2015 Alcorn State University and Mississippi State University Combined Research and Extension Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

This Report of Accomplishments (ROA) is the first joint report among the Mississippi State University Extension Service (MSU Extension), the Mississippi Agricultural and Forestry Experiment Station (MAFES), and the Alcorn State University (ASU) School of Agriculture, Research, Extension, and Applied Sciences (AREAS). The report therefore includes Extension and research from Mississippi's 1862 land-grant institution, Mississippi State University, and its 1890 land-grant institution, Alcorn State University. This report includes efforts and results related to MSU's Hatch appropriation, which total $4,927,491 for federal fiscal year 2015 and a total Smith-Lever appropriation of $7,034,235, as well as ASU's Evans Allen appropriation and Smith-Lever appropriation.
In 2015, the U.S. Census estimated Mississippi to have approximately 2,992,333 citizens. Mississippi is a diverse state, with a variety of agricultural systems, a large population of ethnic minorities, and families and communities with unique needs. The land-grant universities meet this challenge with a broad spectrum of programming designed to reach these diverse audiences. Creation and transfer of knowledge to solve problems are at the core of these efforts.

MSU Extension provides research-based educational programs and information in agriculture and natural resources, 4-H youth development, family and consumer education, and community resource development to improve the economic, social, and cultural well-being of all Mississippians. The MSU Extension Service provides research-based information, educational programs, and technology transfer focused on issues and needs of the people of Mississippi, enabling them to make informed decisions about their economic, social, and cultural well-being. MSU Extension delivers programming in Agriculture and Natural Resources, Family and Consumer Sciences, 4-H Youth Development, and Enterprise and Community Development. During FY2015, MSU Extension professionals (262.6 total FTE) carried out 98,686 educational activities with a total of 4,089,416 contacts.

The mission of MAFES is the creation of knowledge through fundamental and applied research in the fields of science related to agriculture, food, natural resources, the natural environment, people, and communities. The focus of these research programs is on enhancing and/or developing economically efficient and environmentally sustainable agricultural production and processing systems. The goals are to provide safe, nutritious, desirable food and fiber products and processes for consumers, as well as to assure that the businesses which comprise Mississippi's agricultural industry have the information required to remain competitive in a global marketplace. MAFES develops and delivers emerging technologies to agricultural producers, bridging the gap between science and application. During FY2015, MAFES scientists (89.33 total FTE) produced 536 peer-reviewed scientific publications, 268 other technical publications, 9 patent applications, and supported 194 graduate assistants.

Mississippi State University's (MSU) program areas reflect the integration of the agricultural sector in Mississippi and provide needed programming for the youth, families, and communities of the state. MSU's ten program areas include the following:

1. Global Food Security and Hunger - Animal Systems
2. Global Food Security and Hunger - Plant Systems

3. Global Food Security and Hunger - Agricultural, Biological, and Natural Resources Engineering
4. Global Food Security and Hunger - Enterprise Economics
5. Environmental Systems and Sustainability
6. Forestry
7. Wildlife and Fisheries
8. Community Resource and Economic Development
9. 4-H/Youth Development
10. Family and Consumer Sciences

The ROA of Alcorn State University School of Agriculture, Research, Extension, and Applied Sciences (AREAS) draws upon the organization's unique strengths and its comprehensive delivery system in conducting original research and delivering educational programs targeted to limited-resource audiences. Research and Extension professionals facilitate positive change in the Capital River, Delta, and Coastal regions of Mississippi through implementing the jointly planned programs.

ASU state-level Extension and Research staff consists of researchers who conduct studies to address relevant issues and situations facing the state's limited-resource citizens, as well as issues relevant to specific geographic areas of the state. Extension specialists draw upon research-based information to design, develop, and implement educational programs that deliver research-based information to limited-resource audiences across Mississippi. At the county level, Extension Program Area staff designed and implement educational programs, events, and activities that make it possible for limited-resource audiences to obtain and apply new research-based information and gain new skills. Many of the research and education programs are tested and supported by the Model Farm on the ASU campus, two off-campus demonstration centers located in Mound Bayou and Preston, and the Natchez Farmers Market located in Natchez, MS.

ASU's five program areas include the following:
1. Global Food Security and Hunger (Animal Systems and Plant Systems);
2. Small Family Farm and Marketing (Enterprise Economics);
3. Community Resource and Economic Development;
4. 4-H and Youth Development: Family, Nutrition, Health, Fitness, and Wellness; and
5. Family and Consumer Science: Nutrition, Food Safety, and Human Health and Well-Being.

These planned programs represent those areas with the greatest need as identified by community partnerships, environmental scans, researchers, and Extension staff. Stakeholder input from limited-resource audiences in the Delta, Coastal, and Capital River targeted regions of Mississippi focused on these five program areas.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2015	Extension		Research	
	1862	1890	1862	1890
Plan	245.0	36.0	61.0	38.0
Actual	262.6	32.0	188.3	31.0

II. Merit Review Process

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

- Internal University Panel
- Combined External and Internal University Panel
- Combined External and Internal University External Non-University Panel
- Expert Peer Review

2. Brief Explanation

At MSU, research projects utilize an internal university panel and an expert peer review as part of the regional research networks. These reviews cover all aspects of research proposals, including scientific merit, budgets, and suitability of the research mission for the unit, experiment station, and regional consortium. Extension programs undergo an internal university panel review. This review considers the need for the program (including stakeholder input), methods utilized, audience identified, and methods for outcome/impact evaluation. The 5-Year Plan of Work is reviewed by a combined internal and external university and external non-university panel. Panels are set up as appropriate for specific program plans with a focus on a broader review of the need, resources allocated, and expected outcomes of the programs.

For example, MSU's Poultry Science Department completed a 5-year review in fall 2014. The process included a departmental self-study, an internal MSU review committee, and an external review. The external reviewer's comments included: The Department has made significant progress in developing excellent teaching, research, and extension programs for MSU and its stakeholders. The Department Head is providing needed vision and strong programmatic leadership. Young faculty are focused and committed to accomplishing departmental plans and objectives. Undergraduate and graduate student numbers may be low, but a plan is in place for growing student numbers. The state's poultry industry is supportive of the Department. The Department is well-positioned for making significant strides in fulfilling its teaching, research, and extension missions.

At ASU, a panel consisting of individuals from within the University, other universities, and external non-university groups is selected every two years to establish and conduct merit review process of the Joint Extension/Research POW. The individuals selected include Extension program leaders, specialists, and researchers from land-grant universities within and outside of the state of Mississippi. The non-university panel members include various partnering agencies with complementary research and Extension functions and priorities in the state. The merit review process focuses on the five planned programs identified above.

Every other year at ASU, and for the next five years, a comprehensive program review is/will be conducted by the panel of the AREAS. The input to this reviewing process is obtained from local and state stakeholders during an environmental scanning process, feedback from county advisory groups, and contributions from university faculty in the respective areas of the plan. The review results are used to improve, change, and modify the Plan of Work.

ASU's research efforts are reviewed annually to evaluate the relevancy of research priorities, the quality of the research methodology, project outputs, and the measured impact of research projects. External expert reviewers and peer reviews from governmental agencies (state and federal), other universities, and local officials are also included in the examination of the POW Research conducted during the relevant reporting period.

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
- Survey of traditional stakeholder groups
- Survey of the general public
- Survey specifically with non-traditional groups
- Survey specifically with non-traditional individuals
- Other (Establish a statewide Extension Advisory Council)

Brief explanation.

MSU used its standard processes to seek stakeholder input:
County Extension Advisory Councils: As a formal process, key clientele met under the leadership of county Extension professionals to review programs and identify key issues to be addressed. An Overall Extension Advisory Council in each county met at least once per year to discuss programming efforts, evaluate programs, legitimize program efforts, assess needs for future programming, and identify human and financial resources for programming. This group includes leaders who provide input from business, social, and economic entities as well as those who represent underserved and underrepresented clientele. Program Advisory Councils in each county act as subcommittees of the Overall Advisory Council, and represent the interests of agriculture, family & consumer sciences, 4-H youth, and community/rural development issues. These groups met at least twice per year to identify program needs, delivery and evaluation. MSU Extension agents also obtain information regarding clientele needs from people outside these advisory councils, giving attention to key community leaders and representatives of underserved populations to ensure all groups who are possible beneficiaries of programming efforts are included. These groups met several times during the year to offer input and react to Extension's efforts. MAFES and MSU Extension administration met with state-specific commodity boards representing corn, soybean, cotton, rice, and peanut producers to understand producer requirements, establish research priorities, and communicate research outcomes. MAFES assists commodity boards in developing RFPs and managing submission and review processes.

• Research and Extension Center Advisory Councils: MSU has four area Research and Extension Centers (Delta, Northeast, Central, and Coastal) jointly administered by MSU Extension and MAFES. These centers each have an overall advisory council where stakeholders discuss programming and research efforts and assess needs. Subgroups of these advisory councils met several times during the year to discuss specific needs in research and extension programming.

• Key Partners: MSU Extension and MAFES met with key partners throughout the year to discuss efforts and results, coordinate activities, and set priorities. Key partners include Mississippi Farm Bureau; Natural Resources Conservation Service; Delta Council; Rural Development Offices; Mississippi Forestry Commission; Mississippi Department of Wildlife, Fisheries, and Parks; Mississippi Department of Agriculture and Commerce; Mississippi Consumer Education Partnership; and numerous state and regional commodity groups.

At ASU, the result of the county program review indicated: (a) a need for continued outreach and training of new and current county advisory councils and executive board members; (b) the need for implementation of new educational programs based on critical needs and issues identified by the environmental scanning process and from stakeholders' input; and (c) the need to include additional field and state staff in all planned program areas to address issues and needs at the county level. Its key partners are the Mississippi Association of Cooperatives, USDA Rural Development, Farm Service Agency, Natural Resouce Conservation Services, and the Risk Management Agency, Head Start, County Board of Supervisors, Small Farm and Agribusiness Center, Local County School Systems, and the Mississippi Department of Agriculture.

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 External Focus Groups
- Open Listening Sessions
- Needs Assessments
- Use Surveys

Brief explanation.

The collection of input from stakeholders is an ongoing process with both MSU Extension and MAFES (described in the previous section). Advisory committees are required to be reflective of the population of potential clientele. The process began with county extension personnel identifying stakeholders, along with promotion of the meetings to the general public for their participation. This local and community-based approach to identifying stakeholders and assessing needs allows a wide diversity in program planning as required to meet a large variety of needs expressed.

MSU Extension and MAFES administrators traveled through the state extensively to gain input about research and Extension programming and proposed changes. This included sessions with internal groups, as well as the general public and external producer advisory committees such as Delta Council, Mississippi Farm Bureau, and several commodity promotion boards.

The formal statewide needs assessment conducted by MSU in 2014 informed efforts in 2015. Through the Alcorn State University Extension and Research Unit's Environmental Scanning Process, focus groups and issue planning teams provided valuable data to assist the ASUEP in developing a plan-of-action to address five issues in various communities. Data from the selected communities indicated a lack of youth activities, young people in agriculture, health/wellness education, personal and home financial management, educational opportunities, and workforce development. These issues ranked highest among the critical problems in the six counties selected by an ASUEP five-member team. In this report, themes were grouped into six broad categories: jobs, education, health, human relations, community services, and the environment.

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

Brief explanation.

Meetings with traditional stakeholder groups, with the general public, and specifically with nontraditional groups are an ongoing part of the needs assessment process conducted by MSU Extension and MAFES. Surveys of traditional stakeholder groups and non-traditional groups and individuals were conducted in specific situations. Results from a formal statewide needs assessment conducted by MSU Extension in 2014 are still being used to inform programming.
The information collected in 2015 directed the ASUEP's administration on how to efficiently use funds to implement programs across counties. Also, the information improved existing research programs and guided the development of new research focuses. The administration used the information as a means to determine staffing needs and to develop an action plan to address county issues.

3. A statement of how the input will be considered

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

Brief explanation.

At MSU, stakeholder input influenced most aspects of this POW. Issues were identified through the needs assessment processes discussed earlier. The issues help Extension Agents and Specialists determine their plans of action, including redirecting programs to meet clientele needs. Administration provided the resources to accomplish these changes, including setting new priorities or revising existing priorities, and hiring appropriate staff members as required to address the priorities. Findings from the statewide needs assessment conducted in 2014 directed MSU's efforts in 2015.

