of children live in poverty, 24% of children are food insecure, and only 34% of 4th graders read proficiently. If not addressed, many of these indicators could place youth in jeopardy of having a shorter life span than their parents. Volunteers are able to support educational programming to help youth lead healthier, happier lives.

**What has been done**

Urban staff members recruited, enrolled and trained 453 youth and adult volunteers. Training was conducted to effectively prepare staff to assume assigned volunteer duties. Background screenings were conducted for direct volunteers. The quantity and quality of work provided

through volunteer service was documented and assessed. A database of volunteer support was also created to document volunteer service hours. Through their service hours, volunteers served as advisory board members, mentors, workshop facilitators, judges, and teen leaders.

**Results**

Through VIP, 8496 clock hours were donated to the Urban Unit. This equated to a monetary value of more than \$205,000.00 dollars as a return from volunteerism to Cooperative Extension. Volunteers gained skills in communicating, interviewing and conducting workshops and activities. Volunteers gained knowledge of areas of Urban Extension Programs, outreach activities, and professional organizations. The specific skills gained by volunteers included: how to present for an interview; patience or communicating with the elderly, patience and understanding; teamwork and cooperation; being more helpful; how to live and eat healthy; communicate differently with various age groups and people skills. Volunteers also increased awareness of ACES and the Urban Affairs and New Nontraditional Programs Unit, became better leaders, used skills to improve their community, increased knowledge of basic technical, office, and computer skills, and improved knowledge of volunteer opportunities with the community.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
806	Youth Development

**Outcome #27**

**1. Outcome Measures**

the number of urban youth who increased knowledge related to healthy choices

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	439

**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**

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. The Teens Making Impact(TMI) program is a series of five interactive lessons that helps youth make sound career decisions, engage in effective communication, pursue healthier lifestyles and to better understand government issues and their roles as productive citizens. As a result of participation in Teens Making Impact(TMI) Program, participants gained knowledge in the following areas: The benefits of exercising before knowledgeable (40%); after very knowledgeable (58%).How to choose a career before knowledgeable (39%); after very knowledgeable (59%); How to choose healthy snacks before knowledgeable (33.3%);after very knowledgeable(55.5%) N=439.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
806	Youth Development

**Outcome #28**

**1. Outcome Measures**

Economic impact of 4-H volunteers

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	24000000

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

**Issue (Who cares and Why)**

There are not enough paid staff to reach all age-eligible 4-H youth in Alabama. Leveraging the time of more than 10,000 Alabama citizens allowed us to reach more than 184,000 youth (27% increase) with more opportunities. Volunteers served 101,441 hours in 2017 valued at \$2.4 million dollars in economic impact.

**What has been done**

10,539 4-H Volunteers reached more than 184,021 youth and served more than 101,000 hours to 4-H programs during the 4-H club year 2016-2017. The independent sector values this time at 2.4 million dollars. This 4-H volunteer service is equivalent to 49 full time 4-H employees, nearly allowing us to double our work-force in a single year. 4-H volunteers provide critical services and talents including teaching, mentoring, coaching and supporting youth people as they learn valuable life skills.

**Results**

10,538 4-H volunteers reached more than 184,000 youth and served more than 101,000 hours to 4-H programs during 4-H club year 2016-2017. The independent sector values this time at \$2.4 billion dollars.

In 4-H Club year 2016-2017, 806 4-H Volunteer on-line learning modules were completed by 157 volunteers. 286 volunteers had background check investigations completed by Auburn University Human Resources to determine suitability to work with minors.

\* All information captured in 4HOnline volunteer enrollment and training database.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
806	Youth Development

**Outcome #29**

**1. Outcome Measures**

TU: Percent of HBCU students who adopted money management recommendations

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	75

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

**Issue (Who cares and Why)**

Students at HBCUs are the least financially literate. They do not have financial plan, spend more than their income, & buy things even when they could not afford to pay. Limited resource/socially & historically disadvantaged families always have financial challenges in everyday life to pay their

utility bills. High school kids were not lining up their financial goal for the cost of their college education & didn't have bank accounts set up to develop a saving habit.

**What has been done**

One baseline survey was conducted, two (pre and post) evaluations were carried out, a total of 5 workshops were organized, one SM\$ booth was set up, one SM\$ poster session was organized, 52 heads of students attended the workshops, 52 binders of educational materials were prepared and distributed, 52 coin/piggy banks were distributed, a project work on quick fact sheet was introduced, and 6 counseling and coaching sessions were organized.

**Results**

Tuskegee Research and Extension 75% of the participants prepared their money saving plan,

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
607	Consumer Economics

**Outcome #30**

**1. Outcome Measures**

TU:Percent of HBCU students who developed a spending plan.

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	52

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

**Issue (Who cares and Why)**

Students at HBCUs are the least financially literate. They do not have financial plan, spend more than their income, & buy things even when they could not afford to pay. Limited resource/socially & historically disadvantaged families always have financial challenges in everyday life to pay their utility bills. High school kids were not lining up their financial goal for the cost of their college education & didn't have bank accounts set up to develop a saving habit.

**What has been done**

One baseline survey was conducted, two (pre and post) evaluations were carried out, a total of 5 workshops were organized, one SM\$ booth was set up, one SM\$ poster session was organized, 52 heads of students attended the workshops, 52 binders of educational materials were prepared and distributed, 52 coin/piggy banks were distributed, a project work on quick fact sheet was introduced, and 6 counseling and coaching sessions were organized.

**Results**

Tuskegee Research and Extension 80% developed a monthly spending plan

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
607	Consumer Economics

**Outcome #31**

**1. Outcome Measures**

TU: Amount Black Belt citizens saved by adopting recommending housing practices

**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>
2017	27000

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

**Issue (Who cares and Why)**

All income, expenses related to the maintenance and upkeep of the entire family household. Family housing provides protection, security, and an environment where individuals and families develop, socialize and establish their core values. From an economic stand point, housing represents the largest financial investment most people will make in their lifetime. Rural areas such as Greene and Hale Counties continue to have a greater percentage of poor inadequate housing. Low per capita income, societal changes, increase in aging and disable population, have created concerns about proper and efficient housing.

**What has been done**

10 week education Financial Management classes were conducted, with a total of 22 participants 4-adult males, 18 females between ages of 21 to 68 attend all classes and were able to demonstrate and gained financial management skills. Pre and Post assessment were conducted and they show sufficient knowledge gain.

**Results**

End results 6 of the 22 participants were assisted in acquiring funds to complete much needed home repairs through USDA-RD, also through West Alabama Community Service Programs, ranging in the amounts from \$3,000.00-\$27,500.00.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
607	Consumer Economics

**Outcome #32**

**1. Outcome Measures**

TU: the economic value of home ownership

**2. Associated Institution Types**

- 1890 Extension
- 1890 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	154000

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

**Issue (Who cares and Why)**

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**What has been done**

10 week education Financial Management classes were conducted, with a total of 22 participants 4-adult males, 18 females between ages of 21 to 68 attend all classes and were able to demonstrate and gained financial management skills. Pre and Post assessment were conducted and they show sufficient knowledge gain.

**Results**

Tuskegee Research and Extension One participant was assisted in acquiring funding through HUD to purchase an existing structure in the amount of \$154,00.00

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
607	Consumer Economics

**Outcome #33**

**1. Outcome Measures**

TU: economic impact of Financial management housing workshop

**2. Associated Institution Types**

- 1890 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2017	125000

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

**Issue (Who cares and Why)**

All income, expenses related to the maintenance and upkeep of the entire family household. Family housing provides protection, security, and an environment where individuals and families develop, socialize and establish their core values. From an economic stand point, housing represents the largest financial investment most people will make in their lifetime. Rural areas such as Greene and Hale Counties continue to have a greater percentage of poor inadequate housing. Low per capita income, societal changes, increase in aging and disable population, have created concerns about proper and efficient housing.

**What has been done**

10 week education Financial Management classes were conducted, with a total of 22 participants 4-adult males, 18 females between ages of 21 to 68 attend all classes and were able to demonstrate and gained financial management skills. Pre and Post assessment were conducted and they show sufficient knowledge gain.

### Results

Tuskegee Research and Extension: One participant was able to obtaining funding through USDA-RD in the amount of \$125,000.00 for a new structure

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
607	Consumer 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

##### Promoting Readiness for Employment Possibilities (PREP)

Based on the pretest and posttest data, participants' knowledge of the following increased significantly after attending the program:

- a) what to say and do at an interview (t=19.06, p=.00)
- b) choose appropriate dress for an interview (t=11.05, p=.00)
- c) how to conduct a job search (t=13.01, p=.00)
- d) the importance of soft skills relative to employment (t=10.45, p=.00)
- e) how to complete job applications (paper) (t=11.42, p=.00)
- f) how to complete job applications (computer) (t=12.27, p=.00)
- g) revise and update a resume (t=12.89, p=.00)

##### Parent-Child Reading Enhancement Program (PCREP)

Based on the pretest and posttest data, participants' knowledge of the following increased significantly after attending the program:

- a) what to say and do at an interview (t=19.06, p=.00)
- b) choose appropriate dress for an interview (t=11.05, p=.00)

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#### Alabama 4H

After being involved in Youth Council: 105 youth were able to work successfully with a team and independently an increase of 59%.; 107 youth were able to appreciate the differences in others an increase of 37 %; 113 youth were able to do things that make a difference in their community an increase of 63 %;After serving as a 4-H club officer, 70 of 125 youth able to set goals, 102 of 125 youth able to work with others to solve problems, 93 of 125 youth able to speak and present in front of others and 90 of 125 youth have the skills to be a leader. The club officer's position allows the youth an opportunity to grow as leaders within their 4-H clubs and society;114 pigs raised and sold @average weight of 245 pounds and a price of \$1.69;

#### BE Safe

Based on paired-sample t-tests conducted on multi-item indicators, statistically significant ( $p < .05$ ) improvement was documented for the following knowledge outcome measures: Youth's knowledge of strategies to help someone who is being bullied increased  $p=.007$  Youth's knowledge of what to do when they do not feel safe increased  $p=.001$

#### STEAM (Science, Technology, Agriculture and Math Enhancement Program

Alabama, reaching a target audience of over 350 youth, grades 4-8. Surveys indicated an average increase of +9 on local science test scores. SMART Camp, a 10-day hands-on science camp was continued this past summer utilizing retired as well as active elementary science educators. This camp focused on teaching the scientific method. All 90 participants created individual experiments culminating in science projects. Post test scores evidenced a 60% increase in the knowledge of the scientific method. In addition, the youth development program offered printed information to local science teachers and students regarding the scientific method

### Key Items of Evaluation

#### Promoting Readiness for Employment Possibilities (PREP)

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## VI. National Outcomes and Indicators

### 1. NIFA Selected Outcomes and Indicators

<b>Childhood Obesity (Outcome 1, Indicator 1.c)</b>	
32059	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.