At ASU, budget allocation, identification of emerging issues, redirection of research and outreach programs, selection of staff, action plans, and priority setting are directly connected to the ASU mission. The mission is the foundation of our proposed change model (discussed earlier), which

consists of planning, implementing, evaluating and maintaining accountability measures. A statewide advisory council, program areas, environmental scan, Town Hall meetings, individual survey findings, research results and merit reviews support our decision-making process to establish clear budget priorities and action plans that satisfy our educational mission. When possible, budget changes are made to allocate the necessary resources and staff to address program priorities. It is also critical that we conduct an internal assessment and monitor our talent capacity to deliver on our priority. An organizational assessment were carried out of our Research and Extension's ability to reach a diverse public and to deliver educational programs relevant to different cultural groups in the state, for example, reveals that the organization needs to design and implement measurable strategies to reach desirable competence. That will become one of the critical priorities this year.

Finally, the ASU state and county staff and Extension Leadership and Management Committee together prioritized the current emerging issues. Prioritization of matters in program areas: (a) agriculture/environment issues are lack of farm and financial management, limited knowledge of production, management, and marketing practices for alternative enterprises; (b) nutrition and health problems are high rate of obesity (adult/childhood) and high incidence of chronic disease; (c) youth development issues are elevated prevalence of risky behavior and high levels of teen pregnancy across the state; (d) child and family development issues are elevated rate of single parent families and limited parenting skills among limited resource parents; and (e) community and economic development issues are lack of jobs (for youth and adult) and limited community leadership skills.

Brief Explanation of what you learned from your Stakeholders

At MSU, the various methods we used to learn from stakeholders about their needs resulted in the identification of five guiding imperatives that will drive MSU Extension's programs for the next few years:
1) Enhancing the viability of Mississippi's agriculture.
2) Sustaining Mississippi's natural resources and environment.
3) Growing vibrant and successful Mississippi communities and businesses.
4) Building Mississippi's future through positive 4-H youth development.
5) Strengthening and sustaining Mississippi families.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
7034235	2016121	4927491	2525490

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	7034235	2528547	5193622	2525490
Actual Matching	7034235	2528547	5343427	2525490
Actual All Other	0	0	19137745	0
Total Actual Expended	14068470	5057094	29674794	5050980

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous				
Carryover	6425382	0	4236739	0

V. Planned Program Table of Content

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Global Food Security and Hunger - Animal Systems

☑ 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
301	Reproductive Performance of Animals	10%	20%	10%	20%
302	Nutrient Utilization in Animals	10%	15%	31%	15%
303	Genetic Improvement of Animals	5%	10%	1%	10%
304	Animal Genome	5%	0%	2%	0%
305	Animal Physiological Processes	5%	0%	10%	0%
306	Environmental Stress in Animals	5%	0%	4%	0%
307	Animal Management Systems	15%	0%	24%	0%
308	Improved Animal Products (Before Harvest)	5%	10%	1%	10%
311	Animal Diseases	10%	15%	13%	15%
312	External Parasites and Pests of Animals	5%	0%	1%	0%
313	Internal Parasites in Animals	5%	0%	0%	0%
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals	5%	0%	3%	0%
315	Animal Welfare/Well-Being and Protection	10%	0%	0%	0%
402	Engineering Systems and Equipment	5%	0%	0%	0%
501	New and Improved Food Processing Technologies	0%	10%	0%	10%
602	Business Management, Finance, and Taxation	0%	10%	0%	10%
604	Marketing and Distribution Practices	0%	10%	0%	10%
	Total	100%	100%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2015	Extension		Research	
	1862	1890	1862	1890
Plan	14.2	6.0	17.0	4.0

Actual Paid	24.0	5.0	14.8	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
641984	515273	856001	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
641984	515273	2172356	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	6307291	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

This program utilized a multidisciplinary team to explore issues related to global food security and hunger in an effort to find solutions that impact the community through research and educational programs. Extension personnel communicated with animal producers, industry, and the general public through seminars, workshops, group meetings, and Extension bulletins and newsletters distributed in paper copy and electronically via the internet. Field demonstrations, farm tours, and one-to-one intervention encouraged acceptance of new practices and methodologies. Both basic and applied research was conducted, with results of research projects being published in peer-reviewed scientific journals.

Alcorn State University program utilized an interdisciplinary team in agriculture to explore animal production issues, and identify strategies to find solutions as a means of impacting the community through research and educational programs. Research in animal production as well as in agricultural economics was conducted to identify ways to increase best management practices on small farms. Research was conducted by synthesizing existing knowledge and new findings in animal sciences. The educational program provided a wide range of demonstrations, farm tours, group meetings, seminars, applied research, and one-to-one intervention. The indirect activities included public service announcements, dissemination of newsletters, and development of websites, research publication reports, information sheets, and publications in scientific journals. These activities were geared towards increased animal production and herd genetics.

2. Brief description of the target audience

At MSU, the target audience for this program included animal producers and related industry personnel. Specifically, the target audience included producers of beef, dairy, swine, equine, forage, catfish, crayfish, freshwater prawns, and commercial poultry.

At ASU, this program is designed specifically for the limited-resource farmers and residents within the State of Mississippi. Limited-resource residents are those earning 80% or less income of Mississippi's Median Household income (0.80 of $38,882 = $31,105.60 per year). According to U.S. Census Bureau estimates, Mississippi had a median household income (2010-2014) of $39,464. This program was designed specifically for the limited-resource farmers and rural dwellers within the State of Mississippi. We

provided the farmers and dwellers in Mississippi and the nation with findings related to best management practices.

3. How was eXtension used?

At MSU, the resources provided through eXtension were used to supplement and enhance our public learning experiences provided by MSU Extension agents and specialists. eXtension was also used as a resource in state-based planning processes. Overall, 202 MSU employees are eXtension users. Further, MSU Extension has 68 employees that serve on one or more of the 68 Communities of Practice (COPs); MSU Extension employees are members of 39 COPs. 9 MSU Extension employees serve as a leader for a COP, leading 7 COPs.

5 MSU Extension personnel are members of the Beef Cattle COP. 3 MSU Extension personnel are members of the Bee Health COP with 1 being a leader. 4 MSU Extension personnel are members of the Freshwater Aquaculture COP. 1 MSU Extension employee is a member of the Livestock and Poultry Environmental Learning Centers COP. 2 MSU Extension personnel are members of the Marine Aquaculture COP. 5 MSU Extension personnel are members of the Community, Local, and Regional Food Systems COP. 1 MSU Extension employee is a member of the Youth Agriculture COP.

At ASU, eXtension was used to locate and identify data that could be used to obtain external resources. eXtension was used to seek information regarding animal herd health.

V(E). Planned Program (Outputs)

1. Standard output measures

2015	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	73123	97423	3000	300

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

Patent Applications Submitted

Year:	2015
Actual:	4

Patents listed

- Utility Patent Application - Insertable Probe, Borazjani; Ali ; et al.
- Provisional Patent Application - Utilization of Oleaginous microorgansims as a nutritional supplement for animals. Donaldson
- Provisional Patent Application ? Salmonella and Listeria Assay Methods and Kits, Kim and Juan
- Utility Patent Application ? Vibrio Assay Methods and Kits, Kim and Juan

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2015	Extension	Research	Total
Actual	1	192	31

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of producers attending seminars, workshops, short courses, and demonstrations. (MSU)

Year	Actual
2015	27758

Output #2

Output Measure

- Conduct educational demonstrations for limited-resource farm families on best management practices and best available technologies for livestock production. (ASU)

Year	Actual
2015	8

Output #3

Output Measure

- Conduct educational programs, activities, or events to improve herd genetics for limited-resource farm families. (ASU)

Year	Actual
2015	7

Output #4

Output Measure

- Conduct educational programs, activities, or events on pastured livestock production practices for limited-resource farm families. (ASU)

Year	Actual
2015	12

Output #5

Output Measure

- Conduct educational programs, activities, or events on reproduction performance, nutrient utilization in animals to decrease livestock production cost for limited-resource farm families. (ASU)
  Not reporting on this Output for this Annual Report

Output #6

Output Measure

- Conduct educational programs, activities, or events on alternative livestock production practices for limited-resource farm families. (ASU)

Year	Actual
2015	8

Output #7

Output Measure

- Develop research publications related to animal/meat production. (ASU)
  Not reporting on this Output for this Annual Report

Output #8

Output Measure

- Develop research-based, reader-friendly pamphlets, and fact sheets on livestock production for Extension educators and farm families. (ASU)
  Not reporting on this Output for this Annual Report

Output #9

Output Measure

- Develop M.S. thesis on animal production systems. (ASU)
  Not reporting on this Output for this Annual Report

Output #10

Output Measure

- Conduct educational programs, activities, or events on forage production practices for limited-resource farm families. (ASU)
  Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of producers adopting new technologies, strategies, or systems.
2	Number of producers increasing production levels.
3	Number of producers optimizing production inputs/expenses.
4	Number of producers improving their environmental stewardship.
5	Number of producers improving overall animal health and/or protection.
6	Number of program participants that improve livestock production efficiency through best management practices.
7	Number of producers that improve pasture grass fed to livestock.
8	Number of farmers that utilize artificial insemination and/or embryo transfer to decrease the need to purchase quality male animals and improve herd genetics.
9	Number of farmers that adopt pasture or alternative livestock systems as an alternative enterprise.
10	Number of new technologies, production practices, or improved production systems developed.

Outcome #1

1. Outcome Measures

Number of producers adopting new technologies, strategies, or systems.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	5552

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Many cattle producers leave attainable returns unrealized by lack of sufficient genetic improvement in their herds. Artificial insemination is a proven means of rapidly improving the genetics of a cattle herd but requires specialized training to learn how to implement. Successful adoption of artificial insemination requires intensive management and specialized training in artificial insemination technique. There are limited training opportunities to learn artificial insemination management and technique in the United States.

What has been done
At MSU, a Cattle Artificial Insemination School was developed to provide a cost-efficient program to educate producers on reproductive management, familiarize producers with artificial insemination tools, and provide hands-on artificial insemination experience. The curriculum is updated at least twice annually to provide the most current information to participants. Both beef and dairy cattle breeders are serviced through this school.

Results
The MSU Cattle Artificial Insemination School has gained national attention attracting participants from 20 states to date. Participant feedback indicates notable artificial insemination adoption as a result of this school. The net returns from artificial insemination use in Mississippi cattle herds due to program participation is estimated at $961,250 per year across the 769 breeders who have already completed the program. Each year the program's annual economic impact grows by approximately $87,500 as another 70 Mississippi cattle breeders implement artificial insemination as a result this program. Additional monetary benefits of the program are also realized from improved implementation of nutritional, health, and reproductive best management practices emphasized through this school.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
303	Genetic Improvement of Animals
304	Animal Genome
305	Animal Physiological Processes
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
402	Engineering Systems and Equipment

Outcome #2

1. Outcome Measures

Number of producers increasing production levels.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	2309

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Many new producers enter beef cattle production needing general knowledge of major beef production and marketing topics tailored specifically for MS production. Many experienced beef cattle producers need continuing education with updated information to be competitive and profitable. Complicating matters is that much of the information available online is not relevant to MS operations. There is a need for a comprehensive, publicly available, localized curriculum addressing major beef cattle production and marketing topics.

What has been done
MSU Extension's MS Master Cattle Producer Program focuses on improving overall management and decision-making skills and developing a broad beef cattle production knowledge base. This comprehensive training in major beef cattle production topic areas consists of current recommendations tailored to MS-based operations. An internet-based self-study version of the

MS Master Cattle Producer Program is available for online completion. This course is open to any producer interested in learning more about improving production on beef cattle operations.

Results

For every 100 participants trained through the MS Master Cattle Producer Program, there is potential to increase total beef cattle production annual net returns by an estimated $825,000. For every $1 million increase in value of cattle production, the expected impact on the MS economy exceeds $1.9 million including support for employment and the tax base. This equates to an annual economic impact to date of greater than $2.75 million as a result of this program. In addition to MS beef cattle producers, Mississippians from other segments of the beef cattle industry, such as feed retailers, as well as out-of-state beef cattle producers participate in the program. Program participation continues to grow.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
303	Genetic Improvement of Animals
304	Animal Genome
305	Animal Physiological Processes
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
311	Animal Diseases
312	External Parasites and Pests of Animals
313	Internal Parasites in Animals
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals
315	Animal Welfare/Well-Being and Protection

Outcome #3

1. Outcome Measures

Number of producers optimizing production inputs/expenses.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	2132

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Beef cattle producer input from advisory meetings, program evaluations, and personal contacts indicates a need for organized feeder calf marketing efforts on a statewide basis. Producers recognize that to improve profitability, marketing programs must capture value-added management.

What has been done
MSU Extension Beef Cattle Specialists and Area Livestock Agents, in cooperation with other beef cattle commodity groups, have successfully established a new marketing option for feeder cattle across the state. These board sales have been successful in bringing together cattle producers and livestock marketers to improve the profitability of multiple sectors of the beef production chain. This type of marketing option is extremely efficient for all the parties involved. At least 2 annual sales are currently held within Mississippi.

Results
Since initiation in 2008, more than 26,300 head of cattle in 363 truckload lots have been marketed in these board sales. Together, the receipts from these sales exceeded $23.6 million. In one 2015 sale, price premiums were achieved an average of $0.11/lb above Mississippi average market prices. If even half of the home-raised calves in Mississippi are marketed in this manner, it would return more than $11.1 million annually to the cow-calf producers and leave more revenue from these transactions in the state.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

Outcome #4

1. Outcome Measures

Number of producers improving their environmental stewardship.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	1155

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Due to the continual increase of the worldwide demands for foods and biofuels, feed resource for swine is becoming very limiting, and the high feed cost is already a major problem that significantly restrains the profit of swine production in the nation. From a business standpoint, one key approach to enhance the sustainable and profitable swine production is to improve feed efficiency for swine industry.

What has been done
A goal of this MSU research team/program is to develop novel nutritional strategies for raising pigs by improving feed efficiency and muscle growth rate via basic and applied research. Basic research has studied how dietary lysine, the first limiting essential amino acid in conventional swine diets, affects muscle protein biosynthesis and degradation in growing and finishing pigs. Applied research has developed a feed additive product, selenium-enriched probiotics (SeP), to improve animal health, feed efficiency, and growth performance.

Results
The knowledge gained from this basic research has shed some light onto the current "black/gray box," how dietary lysine regulate swine growth performance at the molecular level. MSU's applied research has showed that the SeP may serve as a better alternative to antibiotics than solo probiotics for using as a growth promoter for weanling pigs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
305	Animal Physiological Processes
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)

Outcome #5

1. Outcome Measures

Number of producers improving overall animal health and/or protection.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	1066

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Beef producers do not always implement reproductive management strategies, including estrus synchronization and artificial insemination, into their herd because of past failure of the strategies to be effective. Currently, only about 8% of beef producers in the U.S. use artificial insemination, in spite of its clear advantages in improving genetics within a herd.

What has been done
MSU conducted a large-scale analysis, which included more than 8,500 beef cows, to identify specific conditions that may improve the response to estrus synchronization and artificial insemination. The lack of these conditions may increase the likelihood of being less successful with these strategies. These conditions include cyclicity status, nutrition, and days postpartum of the cows.

Results
MSU determined that in older cows, cyclicity status of stage of the estrous cycle was not important to success, but it is important to first-calf heifers (11% difference in pregnancy rates between cycling and non-cycling first-calf heifers). This indicates that having first-calf heifers in a good nutritional balance with plenty of time for them to resume cyclicity after having their first calf is very important. The interactions between cycling status, body condition scores, and days postpartum are important in determining how likely cows are to respond to injections of hormones and to conceive. These results are important for cattle producers to consider.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals

303	Genetic Improvement of Animals
304	Animal Genome
305	Animal Physiological Processes
307	Animal Management Systems
315	Animal Welfare/Well-Being and Protection

Outcome #6

1. Outcome Measures

Number of program participants that improve livestock production efficiency through best management practices.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	6

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Producers often are reluctant to apply new technology that will improve their operation; this is because they are accustomed to and feel more comfortable in doing and using practices that they have used over the years. Pasture-raised animals can add quality to animals that create niche markets for pasture raised animals. Small Producers often times don't understand or don't use best management practices (BMPs) as a land management strategies that prevent or reduce the movement of sediment, nutrients, pesticides and other pollutants from the land to surface or groundwater. BMPs are designed to protect water quality from potential adverse effects of land management practices from all locations within a watershed. Producers should use best management practices that include soil and water conservation practices, other management techniques and social actions developed for a particular region as effective and practical tools for environmental protection.

What has been done
Knowledge of best management practices of management, nutrition, herd health, and reproductive performance was presented and taught to producers during field day, personal contacts, bulletins and demonstrations. 465 producers and potential producers received educational programming through six (6) workshops and tour on rotational grazing, best management practices, reproductive performance and forage requirements.

Results
Limited resource producers indicated they were using rotational grazing and following BMP guidelines in their operation. Eighty percent of producers indicated that rotational grazing and BMPs would be implemented in to their farming plan. Seventy-five percent of producers indicated interest in applying the techniques learned through activities. Limited resource producers used some best management practices that increased the quality of animals raised and has seen some economic benefits. Limited resource producers and farm families were documented to have adapted new management techniques.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
303	Genetic Improvement of Animals
308	Improved Animal Products (Before Harvest)
311	Animal Diseases

Outcome #7

1. Outcome Measures

Number of producers that improve pasture grass fed to livestock.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	12

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Limited resource producers often times lack the resources and knowledge to improve pastures. Soil test are very seldom used to determine the needs of the soil in order to grow quality pastures. Weed control is not applied and weeds compete with grasses and want allow the livestock to have quality grazing conditions.

What has been done

Through collaborative efforts of ASU-EP, MSU-ES & NRCS we were able to implement 12 activities which included a Grazing and Best Management Practice Tour, educational Field's Day along with a tour of conservation practices used to enhance livestock production. Technical assistance and information on winter/spring pastures, herd health, forage management, and nutrient requirements were provide to 341 participants.

Results
After evaluation of grazing conference, field's day and tour, 85% of participants indicated that they were using these practices or had plans to implement practices on their farms in the future. Through these efforts 341 producers gained knowledge and training on forage management, weed control, and nutrient importance of pasture grasses.

4. Associated Knowledge Areas

KA Code	Knowledge Area
308	Improved Animal Products (Before Harvest)

Outcome #8

1. Outcome Measures

Number of farmers that utilize artificial insemination and/or embryo transfer to decrease the need to purchase quality male animals and improve herd genetics.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	7

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Producers often have inferior herd genetics from the lack of quality breeding stock. The knowledge and resources to improve genetics have not been applied to livestock operations which lead to poor animals for market. Most producers have not planned nor have the resources for the breeding season that should include typical management activities such as making sure that bulls, bucks and boars are in adequate body condition and have passed a breeding soundness exam well in advance of the breeding season. Small producers often times don't have

the resources and knowledge to make decision using artificial insemination that will excel in traits that the producer needs- high weaning, exceptional carcass quality and good maternal characteristics.

What has been done

Through 7 activities with artificial insemination producers attended and gain knowledge and training on artificial insemination/estrus synchronization and best management practices. Swine produces through our Pork Producers Field's Day were informed of the importance of improving genetics to meet market demands trough AI. Information on genetics improvement was disseminated to limited resource producers and farm families. Through these efforts participants gain knowledge and changed behavior on reproductive performance.

Results

Through evaluation and farm visits, four new cattle producers were using artificial insemination as a result of training and outcome of last year's producers who introduce AI in their herds had sufficiently improved herd genetics over the last breeding season. Another six cattle producer will begin artificial insemination during the next breeding season. Interest from swine and goat producers has improved with the need for quality animals for the market place. Two new goat producers have implemented AI to improve the quality of their show goats, but the mast majority felt their operations were too small to invest in the time needed to succeed. Although most of the producers understood the need for improvement; they were reluctant due to the lack of knowledge, training, and experience in artificial insemination.

4. Associated Knowledge Areas

KA Code	Knowledge Area
303	Genetic Improvement of Animals

Outcome #9

1. Outcome Measures

Number of farmers that adopt pasture or alternative livestock systems as an alternative enterprise.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Small Producers often times don't understand or don't have a farm plan in order to maximize their operation. Opportunities often exist for producers to develop other alterative enterprise that will supplement their farming income. Knowledge of pasture system using best management practices (BMPs) as a land management strategy has not been used.

What has been done
Small limited resource producers were provided information through workshops, field days and one on one consultation on alterative enterprises with emphasis placed on pastured poultry, pastured swine and goat production. This was implemented in a series of 5 workshops.

Results
Through evaluation and observation measures, 65% of participants were implementing an alternative enterprise for their present operation. Evaluations also indicated that 75% had some type of pasture system for livestock on their farm. About 85% of the participants indicated that the understood the need for pasture systems and were implementing these systems in their operation.

4. Associated Knowledge Areas

KA Code	Knowledge Area
308	Improved Animal Products (Before Harvest)

Outcome #10

1. Outcome Measures

Number of new technologies, production practices, or improved production systems developed.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Enteric Septicemia of Catfish (ESC) is caused by the gram negative bacteria, Edwardsiella ictaluri. ESC is a leading cause of mortality for catfish producers, resulting in a direct loss of $20

- $40 million annually due to fingerling mortality. Strategies for managing ESC include taking fish off feed during disease outbreaks, contributing to additional indirect losses caused by reduced growth and feed conversion efficiency.

What has been done

MAFES scientists at the Thad Cochran Warm Water Aquaculture Center developed a live, attenuated ESC vaccine and an oral delivery system for pond usage. Using this system, the vaccine is orally delivered to 50 ? 60-day old fingerlings after they have been transferred to fingerling ponds (June ? July). Both the vaccine and delivery technology have been patented and a commercialization strategy is currently being developed in cooperation with the industry.

Results

The vaccine has been shown to be safe, effective, and stable, conferring lifetime immunity to ESC. Use of the vaccine results in 30 -50% increase in fingerling survival, 10% increase in mean weight of fingerlings at time of sale, 25% improvement in feed conversion ratio, and 35 ? 50% increase in gross fingerling production/ac/yr with a value of $2700 - $3800/ac/yr increase in gross revenues. Assuming a $3000/ac/yr gain in fingerling sales and 6000 surface acres of fingerling production, the vaccine will add approximately $18 million/yr value to fingerling segment of catfish industry (approximately 10% of total production acres).

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
303	Genetic Improvement of Animals
304	Animal Genome
305	Animal Physiological Processes
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)

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
- Populations changes (immigration, new cultural groupings, etc.)
- Other (Personnel availability)

Brief Explanation

Alcorn State University School of Agriculture, Research, Extension and Applied Sciences

(AREAS) went through substantial changes in 2015 with the reorganization of the Extension Program and the Research Department Leadership and the Leadership for the School or AREAS that governs both of those units. There were also a number of positions that became vacant and there were difficulties replacing them within the time frame to carry out the duties and responsibilities of their position.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

MSU Extension agents and specialists, as well as MAFES faculty, used a variety of recommended methods to gather needed information. Specific strategies were initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples). In FY 2015, MSU Extension agents and specialists were required to submit four quarterly reports (January, April, July, and September). This quarterly report collects information about the number of contacts, types of contacts, and number of programs conducted in each Planned Program Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements from MSU Extension and MAFES faculty and staff is also made. The evaluation results shared through our impact statements are a combination of this quantitative and qualitative data.

MSU also has a Standardized Extension Evaluation Survey designed for use in any MSU Extension Service program, workshop, or event with adults. The survey assesses program process, participant satisfaction, knowledge and/or skill change, and behavioral intentions. It provides a ready-made evaluation for agents and specialists to use and will allow us to aggregate data across the state. The number of agents and specialists utilizing the survey has been increasing.

ASU increased the number livestock producers adopting rational grazing practices and increased the number of producers that have incorporated a herd health management plan. To perform an effective evaluation of of improved rotational grazing system, we developoed a calendar that expanded the entire year and subdivided into weeks and monthly sections that has space to record timely observation of the pastor and animals, management plan and maintain openess of new and emerging ideas.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Global Food Security and Hunger - Plant Systems

☑ 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	10%	20%	0%	20%
111	Conservation and Efficient Use of Water	10%	0%	0%	0%
132	Weather and Climate	10%	0%	0%	0%
201	Plant Genome, Genetics, and Genetic Mechanisms	0%	0%	5%	0%
202	Plant Genetic Resources	5%	0%	2%	0%
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	10%	0%	4%	0%
204	Plant Product Quality and Utility (Preharvest)	0%	0%	6%	0%
205	Plant Management Systems	20%	15%	23%	15%
206	Basic Plant Biology	0%	0%	5%	0%
211	Insects, Mites, and Other Arthropods Affecting Plants	5%	15%	13%	15%
212	Pathogens and Nematodes Affecting Plants	5%	0%	20%	0%
213	Weeds Affecting Plants	10%	15%	11%	15%
215	Biological Control of Pests Affecting Plants	0%	0%	1%	0%
216	Integrated Pest Management Systems	0%	0%	10%	0%
403	Waste Disposal, Recycling, and Reuse	5%	0%	0%	0%
501	New and Improved Food Processing Technologies	0%	15%	0%	15%
601	Economics of Agricultural Production and Farm Management	5%	0%	0%	0%
604	Marketing and Distribution Practices	0%	20%	0%	20%
903	Communication, Education, and Information Delivery	5%	0%	0%	0%
	Total	100%	100%	100%	100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2015	Extension		Research	
	1862	1890	1862	1890
Plan	38.5	15.0	25.0	7.0
Actual Paid	55.3	22.0	28.6	30.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
1480821	810182	2467442	2525490
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
1480821	810182	1401492	2525490
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	5011600	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Activities included:

- Short courses, workshops, or training seminars;
- Field consultations;
- Demonstration and verification programs;
- Newsletters and publications;
- Web-based information, social media, and e-mail;
- Distance learning programs;
- Field manuals or guides;
- Farm management software/components;
- Direct technical assistance/recommendations/interpretation/analysis;
- Information and fact sheets; and
- Curriculum development.

2. Brief description of the target audience

At MSU, target audiences included:

- Commercial and non-commercial producers,
- Non-traditional crop producers (wildlife food plots, tourist farms, etc.),
- Agricultural consultants,
- Agricultural retail suppliers and dealers,
- Agricultural businesses and financial institutions,
- Agricultural industry representatives and research and development personnel,
- Agricultural applicators,

- Extension Service personnel, and
- Research faculty and personnel.

At ASU, this program is designed specifically for the limited-resource farmers and residents within the State of Mississippi. Limited-resource residents are those earning 80% or less income of Mississippi's Median Household income (0.80 of $38,882 = $31,105.60 per year). According to U.S. Census Bureau estimates, Mississippi had a median household income (2010-2014) of $39,464.

3. How was eXtension used?

At MSU, the resources provided through eXtension were used to supplement and enhance our public learning experiences provided by MSU Extension agents and specialists. eXtension was also used as a resource in state-based planning processes. Overall, 202 MSU employees are eXtension users. Further, MSU Extension has 68 employees that serve on one or more of the 68 Communities of Practice (COPs); MSU Extension employees are members of 39 COPs. 9 MSU Extension employees serve as a leader for a COP, leading 7 COPs.

2 MSU Extension personnel are members of the All About Blueberries COP. 5 MSU Extension personnel are members of the Consumer Horticulture COP. 1 MSU Extension employee is a member and leader of the Grapes COP. 2 MSU Extension personnel are members of the Invasive Species COP. 5 MSU Extension personnel are members of the Community, Local, and Regional Food Systems COP. 1 MSU Extension employee is a member of the Garden Professors COP. 1 MSU Extension employee is a member of the Youth Agriculture COP.

At ASU, eXtension used research data to identify external resources.

V(E). Planned Program (Outputs)

1. Standard output measures

2015	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	478462	946010	5600	470

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

Patent Applications Submitted

Year:	2015
Actual:	5

Patents listed
- PVP Rice Application No 201400523 ?CL163?
- Provisional Patent Application ? ?Generation of Imazapic Resistance Switchgrass Population, Baldwin and Rushing
- Provisional Patent Application - ?Specialty Crop Undercutter and Undercutteing Method, Ward
- Utility Patent Application - System and methods for cell-type specific comparative analysis of different genotypes to identify resistance genes, Klink; Vincent P.
- Utility Patent Application - Fiber separation from grain products including corn flour and DDGS using electrostatic methods, Srinivasan

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2015	Extension	Research	Total
Actual	10	182	192

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of producers and/or clientele attending seminars, workshops, short courses, and demonstrations. (MSU)

Year	Actual
2015	232873

Output #2

Output Measure

- Develop research papers and publications on the findings of studies focusing on plant systems. (ASU)

Year	Actual
2015	12

Output #3

Output Measure

- Conduct educational field days for limited-resource farm families on sustainable crop production practices. (ASU)

Year	Actual
2015	9

Output #4

Output Measure

- Conduct educational programs on sustainable horticulture production practices to limited-resource farm families. (ASU)

Year	Actual
2015	109

Output #5

Output Measure

- Develop educational fact sheets on sustainable horticulture production practices to limited-resource farm families. (ASU)

Year	Actual
2015	6

Output #6

Output Measure

- Conduct research projects on sustainable crop production practices. (ASU)

Year	Actual
2015	8

Output #7

Output Measure

- Conduct educational programs and demonstrations on alternative crop production. (ASU)

Year	Actual
2015	57

Output #8

Output Measure

- Educate farmers on the importance of producing safe food through the use of Integrated Pest Management. (ASU)

Year	Actual
2015	10

Output #9

Output Measure

- Educate farmers on the importance of producing safe food through the use of Good Agricultural Practices (GAP). (ASU)

Year	Actual
2015	11

Output #10

Output Measure

- Demonstrate the use of Integrated Pest Management. (ASU)

Year	Actual
2015	10

Output #11

Output Measure

- Conduct educational tours for limited-resource farm families on sustainable crop production practices. (ASU)

Year	Actual
2015	7

Output #12

Output Measure

- Conduct educational programs and demonstrations on community and container gardening. (ASU)

Year	Actual
2015	12

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Documentation of producers increasing production or profitability levels.
2	Number of producers minimizing inputs/expenses based on practice change.
3	Documentation of efforts and activities which have improved environmental stewardship.
4	Number of producers adopting new practices, technologies, strategies, or systems based on research/Extension recommendations.
5	Number of program participants that adopt integrated nutrient management to increase crop production.
6	Number of program participants that utilize integrated pest management to improve the quality of vegetable production.
7	Number of producers that adopt new crop systems to improve crop yield and quality.
8	Number of participants that use recommended cultivar and other production practices to enhance productivity and profitability.
9	Number of intended target audience that increase awareness and knowledge and awareness of growing farm products with free or acceptable levels of chemical residue, and safe processing and storage of food products.
10	Number of communities that establish community and container gardens to increase the availability of fresh and locally grown produce.
11	Number of farmers and vendors that gain knowledge on Direct Marketing of Alternative Agriculture Enterprises.
12	Number of participants that improve product handling and sanitation.
13	Number of new technologies, crop production practices, or improved crop production systems developed.

Outcome #1

1. Outcome Measures

Documentation of producers increasing production or profitability levels.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	19375

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Southwestern corn borer can be a devastating insect pest of field corn in Mississippi and is a primary target of transgenic Bt corn. In recent years populations of this pest have been sporadic. Corn earworm infests field corn annually in MS. Several of the newer transgenic Bt corn technologies have substantial activity against corn earworm. However, the impact of these infestations in corn ears on yield is unclear. Also, as a component of the resistance management plan for transgenic Bt corn, growers are required to plant a non-Bt refuge.

What has been done
MSU conducted studies to evaluate the value of transgenic Bt corn technologies to non-Bt corn across multiple locations. The commercial transgenic Bt technologies from Monsanto Company (Dekalb) and DuPont Pioneer were compared to the respective non-Bt hybrid from the same hybrid family.

Results
Comparisons were made within hybrid families to minimize variation attributed to different genetic backgrounds. Corn borer spp. are major economic pests of field corn and the value of Bt corn for managing these pests is well established, but corn borer infestations have been very sporadic in recent years. No Southwestern corn borer infestations were observed at any location. Across multiple studies, there were no differences in yield among the Dekalb hybrids. For the Pioneer hybrids, the Herculex hybrid (single gene Bt technology with little corn earworm activity) yielded significantly more than the hybrids with multiple Bt traits (Optimum Intrasect with moderate corn earworm activity and Optimum Leptra with high levels of corn earworm activity) and the non-Bt hybrid. There were no differences in yield between the non-Bt hybrid and the hybrids with multiple Bt traits.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
201	Plant Genome, Genetics, and Genetic Mechanisms
202	Plant Genetic Resources
205	Plant Management Systems
206	Basic Plant Biology
211	Insects, Mites, and Other Arthropods Affecting Plants

Outcome #2

1. Outcome Measures

Number of producers minimizing inputs/expenses based on practice change.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	17885

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Weed interference is a primary source of yield loss in Mississippi soybean. Furthermore, nine weed species in MS have evolved resistance to glyphosate, the primary soybean herbicide. Glyphosate-resistant weeds, primarily GR Palmer amaranth, are the principal weed control issue for growers in MS. The 2016 Mississippi State University Soybean Planning Budget allocates $60 to $100 per acre for herbicides, so weed control is one of the greatest expenses. Therefore, it is imperative to provide growers with economical weed management recommendations.

What has been done
Weed control research in soybean is conducted by MSU at the Delta Research and Extension Center. The program annually encompasses over 2,000 small plots in replicated experiments. This research project has also identified the geographic distribution of glyphosate-resistant Palmer amaranth and Italian ryegrass across MS. Results are used to formulate control programs for MS soybean. Information is transferred to growers, consultants, distributors, and Extension agents across MS through a variety of formats.

Results
Soybean yield loss due to weed interference averaged 64% in MS from 2011 to 2015. During this 5-year period, the lowest statewide soybean yield (39 bushels/acre) and yield loss due to weed interference (47%) occurred in 2011, while the greatest yield (52 bushels/acre) and yield loss (84%) occurred in 2014. The average annual estimate of potential loss due to weed interference over the past 5 years is $1.09 billion. MSU Extension Service recommended weed control programs are estimated to cost producers $108 million per year, resulting in a 10 to 1 benefit to cost ratio. This translates into an annual increase in direct revenue to MS producers of $985 million per year, with a statewide economic impact of $1.68 billion annually.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
202	Plant Genetic Resources
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
205	Plant Management Systems
213	Weeds Affecting Plants

Outcome #3

1. Outcome Measures

Documentation of efforts and activities which have improved environmental stewardship.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	18630

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
For many years, producers in the Mississippi Delta and other regions have shifted toward more mono-culture production, especially cotton. Grain crops were less economical than cotton, so many producers grew continuous cotton on areas deemed acceptable for cotton. Soybean and rice filled other areas with little corn production. Continuous production systems without rotation and continuous tillage has led to reduced soil, organic, and other problems. Using the same

pesticides can lead to resistance issues which increase production costs.

What has been done

As grain crops have become more economical, more producers have shifted back to crop rotations involving cotton, corn, and soybean. In the last ten years many producers have shifted totally away from cotton and are now growing grain crops in rotation. Irrigation capabilities and on-farm drying and storage have led to yield stability, as well as record grain yields. As a result of information from MSU about early planting, MS and other southern states are in the unique position to move new crop grain into the market system ahead of other states.

Results

The use of crop rotations have enabled producers to shift their pesticide usage based on the crops grown. Weeds that have become resistant to whole families of herbicides or multiple modes of action made that practice far more difficult than in previous years. Adding grain crops to cotton production systems also allows for slowly building organic matter in the soil since the grain crops, especially corn, grain sorghum, and wheat can yield large amounts of plant residue that can be returned to the soil. The impact of the Centennial Rotation which examines cotton, corn, and soybean rotations in 2-year, 3-year, and 4-year systems compared to continuous cotton comes from the data being collected that includes yield, but also monitors nutrient uptake and removal and changes in soils.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
132	Weather and Climate
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
601	Economics of Agricultural Production and Farm Management
903	Communication, Education, and Information Delivery

Outcome #4

1. Outcome Measures

Number of producers adopting new practices, technologies, strategies, or systems based on research/Extension recommendations.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	46575

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Monroe, Lee, Itawamba, Alcorn, Prentiss, Tishomingo, north Lowndes, and north Clay counties have over 100,000 acres of soybeans, approximately 45,000 acres of corn, & approximately 15,000 acres of cotton. The producers from these counties are a vital part to row crop agriculture in northeast MS and need to stay up-to-date on new technologies, varieties, sound production, and water management practices.

What has been done
MSU Extension held two Multi-County Grain, Cotton and Irrigation Programs in northeast MS. The first program was held in Aberdeen in January. The second program was held in Baldwyn in February.

Results
A group of MSU Extension Specialists presented timely topics on crop, insect, disease, weed, irrigation, and marketing strategies. A total of 110 people attended both programs. At the conclusion of both programs a short evaluation was submitted. One question asked to producers was "How much did these programs earn or save you per acre?" Forty-one producer responses led to a total of $594,500 earned or saved for producers from both programs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
132	Weather and Climate
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
403	Waste Disposal, Recycling, and Reuse

601 Economics of Agricultural Production and Farm Management

903 Communication, Education, and Information Delivery

Outcome #5

1. Outcome Measures

Number of program participants that adopt integrated nutrient management to increase crop production.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	1500

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Correctly predicting fertilizer requirements for certain crop on a certain soil is a complex problem. Excessive amounts of fertilizers get into the environment by miscalculating how much material to apply. Therefore, soil tests must be used to determine which nutrients are deficient and by how much for evaluating/correcting or avoiding problems. Thus, it is essential to educate producers on specific soil management and cropping systems of the tested soil for achieving efficient production of crops and solving problems of plant nutrient deficiencies or toxicities.

What has been done
Workshops on NM to ensure the efficient and judicious use of all the major sources of plant nutrients in an integrated manner, so as to obtain maximum economic yield without diminishing soil fertility in order to sustain agricultural productivity and farm profitability were conducted at various ASUEP programming activities including field days. Approximately 1,500 farmers and agricultural professionals participated in the activities.

Results
Retrospective post surveys were utilized to determine the effectiveness of the training workshops. Response indicated that majority (92%) of the participants level of knowledge increased as a result of the training workshops. Eighty-eight (88%) percent of the participants conducted soil test prior to planting their crops this growing season; seventy-five percent applied the recommended amount of nutrients based on the soil test results. Seventy-eight (78%) of the participants indicated using either cover crop and/or crop rotation to maintain soil fertility and/or weed control measures.

4. Associated Knowledge Areas

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

Outcome #6

1. Outcome Measures

Number of program participants that utilize integrated pest management to improve the quality of vegetable production.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	510

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Most vegetable farmers rely heavily on spraying pesticides to reduce the damage from pests and diseases. Maintaining high level of agricultural productivity and profitability while reducing synthetic chemical pesticide use, presents a significant challenge. Therefore, proper care and maintenance of agricultural productivity requires knowledge that emphasize not only cultural and biological controls as the main defense against pests but include the judicious use of synthetic chemical pesticides. This knowledge begins with Integrated Pest Management (IPM.)

What has been done
Multiple techniques were used to deliver unbiased research-based sustainable solutions to pest problems to small-scale vegetable growers throughout South-West and Mississippi Delta counties. Field trials and demonstrations were also carried out at the ASU research and demonstration centers. Alcorn State University research scientists were invited to talk about their research and share their success in various IPM techniques. Critical needs of IPM addressed were- Managing pests including insects, plant diseases, weeds, and vertebrates in agricultural and community settings. Approximately 600 farmers including students and other agricultural professional attended the workshops

Results
Results indicated that the overall level of knowledge in all level of instructions was increase for approximately 510 participants that attend the workshops and training exercises. Hence, growers

were better able to make sound management decisions based on the knowledge acquired from the training workshops. Growers reported reduction in pesticide application, increase production/profits while doing so in a sustainable, safe way to the environment. Ninety-two percent indicated taking action or making changes on their pest management program based on the information received from the training workshops; 88% - use of low impact pesticides, 70% - mechanical or physical control techniques, 65% - cultural control techniques, 50% - biological control. Additionally, 91% of the participants indicated using cover crop and crop rotation to maintain soil fertility and also for weed control measures.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants

Outcome #7

1. Outcome Measures

Number of producers that adopt new crop systems to improve crop yield and quality.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	1200

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Crop production is a complex operation. Its success depends on adapting to new and improved cropping systems that will manage production inputs to production quality crops. Vegetable crops can be produced from a very small parcel of land if the producer is able to make the right decision in terms of selecting and managing the appropriate production inputs. Many diseases and other pests that affect horticultural crops are results of cropping systems used. Therefore, producers must be introduced to new crop varieties and cropping systems that are adapted to new production technology. Many diseases and other pests that affect horticultural crops are a result of the cropping system used.

What has been done
Workshops and field days were conducted at ASU demonstration and research centers located in Preston, Lorman and Mound Bayou and at other extension programming activities. Approximately 1200 farmers and other agriculture professional were educated on modern production techniques such as current variety, different pest and disease management methods, crop rotation; cover cropping, mulching, and different tillage practices.

Results
Response from the survey conducted after the workshops indicated that about 60% of the farmers are now engaged in either no till or minimum tillage practice and other cultural practices based on the knowledge gained from previous training workshops. Seventy-eight percent of the participants indicated using cover crop and crop rotation to maintain soil fertility and also for weed control measures.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems

Outcome #8

1. Outcome Measures

Number of participants that use recommended cultivar and other production practices to enhance productivity and profitability.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	550

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Each year, thousands of new vegetable cultivars are released from seed companies and public research institutions around the world. These new cultivars provide the potential for increased yields, quality and pest resistance. At the same time, changing production practices, pest pressures, economic conditions and environmental constraints alter the performance

requirements of vegetable cultivars. Cultivars which were once the industry standard soon becomes obsolete due to these rapid changes. Thus, farmers need to be educated on sustainable methods of vegetable production techniques in other to produce quality vegetable crop.

What has been done

Vegetable varietal trials studies were conducted at the Alcorn Experiment Station and ASU off-campus Extension/Research Centers in an effort to identify vegetables with high income potential that will adapt to the region. To assist small farmers make better crop choices on their farms five workshops and three on-hand training activities were conducted at the research and demonstration farms located in Lorman, Preston and Mound Bayou and farmers' fields during extension programming activities. The workshops were used to educate 550 farmers including youths on proper crop selection and different production practices (cultivar, fertilizer and irrigation rates, planting densities, and pest control programs).

Results

There is no single "best" variety for a particular location. The most recommended varieties are those that are consistently high yielding, adapted to the region and disease resistant varieties. Questionnaire surveys were used to determine the effectiveness of the training program indicated that approximately 92% of the participants that attended the workshops are now making better crop choices by purchasing and planting recommended varieties.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
501	New and Improved Food Processing Technologies

Outcome #9

1. Outcome Measures

Number of intended target audience that increase awareness and knowledge and awareness of growing farm products with free or acceptable levels of chemical residue, and safe processing and storage of food products.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	475

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

A sanitation program is as good as the attitude, willingness, and efforts of people. The importance of proper postharvest handling techniques for horticultural crops is vital. Concerns about food safety when handling fresh fruits and vegetables have increased over the past decade that is why the most important aspect of a sanitation program is ongoing farming operation. It is essential that the full meaning of sanitation and its wide economic scope be accepted by everyone concerned in the food system. Therefore, producers must be trained on Best Management Production that includes appropriate sanitation principles, product handling practices, manufacturing controls, and personal hygiene practices.

What has been done

Six workshops on quality control, sanitation, post-harvest handling and proper crop production practices were conducted at the Alcorn State University Vegetable Processing facility located in Marks MS and during other ASUEP programming activities. A total of four hundred and seventy-five hundred (475) farmers including home makers attended the workshops. Participants were also educated on environmental factors such as soil type, temperature, frost, and rainy weather at harvest because the aforementioned factors can have an adverse effect on storage life and quality of the produced.

Results

Results from the Agricultural (GAP) and Good Handling Practices (GHP) workshops indicated that more hands-on trainings are needed for producers and all workers who produce and process vegetable crops to be properly trained personnel will be more care careful when handling vegetable crops. Therefore, results of the questionnaire conducted after the workshops indicated that majority (48%) of participants have acquired the knowledge regarding sustainable farming operations, product handling and sanitation technology.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #10

1. Outcome Measures

Number of communities that establish community and container gardens to increase the availability of fresh and locally grown produce.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	700

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Vegetable gardeners in urban areas are faced with lots of problems such as lack of space, soils contaminated with heavy metals such as lead and arsenic, shade from trees and buildings, and soil-borne diseases such as fusarium, pythium, rhizoctonia, and phytophthora. Plants in containers are showing up everywhere. From the front porches of bungalows to the rooftops of urban high-rises to the streets of Main Street U.S.A. plants in pots can be found. Successful container gardeners know that a good looking, well-maintained and long-lasting container just doesn't happen. When a few basic principles are applied, even first-time gardeners can create and maintain attention-grabbing containers.

What has been done
Alcorn State University Extension Program specialists and educators utilized current research and information in conducting a series of workshops, field days and farm tours for south-west Mississippi residents wishing to gain an understanding of community and container gardening. A total of 700 participants attend the events and activities.

Results
Results from the questionnaire survey administered at the events revealed that 90% of the participants are willing to engage in container gardening or making changes to their current container gardening growing methods.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
213	Weeds Affecting Plants

Outcome #11

1. Outcome Measures

Number of farmers and vendors that gain knowledge on Direct Marketing of Alternative Agriculture Enterprises.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	127

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Farmers markets contribute to the health of residents by improving the availability of fresh, nutritious, and affordable food within the community. Markets also build local economies by providing local producers with opportunities to sell their produce directly to consumers. Farmers lack the knowledge to direct market to an audience that shop visually.

What has been done
ASUEP Marketing Coordinator seeks collaborators, partners and supporters who are willing to invest in making assessable fresh fruits and vegetables to the surrounding communities. Once done the Marketing Coordinator uses various events and partnerships to provide a visual display of dos and don'ts of visual marketing. The Coordinator used the annual Mississippi State Fair and partnered The Marks Processing Faculty to visually show how fresh produce as well as valued added agricultural products are to be displayed.

Results
As a result of the activities more than 500 individuals, that consisted of past and current farmers, past and presents homemakers were provide information that will aid in cost effective ways to displaying, packaging, pricing and labeling thief good and services when selling at their local farmers markets and to local grocery stores. With this information being shared by the participant the impact can reach more than 50,000 people throughout southwest Mississippi.

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices

Outcome #12

1. Outcome Measures

Number of participants that improve product handling and sanitation.

Not Reporting on this Outcome Measure

Outcome #13

1. Outcome Measures

Number of new technologies, crop production practices, or improved crop production systems developed.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
In 2015, Mississippi sweetpotatos had a farm gate production value of $81 million, making Mississippi the 3rd largest sweetpotato producing state in the nation. Managing the harvest process and postharvest storage environment is critical to maintaining a year-round supply of quality sweetpotato roots. During postharvest storage, 20% to 25% of sweetpotatoes are lost to moisture loss and decay. These losses are directly related to skinning during harvest that cause cuts and abrasions to the delicate skin of the sweetpotato root. These wounds provide a way-of-entry for diseases to infect the root, as well as moisture loss that results in root shrinkage.

What has been done
A new method of halting plant growth and allowing skin strength to increase prior to harvest was needed. Therefore, an undercutting implement was designed, fabricated, and assembled from currently available off-the-shelf components. The undercutter is operated at depth that will not cut storage roots but that will trim feeder roots. Cutting the plant off from deep moisture initiates a response that will toughen the skin and desiccate the above ground vines. Studies have shown that in popular varieties undercutting increases skin strength by 10% above the current practice of mechanical devining.

Results
At a production value of $81 million, and postharvest losses of 20%, Mississippi producers are losing $16.2 million annually in direct losses with an additional indirect lost of $16 million. A 10% reduction in skinning and associated postharvest loss would have a total value of $3.2 million/yr for Mississippi producers. This system is of particular interest to growers who use bulk harvesting systems for the potato processing industry. This implement could be adopted by organic growers seeking a chemical-free method treatment for cash or cover crops.

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms
202	Plant Genetic Resources
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants

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 Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)
- Other (Personnel availability)

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

MSU Extension agents and specialists, as well as MAFES faculty, used a variety of recommended methods to gather needed information. Specific strategies were initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples). In FY 2015, MSU Extension agents and specialists were required to submit four quarterly reports (January, April, July, and September). This quarterly report collects information about the number of contacts, types of contacts, and number of programs conducted in each Planned Program Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements from MSU Extension and MAFES faculty and staff is also made. The evaluation results shared through our impact statements are a combination of this quantitative and qualitative data.

MSU also has a Standardized Extension Evaluation Survey designed for use in any MSU Extension Service program, workshop, or event with adults. The survey assesses program process, participant satisfaction, knowledge and/or skill change, and behavioral intentions. It provides a ready-made evaluation for agents and specialists to use and will allow us to aggregate data across the state. The number of agents and specialists utilizing the survey

has been increasing.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Global Food Security and Hunger - Agricultural, Biological, and Natural Resources Engineering

☑ 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	20%	0%	0%	0%
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	10%	0%	0%	0%
306	Environmental Stress in Animals	5%	0%	0%	0%
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals	5%	0%	0%	0%
402	Engineering Systems and Equipment	50%	0%	80%	0%
403	Waste Disposal, Recycling, and Reuse	10%	0%	14%	0%
405	Drainage and Irrigation Systems and Facilities	0%	0%	6%	0%
	Total	100%	0%	100%	0%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2015	Extension		Research	
	1862	1890	1862	1890
Plan	4.0	0.0	1.3	0.0
Actual Paid	4.4	0.0	0.9	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
118112	0	31556	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
118112	0	122176	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	449211	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

MSU research and outreach must not only adapt to engineering changes, but must improve efficiency under these new conditions by resource innovation.

2. Brief description of the target audience

Stakeholders and customers of research and Extension programs at MSU represented a broad section of audiences, including agricultural producers and consumers.

3. How was eXtension used?

At MSU, the resources provided through eXtension were used to supplement and enhance our public learning experiences provided by MSU Extension agents and specialists. eXtension was also used as a resource in state-based planning processes. Overall, 202 MSU employees are eXtension users. Further, MSU Extension has 68 employees that serve on one or more of the 68 Communities of Practice (COPs); MSU Extension employees are members of 39 COPs. 9 MSU Extension employees serve as a leader for a COP, leading 7 COPs.

5 MSU Extension personnel are members of the Beef Cattle COP. 1 MSU Extension employee is a member of the Climate, Forests and Woodlands COP. 4 MSU Extension personnel are members of the Freshwater Aquaculture COP. 1 MSU Extension employee is a member of the Livestock and Poultry Environmental Learning Centers COP. 2 MSU Extension personnel are members of the Marine Aquaculture COP. 2 MSU Extension personnel are members of the Unmanned Aircraft Systems (UAS) COP. 1 MSU Extension employee is a member of the Wood Energy COP. 2 MSU Extension personnel are members of the Wood Products COP. 5 MSU Extension personnel are members of the Community, Local and Regional Food Systems COP. 1 MSU Extension employee is a member of the Youth Agriculture COP.

V(E). Planned Program (Outputs)

1. Standard output measures

2015	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	12329	7400	0	0

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

Patent Applications Submitted

Year: 2015

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2015	Extension	Research	Total
Actual	0	48	48

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of people attending workshops, short courses, etc. (MSU)

Year	Actual
2015	17727

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of producers adopting new practices, technologies, strategies, or systems due to research/Extension recommendations.
2	Number of producers increasing production levels.
3	Number of producers decreasing production inputs/expenses.
4	Number of producers improving their environmental stewardship.
5	Number of new technologies, practices, production systems developed that enhance production, profitability or environmental stewardship.

Outcome #1

1. Outcome Measures

Number of producers adopting new practices, technologies, strategies, or systems due to research/Extension recommendations.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	658

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The new MSU Extension program, "Unmanned Aerial Systems (UAS) in Agriculture" began in July 2015 to address producer and researcher questions about applications of this new technology in agricultural operations.

What has been done
The first 3 months of the MSU program, July 1 to September 30, 2015, focused on internal customers (flight crews, image processing, algorithm development) for agricultural applications and developing standard operating procedures for better and more consistent imagery. The standard operating procedures are showing improvements in flight operations and constantly being refined in preparation for the 2016 season.

Results
While having just begun, educational activities have shown promise with producers and researchers learning more about Unmanned Aerial Systems and asking, "How do I/we get started?" and "Can we do this or what about this application?"

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment
405	Drainage and Irrigation Systems and Facilities

Outcome #2

1. Outcome Measures

Number of producers increasing production levels.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	274

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Beekeeping can be a fascinating hobby, a profitable sideline, or a full-time occupation. The industry in Monroe County is composed of beekeepers that manage their colonies for honey production, as well as producing queens and package bees. There are between 20 and 30 thousand colonies in the state during the summer and 80-120 thousand during the winter. Mississippi has 12 full-time commercial beekeepers, 30-40 part-time honey producers and 800 hobbyists.

What has been done
MSU Extension in Monroe County held a three-part educational series titled, "Beginner Beekeeping Series: Getting Started." The MSU Extension Bee Specialist conducted a demonstration so farmers, landowners, and homeowners could see how a wild honey bee system worked and how it could be implemented on their property. Over 45 people attended.

Results
Net annual income of Mississippi beekeepers from honey and beeswax production, sale of packaged bees and queens, and pollination fees is estimated to be between $2.1 and $3.1 million. Honey bees contribute a value to pollination of fruits, berries, vegetables, sunflowers, cotton, soybeans, peanuts and wild plants in Mississippi exceeding $200 million annually. An economic assessment of value among attendees in this area should show us a 5% higher estimated cost on agricultural and non-ag property. Attendees will be able to use this information to help raise the impact of beekeeping on their land, property, and farms by 15%.

4. Associated Knowledge Areas

KA Code	Knowledge Area

102	Soil, Plant, Water, Nutrient Relationships
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
306	Environmental Stress in Animals
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals
402	Engineering Systems and Equipment

Outcome #3

1. Outcome Measures

Number of producers decreasing production inputs/expenses.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	253

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The MS Alluvial aquifer is mined and pumping problems are projected in the next 10 years in a growing area of the MS Delta. Developing irrigation scheduling methods that maximize yield economically with the least amount of water will conserve our water resources while reducing fuel consumption. Current furrow irrigation practices of corn are inefficient because of the philosophy of "irrigating to avoid stress and/or maximize yield" and the length of time to irrigate all fields irrigated before the last field by a given well is stressed.

What has been done
MAFES scientists found that timely initiation and termination of irrigation can reduce water use in corn production and confirmed corn's most sensitive growth stages to drought stress. MAFES scientists are developing "Trigger Values" for soil moisture sensors for our soils to maximize yield and water use efficiency. MSU Extension is using numerous delivery methods to distribute this information to producers, agents, and consultants.

Results
Research, presentations, and on-farm demonstrations have helped increased interest and adoption of soil moisture sensors to help schedule corn irrigation and other crops. Most irrigation companies in the MS Delta are now selling and stocking soil moisture sensors, and some

consultants are now offering irrigation scheduling services using soil moisture sensors. Results from a recent survey by the Mississippi Soybean Promotion Board with 15% participation in which 2/3 of the participants grow corn and soybean indicated that 31.2% use soil moisture sensors.

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment

Outcome #4

1. Outcome Measures

Number of producers improving their environmental stewardship.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	263

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
MSU Research and Extension personnel must keep up with rapidly changing (geospatial) technologies to help disseminate information to Mississippians. The information help keep the citizenry informed to help improve the overall quality of life for residents.

What has been done
A centralized MSU campus resource for the management of the complex geospatial technologies and software is housed with the Geosystems Research Institute. This centralized resource serves all MSU Campuses, Research and Extension Centers, Extension Offices, and Experiment Stations. The resource provides support to faculty and staff with geospatial technologies helping them provide information to the citizenry.

Results
Campus users of geospatial resources utilize this resource continually as it allows them to advance their research improving production in agricultural and natural resources. This transfers as probability and sustainability of natural resources. Additionally campus users are using this resource to inform community leaders of economic development opportunities. There are tens to hundreds of campus users and many of them are reaching tens to hundreds of Mississippians.

This centralized resource is an invaluable service to the MSU community and ultimately the entire state of Mississippi.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
405	Drainage and Irrigation Systems and Facilities

Outcome #5

1. Outcome Measures

Number of new technologies, practices, production systems developed that enhance production, profitability or environmental stewardship.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Feeds developed from grains, including corn, soybean, wheat, and milo contain fiber that is energetically unavailable to the animal, particularly monogastrics. Separation of fiber from starches in grain flour prior to feed formulation would allow production of enhanced diets with greater available energy.

What has been done
MAFES scientists developed the Elusieve process which combines sieving, elutriation, and electrostatic means to remove fiber from grain flours. Elusieve processing increased starch content of corn flour by 7.8%, DDGS by 2.3%, and soybean meal by 1.4%. Enhanced dietary formulations utilizing Elusieve separated corn flour were tested in broilers.

Results
Enhanced diets resulted in birds with 5.9 - 6.0% higher body weight, 9.0 - 11.0% greater breast weight, and 4.3 to 5.7% better feed conversion rations. Use of enhanced feeds could shorten the grow out period by 1-2 days to produce a same weight bird, adding a value of 2.4 - 6.0 cents/bird.

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
405	Drainage and Irrigation Systems and Facilities

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Public Policy changes
- Government Regulations
- Competing Programmatic Challenges

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

MSU Extension agents and specialists, as well as MAFES faculty, used a variety of recommended methods to gather needed information. Specific strategies were initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples). In FY 2015, MSU Extension agents and specialists were required to submit four quarterly reports (January, April, July, and September). This quarterly report collects information about the number of contacts, types of contacts, and number of programs conducted in each Planned Program Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements from MSU Extension and MAFES faculty and staff is also made. The evaluation results shared through our impact statements are a combination of this quantitative and qualitative data.

MSU also has a Standardized Extension Evaluation Survey designed for use in any MSU Extension Service program, workshop, or event with adults. The survey assesses program process, participant satisfaction, knowledge and/or skill change, and behavioral intentions. It provides a ready-made evaluation for agents and specialists to use and will allow us to aggregate data across the state. The number of agents and specialists utilizing the survey has been increasing.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Global Food Security and Hunger - Enterprise Economics

☑ 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
501	New and Improved Food Processing Technologies	0%	0%	11%	0%
502	New and Improved Food Products	0%	0%	26%	0%
503	Quality Maintenance in Storing and Marketing Food Products	0%	0%	5%	0%
511	New and Improved Non-Food Products and Processes	0%	0%	3%	0%
601	Economics of Agricultural Production and Farm Management	30%	30%	18%	0%
602	Business Management, Finance, and Taxation	10%	40%	0%	0%
603	Market Economics	0%	0%	12%	0%
604	Marketing and Distribution Practices	40%	30%	4%	0%
605	Natural Resource and Environmental Economics	0%	0%	11%	0%
608	Community Resource Planning and Development	0%	0%	3%	0%
610	Domestic Policy Analysis	20%	0%	7%	0%
	Total	100%	100%	100%	0%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2015	Extension		Research	
	1862	1890	1862	1890
Plan	4.0	4.0	6.5	0.0
Actual Paid	8.0	2.0	11.4	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
213459	239488	541215	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
213459	239488	1015353	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	1852848	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

At MSU, this program included three areas designed to assist farmers in making their enterprises more profitable:

- The Farm Management Information and Training area provided farmers and agribusiness professionals with timely and relevant information on a variety of topics potentially impacting management decisions on their operations. It offered a number of practical decision aids along with training on the use of these aids as well as provided a resource for managers who need help with business planning.
- The Extension Agricultural Marketing Information and Education area provided producers of major row crops, cattle, milk and dairy products, catfish, fruits and vegetables, and horticultural crops with regular, timely updates on conditions in these commodity markets. In addition, training was available on the use of commonly used marketing tools and strategies.
- The Agricultural Policy Analysis and Education area provided producers, lenders and other input providers, and rural community leaders with timely and relevant information on existing farm, conservation, and international trade programs as well as analysis of the potential impact of proposed policy changes.

At ASU, educational programs covered the development of enterprise budgets, efficient strategy models and how to measure results. Extension programs focused on presenting relevant content materials to address identified knowledge and skill needs of small farmers. Socially disadvantaged farmers in Mississippi received training via small group meetings, one-on-one technical assistance, farm visits, field days, tours, certification sessions, demonstrations, and conferences. Focus groups survey instruments were developed to gather input and identify relevant farm management and marketing educational topics. ASU planned to conduct one small farmer's conference per year; publications, presentations, and workshops for farmers, marketing plan samples, agriculture tours of farms, and marketing tips and techniques sections were featured at Alcorn Extension's Farmers Market.

2. Brief description of the target audience

At MSU, the target audience for this program consisted primarily of agricultural producers and related agribusiness personnel.

ASU's target audience specifically included limited-resource and socially disadvantaged farmers and ranchers.

3. How was eXtension used?

At MSU, the resources provided through eXtension were used to supplement and enhance our public learning experiences provided by MSU Extension agents and specialists. eXtension was also used as a resource in state-based planning processes. Overall, 202 MSU employees are eXtension users. Further, MSU Extension has 68 employees that serve on one or more of the 68 Communities of Practice (COPs); MSU Extension employees are members of 39 COPs. 9 MSU Extension employees serve as a leader for a COP, leading 7 COPs.

1 MSU Extension employee is a leader of the Cooperatives COP. 4 MSU Extension personnel are members of the Educational Technology Learning Network COP. 1 MSU Extension employee is a member of the Enhancing Rural Capacity COP. 5 MSU Extension personnel are members of the Entrepreneurs and Their Communities COP. 1 MSU Extension employee is a member of the Internationalizing Extension COP. 5 MSU Extension personnel are members of the Network Literacy COP.

At ASU, eXtension was to identify farmers markets materials for local farmers.

V(E). Planned Program (Outputs)

1. Standard output measures

2015	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	8395	4128	35	475

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

Patent Applications Submitted

Year:	2015
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2015	Extension	Research	Total
Actual	2	34	36

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of producers attending workshops, seminars, and short courses. (MSU)

Year	Actual
2015	1618

Output #2

Output Measure

- Conduct educational sessions/demonstrations on farm record keeping. (ASU)

Year	Actual
2015	23

Output #3

Output Measure

- Develop fact sheets on direct marketing of agriculture produce/product and value-added goods and services. (ASU)

Year	Actual
2015	6

Output #4

Output Measure

- Conduct educational sessions on farm and financial management. (ASU)

Year	Actual
2015	34

Output #5

Output Measure

- Conduct educational sessions on farm legal risk. (ASU)

Year	Actual
2015	14

Output #6

Output Measure

- Conduct educational sessions to provide technical assistance on farm loans, other government agencies' requirements, and application processes. (ASU)

Year	Actual
2015	15

Output #7

Output Measure

- Conduct educational tours on direct marketing of agricultural goods and services. (ASU)

Year	Actual
2015	2

Output #8

Output Measure

- Conduct educational programs on the utilization of direct marketing techniques of agricultural goods and services. (ASU)

Year	Actual
2015	6

Output #9

Output Measure

- Conduct educational programs and demonstrations on Direct Marketing of Alternative Agriculture. (ASU)

Year	Actual
2015	6

Output #10

Output Measure

- Conduct special events at the Farmers Market to bring awareness to youth about eating healthier. (ASU)

Year	Actual
2015	1

Output #11

Output Measure

- Conduct educational sessions on Farm Risk Management. (ASU)

Year	Actual
2015	3

Output #12

Output Measure

- Conduct educational programs, events and activities to address the need to revitalize, expand or start farmers markets.

Year	Actual
2015	8

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of producers adopting recommended strategies in management, marketing, and government program use.
2	Number of producers indicating increased profitability due to implementation of recommended strategies.
3	Percentage of farmers and producers that gain knowledge on Farm and Financial Management.
4	Number of farmers and cooperatives that develop and utilize marketing plans.
5	Percentage of farmers and producers that keeps accurate records.
6	Percentage of farmers and producers that reports minimizing land and farm loss.
7	Percentage of farmers and producers that applies for farm loans.
8	Percentage of farmers and producers that demonstrates minimizing risk on the farm.
9	Number of farmers and vendors that report and demonstrate gained knowledge in Direct Marketing to Farmers Markets.
10	Number of farmers and vendors that report and demonstrate gained knowledge on Direct Marketing of Alternative Agriculture Enterprises.
11	Number of policies, decision support tools, and strategies developed that enhance profitability, inform production decision, and mitigate/manage risk.
12	Number of communities that received technical assistance in the area of revitalizing, expanding or starting farmers markets.

Outcome #1

1. Outcome Measures

Number of producers adopting recommended strategies in management, marketing, and government program use.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	324

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Last year's season was another low producing oyster season in Mississippi and throughout the Gulf. In 2004, over 400,000 sacks of oysters were harvested from Mississippi waters. Since then, the oyster reefs have been damaged significantly by Hurricane Katrina, the Deepwater Horizon oil spill, and the Bonnet Carré Spillway opening. In 2014, oyster harvest was about 70,000 sacks. It is expected that this year will be lower than 5% of what the industry harvested 10 years ago.

What has been done
Governor Phil Bryant issued EO 1350, creating the Oyster Restoration and Resiliency Council, in February 2015. The Council was made up of citizens, scientists, and seafood industry leaders who represented several interests and disciplines. The Council had 3 committees: Oysters in the Economy, Oysters in the Environment, and Aquaculture and Emerging Technologies. The Council delivered its report to the Governor in June 2015. The Oysters in the Economy Committee requested volunteer expertise from an MSU-ES economist.

Results
The MSU-ES economist provided the committee members and other Council members with historical perspectives of the oyster industry and smart economic alternatives for the ailing MS oyster industry. Most of these economic recommendations were adopted by the committee and presented by its chair during the second full meeting of the Oyster Council. He also assisted the consultants in finalizing the oyster plan. Through the work of the three committees, the Council developed an Oyster Resource Resiliency Plan. The main goal of the oyster plan is to develop bold, but implementable, management strategies and programs based on the most authoritative research and reality-tested best practices that will enhance and sustain oyster production to 1,000,000 sacks per year starting in 2025.

4. Associated Knowledge Areas

KA Code	Knowledge Area
501	New and Improved Food Processing Technologies
502	New and Improved Food Products
503	Quality Maintenance in Storing and Marketing Food Products
601	Economics of Agricultural Production and Farm Management
603	Market Economics
604	Marketing and Distribution Practices
610	Domestic Policy Analysis

Outcome #2

1. Outcome Measures

Number of producers indicating increased profitability due to implementation of recommended strategies.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	259

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Often start-up companies enjoy rapid growth in the first months of business but find themselves without a cohesive, comprehensive plan for managing growth when sales start to increase rapidly. After about one year in business, Mississippi Farm Tables, a small producer of high-quality, handcrafted hardwood dining room and bedroom furniture, was enjoying early success but found itself in need of an overall business strategy, which included both marketing and production management, in order to manage a rapid increase in sales.

What has been done
Faculty from MSU's Department of Sustainable Bioproducts and Franklin Furniture Institute (FFI) visited the MS Farm Tables production facility and showroom and provided expert technical assistance with wood and lumber properties, species identification, moisture control, raw materials procurement, and optimization of facility layout. FFI worked with several other MSU

entities to assist the company with marketing strategy development and implementation.

Results

Contacts and referrals for used equipment dealers and raw materials sources resulted in the company gaining a wider network of vendors resulting in cost savings on equipment and wood purchases. Services provided by MSU helped the company develop promotion and marketing strategies. A list of designers provided the company with contacts for potential residential and commercial contracts. FFI secured a discount for the company to exhibit at the Tupelo Furniture Market, resulting in exposure to 20,000 market buyers. Web optimization and advice on managing social media and web presence supplied resulted in a substantial increase in web traffic and visits to their site. FFI contacted lifestyle magazine editors regarding the company, resulting in features in two of the magazines with state-wide distribution.

4. Associated Knowledge Areas

KA Code	Knowledge Area
501	New and Improved Food Processing Technologies
502	New and Improved Food Products
503	Quality Maintenance in Storing and Marketing Food Products
602	Business Management, Finance, and Taxation
603	Market Economics
604	Marketing and Distribution Practices
605	Natural Resource and Environmental Economics
608	Community Resource Planning and Development

Outcome #3

1. Outcome Measures

Percentage of farmers and producers that gain knowledge on Farm and Financial Management.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	34

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Farmers and producers continue to expression significant issues due to the lack of knowledge, understanding, and the required skills to make sound management decisions in their day-to-day function of the farm. The means to a successful farm business is utilizing the appropriate planning tools. Proper planning reduce risk and increase the opportunity to gain profitability in order to expand socioeconomic status and the quality of life.

What has been done

The ASUEP conducted a range of educational farm and financial management sessions for farmers and ranchers through lectures, hands-on demonstrations and PowerPoint presentations to boost their knowledge and skills to advance the day to day farm operation. Approximately 34 workshops were conducted on financial management which included business planning, credit, farm inventory, and farm business plans.

Results

As a result of the trainings, Alcorn State University Extension Program participants share their experiences with each other during training sessions of having good credit and monitoring their credit for fraud protection purposes. Some participants had no record system in place and not being able to keep accurate records. They shared the experience of having a good business plan in place in order to have a successful operation. There were 522 participants in these training sessions.

4. Associated Knowledge Areas

KA Code	Knowledge Area
602	Business Management, Finance, and Taxation

Outcome #4

1. Outcome Measures

Number of farmers and cooperatives that develop and utilize marketing plans.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	10

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

A feasible marketing plan is essential to achieving the process of moving farmers' crops, livestock, and value-added products to the market successfully. The lack of knowledge of planning in the areas of market research, income and expense budgets, and promotions are essential factors that must be addressed by limited-resource farmers in order to demonstrate profit. Many farmers are not aware of the impact of what they are doing because they are not using the marketing plans as a means of yearly assessment of their farming operations.

What has been done

ASUEP Marketing Coordinator conducted 5 workshops with approximately 131 farmers and vendors were provided information to them the importance of establishing and maintaining an effective marketing plan. These workshops were held in collaboration with the Small Farms Outreach Project, Small Farmers Conference, one-on-one and annual scheduled training with farmers and vendors. These farmers and vendors received knowledge in the following an overview of a marketing plan, marketing plan description, production and marketing strategy, product objectives and strategies, pricing, sales and profit trends evaluation and reviews.

Results

The farmers and vendors will now have knowledge that can be utilized to assist them in identifying and quantifying cost, setting price goals deterring potential price outlook and price risks, and developing a strategy for marketing their crops, livestock and value-added product through farmers market or directly to local grocery stores and supermarkets. In addition there were 10 farmers that developed a marketing plan and are utilizing it.

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices

Outcome #5

1. Outcome Measures

Percentage of farmers and producers that keeps accurate records.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	23

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Keeping accurate record is the key to having an efficient and successful farm operation. Farmers and ranchers in Mississippi lacked the knowledge and understanding of accurate record keeping. Keeping accurate records will aid in improving productivity, which increase profit; farmers can afford the opportunity to meet obligations, which increase profit and improve the quality of life.

What has been done
Alcorn State University Small Farm Outreach and Training and Technical Assistance Project works closely with United States Department of Agriculture (USDA) federal and state agencies, and local Community Based Organizations (CBO) in providing educational and informative training and technical assistance in accurate recordkeeping. There were educational sessions and hands on demonstrations provided on how to keep proper and accurate records utilizing the Mississippi Farm Record Book and the Mississippi Farm Record CD. A total of 308 (three hundred eight) limited-resource and socially disadvantaged farmers and ranchers participated in the trainings. There were a total of 23 trainings conducted.

Results
Limited resource and socially disadvantaged farmers and ranchers throughout the state of Mississippi will become accustom to new innovations that will permit them to keep accurate records for their daily farm operations. After the completion of the Farm Record Book and CD training and demonstration, All three hundred eight (308) became better at keeping their farm records. The result of the evaluation was 100% of the participant gained knowledge. Participants learned to always keep personal and farm records separate.

4. Associated Knowledge Areas

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

Outcome #6

1. Outcome Measures

Percentage of farmers and producers that reports minimizing land and farm loss.

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

Percentage of farmers and producers that applies for farm loans.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	44

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Farmers and ranchers continue to face hardship in their farming operation because they lack resources. In order for farmers to plan a skillful operation and to make sound management decisions, they must have adequate resources. Borrowers had difficulties understanding the basic for the completion of a Farm Service Agency (FSA) loan application when applying for these funds. The borrowers were uncomfortable about the length of the pages and the content of the application in which they felt would make possible not to complete the application correctly.

What has been done
Alcorn State University Extension Program offered structural courses in conjunction with the Agricultural Economics Department and other departments at Alcorn to help meet the requirement for borrower training as outlined by Farm Service Agency (FSA). The FSA Borrower Training course was intended to educate FSA borrowers on farm and financial management: business planning and financial management which consisted of goal setting, risk management, record keeping, budgets and decision-making and financial statement and efficiency measures (balance sheets and income statements.

Results
Borrowers learned to complete the loan application and gained understanding of the conception of the application process through the completion of a balance sheet, financial statement and income statement. The structural class enabled the borrowers to apply for an additional loan through the completion of the course with a passing score of seventy. Participants were introduced to current tools and methods that will assist in their current farming practices and minimize farm risks. Approximately 44 borrowers participated. FSA issued over $1,900,175 to borrowers to enhance their farm operation by the purchase of farm equipment, additional land, feed, seed, etc.

4. Associated Knowledge Areas

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

Outcome #8

1. Outcome Measures

Percentage of farmers and producers that demonstrates minimizing risk on the farm.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	15

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Farmers and ranchers in Mississippi lack imperative knowledge and understanding of legal issues which may affect their farm operations. In order to condense legal risk on the farm, better management practices should be put in place to reduce the legal risk that may affect the operation of the farm.

What has been done
Fifteen planned educational training sessions were provided to inform farmers and ranchers about legal issues which may affect the family farm. These trainings provided farmers and ranchers with risk management strategies that will support them dealing with legal issues. Issues discussed included personal and property ownership as well as liabilities, contractual arrangements, personal and business liabilities, eminent domain, adverse possession and legal obligations.

Results
As a result of the legal risk workshop trainings, participants were able to recognize various types of legal risks associated with different aspects of family farm operations. Participants are better equipped to utilize risk management strategies to deal with property ownership, liabilities, and explore risk management strategies. The participants gained knowledge of legal risk management methods that addressed the personal and business liabilities most often found on small family farms. Participants can identify risk management tools to handle the legal issues, and better equipped to address the risks associated with contractual arrangements and other agreements of a family farm. There were 15 legal risk workshops conducted with a total of 178 participants.

4. Associated Knowledge Areas

KA Code	Knowledge Area
602	Business Management, Finance, and Taxation

Outcome #9

1. Outcome Measures

Number of farmers and vendors that report and demonstrate gained knowledge in Direct Marketing to Farmers Markets.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	130

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Farmers markets contribute to the health of residents by improving the availability of fresh, nutritious, and affordable food within the community. Markets also build local economies by providing local producers with opportunities to sell their produce directly to consumers. There are a number of famers and vendors who are not aware of the benefits of selling directly to Farmers Markets.

What has been done
ASUEP Marketing Coordinator seeks collaborators, partners that are willing to provide a stage for farmers and vendors to gain knowledge of how to obtain information that relates to direct marketing to their local farmers market. Those partners include Agriculture Specialist, Director of 2501 Project, through workshops, trainings and demonstrations. In addition the Marketing Coordinator provides annual certification to farmers where they are informed of valuable techniques in marketing directly to farmers markets.

Results
As a result of the efforts farmers are equipped with information that will aid in direct marketing in the areas of pricing, signage, packaging and displaying as a means of direct marketing to their local farmers market.

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices

Outcome #10

1. Outcome Measures

Number of farmers and vendors that report and demonstrate gained knowledge on Direct Marketing of Alternative Agriculture Enterprises.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	130

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Farmers markets contribute to the health of residents by improving the availability of fresh, nutritious, and affordable food within the community. Markets also build local economies by providing local producers with opportunities to sell their produce directly to consumers. Farmers lack the knowledge to direct market to an audience that shop visually. This includes the marketing of alternative agriculture enterprises.

What has been done
ASUEP Marketing Coordinator seeks collaborators, partners and supporters who are willing to invest in making assessable fresh fruits and vegetables to the surrounding communities. Once done the Marketing Coordinator uses various events and partnerships to provide a visual display of dos and don'ts of visual marketing. This includes partnering with the Director of the Outreach Training and Technical Assistance Project, which includes their Vendor Borrower Trainings. The participants are provided information and given examples of how they can expand on their income by added value regardless of their agriculture enterprises.

Results
As a result of the activities more than 150 were provide information that will aid in cost effective ways to displaying, packaging, pricing and labeling of their alternative agriculture enterprises when selling at their local farmers markets. With this information being shared by the participants the impact can reach more than 20,000 people throughout the southwest Mississippi that buy from their local Farmers Markets. In turn increases the participants' profit margin.

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices

Outcome #11

1. Outcome Measures

Number of policies, decision support tools, and strategies developed that enhance profitability, inform production decision, and mitigate/manage risk.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	4

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
It has been a long standing marketing strategy of the fed cattle industry to produce a ?consistent? end-point product of 0.4 to 0.5 inches of backfat, primarily based on visual observation. However, using an end-point strategy necessarily inhibits profit maximization. Beef cattle feeders experience two major production decisions. The first is the choice of production process, including input mixture. The second is the decision of when an animal(s) should be sold given market conditions and production efficiency.

What has been done
MAFES economists developed models to simultaneously account for dynamic price and cost with the dynamic growth, hence more accurately depicting the moving target cattle feeders? face on a daily basis. They developed a simple market timing decision rule for cattle feeders based on profit maximization. They tested these models using 1,467 head of fed cattle from Mississippi. They compared this decision rule to the ?status quo? strategy of feeding cattle to a targeted carcass end-point.

Results
Given individual marginal factor costs of production, this research indicated that the use of a profit maximization rule could have increased average profits by $16.56 to $21.09 per head for the cattle of known age, and $7.67 to $11.32 per head if age was unknown.

4. Associated Knowledge Areas

KA Code	Knowledge Area
511	New and Improved Non-Food Products and Processes
601	Economics of Agricultural Production and Farm Management

603	Market Economics
604	Marketing and Distribution Practices
605	Natural Resource and Environmental Economics
608	Community Resource Planning and Development
610	Domestic Policy Analysis

Outcome #12

1. Outcome Measures

Number of communities that received technical assistance in the area of revitalizing, expanding or starting farmers markets.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	8

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Farmers markets contribute to the health of residents by improving the availability of fresh, nutritious, and affordable food within the community. Markets also build local economies by providing local producers with opportunities to sell their produce directly to consumers. Additionally, farmers markets can provide helpful nutrition information to communities regarding the preparation of oftentimes unfamiliar fresh produce. Across the country, various organizations have initiated efforts to do two things: 1) To secure funds to increase the number of farmers markets in underserved communities, by way of establishing, revitalizing and increasing the size of their current market and 2) To increase the number of farmers markets in underserved communities, by way of establishing, revitalizing and increasing the size of their current market but with very little or no success.

What has been done
ASUEP Marketing Coordinator provided technical assistance to a total of 8 community leaders, elected officials and local organizations throughout the state of Mississippi that would aid them in making decisions as how to revitalize, establish or expand farmers markets. In addition there was collaboration with county and city to bring aboard supporters who are willing to invest in making assessable fresh fruits and vegetables to the surrounding communities.

Results

As a result of the efforts the 8 counties have either started a farmers market; in the process of revitalizing a failing farmers market or expanding on their current market. This will provide fresh produce for families in those counties and or surrounding counties. All the efforts will provide additional access to fresh fruits and vegetables for the surrounding communities, additional jobs, increase the number of farmers, recycle monies back in the community. There are more than 139,000 individuals will benefit from the efforts.

4. Associated Knowledge Areas

KA Code	Knowledge Area
503	Quality Maintenance in Storing and Marketing Food Products
604	Marketing and Distribution Practices

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

MSU Extension agents and specialists, as well as MAFES faculty, used a variety of recommended methods to gather needed information. Specific strategies were initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples). In FY 2015, MSU Extension agents and specialists were required to submit four quarterly reports (January, April, July, and September). This quarterly report collects information about the number of contacts, types of contacts, and number of programs conducted in each Planned Program Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements from MSU Extension and MAFES faculty and staff is also made. The evaluation results shared through our impact statements are a combination of this quantitative and qualitative data.

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aggregate data across the state. The number of agents and specialists utilizing the survey has been increasing.

ASU standard evaluation processes are pre and post test. The evaluations instrument that was used were designed to extract the participants current knowledge gained. This method allowed the annual to review and adequately address the planning and implementation of the educational programs, events, and activities that affected the well-being of our participants.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Environmental Systems and Sustainability

☑ 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	5%	0%	3%	0%
102	Soil, Plant, Water, Nutrient Relationships	5%	0%	64%	0%
104	Protect Soil from Harmful Effects of Natural Elements	0%	0%	2%	0%
111	Conservation and Efficient Use of Water	10%	0%	11%	0%
112	Watershed Protection and Management	5%	0%	5%	0%
131	Alternative Uses of Land	0%	0%	2%	0%
132	Weather and Climate	5%	0%	2%	0%
133	Pollution Prevention and Mitigation	5%	0%	4%	0%
136	Conservation of Biological Diversity	0%	0%	1%	0%
205	Plant Management Systems	13%	0%	0%	0%
206	Basic Plant Biology	5%	0%	0%	0%
211	Insects, Mites, and Other Arthropods Affecting Plants	10%	0%	0%	0%
212	Pathogens and Nematodes Affecting Plants	5%	0%	0%	0%
213	Weeds Affecting Plants	5%	0%	0%	0%
214	Vertebrates, Mollusks, and Other Pests Affecting Plants	5%	0%	0%	0%
215	Biological Control of Pests Affecting Plants	5%	0%	0%	0%
216	Integrated Pest Management Systems	7%	0%	0%	0%
403	Waste Disposal, Recycling, and Reuse	5%	0%	0%	0%
901	Program and Project Design, and Statistics	0%	0%	5%	0%
903	Communication, Education, and Information Delivery	5%	0%	1%	0%
	Total	100%	0%	100%	0%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2015	Extension		Research	
	1862	1890	1862	1890
Plan	9.0	0.0	4.0	0.0
Actual Paid	7.3	0.0	7.8	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
195247	0	761617	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
195247	0	235287	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	1494440	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Varied activities, services and products occurred through MSU. These included formation of state and regional advisory groups, assignment of work groups to address specific issues and tasks associated with environmental systems and sustainability, participation of targeted audiences such as agricultural producers in environmental education programs, development of publications, fact sheets, web pages and other educational materials as program support, and reporting documents. Specific programs targeted toward agricultural producers included environmental stewardship programs, waste pesticide collection and disposal programs, recycling and solid waste management programs, development of agricultural water conservation practices to protect and maintain water resources, pharmaceutical and household chemical management and disposal programs and other initiatives related to water quality and nutrient management.

As related to environmental systems, research and Extension programming was conducted in many IPM areas, including the following:

1. Urban entomology and plant pathology,
2. Plant disease and nematode diagnostics,
3. Cotton and corn pest management,
4. Greenhouse tomato pest management,
5. Soybean management by application of research and technology, and
6. Public health issues related to vector control.

Research and Extension programming related to water resources focused on:

1. Development of best management practices to reduce nutrient and sediment transport in row-crop and pasture systems.
2. Watershed scale assessment of individual and cumulative effects of BMPs on nutrient and sediment

transport and water quality.

3. Development and evaluation of irrigation technologies that conserve water and energy.
4. Transfer of technologies that enhance water quality and reduce groundwater demands to producers and other stakeholders.

Research and Extension programming related to renewable fuels focused on:

1. Development and evaluation of advanced plant materials that provide a renewable source of biomass for green energy production.
2. Development and evaluation of conversion technologies for producing advanced transportation fuels from renewable biomass and waste streams.

2. Brief description of the target audience

Stakeholders and customers of research and Extension programs represented a broad section of audiences, including agricultural producers and other rural audiences, agricultural support groups, environmental and water quality agencies, public health agencies, and consumers.

3. How was eXtension used?

At MSU, the resources provided through eXtension were used to supplement and enhance our public learning experiences provided by MSU Extension agents and specialists. eXtension was also used as a resource in state-based planning processes. Overall, 202 MSU employees are eXtension users. Further, MSU Extension has 68 employees that serve on one or more of the 68 Communities of Practice (COPs); MSU Extension employees are members of 39 COPs. 9 MSU Extension employees serve as a leader for a COP, leading 7 COPs.

1 MSU Extension employee is a member of the Climate, Forests and Woodlands COP. 3 MSU Extension personnel are members of the Imported Fire Ants COP. 2 MSU Extension personnel are members of the Invasive Species COP. 1 MSU Extension employee is a member of the Prescribed Fire COP. 1 MSU Extension employee is a member of the Urban Integrated Pest Management COP. 5 MSU Extension personnel are members of the Community, Local, and Regional Food Systems COP. 1 MSU Extension employee is a member of the Wildlife Damage Management COP.

V(E). Planned Program (Outputs)

1. Standard output measures

2015	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	76673	29686	0	0

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

Patent Applications Submitted

Year:	2015
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2015	Extension	Research	Total
Actual	2	54	56

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of clientele attending workshops, seminars, short courses, and demonstrations. (MSU)

Year	Actual
2015	17727

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of producers adopting new practices, technologies, strategies, or systems based on research/Extension recommendations.
2	Number of producers reporting increased income or profits/decreased expenses based on practice changes.
3	Number of producers reducing environmental impacts of pesticide use.
4	Number of new technologies, practices, production systems developed that enhance environmental stewardship while sustaining productivity and profitability.

Outcome #1

1. Outcome Measures

Number of producers adopting new practices, technologies, strategies, or systems based on research/Extension recommendations.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	3545

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Mississippi State University employees must endeavor to improve livelihoods of Mississippi's residents. Catalpa Creek drains the majority of MSU's main campus and also flows through MSU's research facilities.

What has been done
Catalyzed by a few, the effort to restore Catalpa Creek now encompasses administrators, faculty, and staff from over 20 units at MSU and additional members from local and state natural resource agencies. This collaboration resulted in the submission of a watershed management plan to the US Environmental Protection Agency with the goal of having the Catalpa Creek watershed designated as a 319(h) priority watershed and a multi-faceted, long-term vision for rehabilitation of the watershed.

Results
The 319(h) designation for the Catalpa Creek watershed will be the beginning of what could prove to be a phenomenal resource for MSU and MS, ultimately having a showplace for conservation and restoration activities which can be used by MSU personnel and local, state, and federal agencies for teaching, Extension, and demonstration targeting the K-to-gray community. Faculty can additionally utilize the site for research opportunities inside and outside of the classroom. These activities become leverage commodities for future awards. All of these activities will also be functional and enhance Catalpa Creek and its watershed.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources

102	Soil, Plant, Water, Nutrient Relationships
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
131	Alternative Uses of Land
133	Pollution Prevention and Mitigation
136	Conservation of Biological Diversity
403	Waste Disposal, Recycling, and Reuse
903	Communication, Education, and Information Delivery

Outcome #2

1. Outcome Measures

Number of producers reporting increased income or profits/decreased expenses based on practice changes.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	2836

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The Mississippi River Valley Alluvial Aquifer is declining at 300,000 acre-feet a year due primarily to agricultural withdrawals. Producers in the Mississippi Delta are not utilizing irrigation water management practices that could reduce withdrawals from the alluvial aquifer.

What has been done
MSU developed the Row-Crop Irrigation Science Extension and Research Program (RISER) to address declining aquifer levels in the MS Delta. The primary objective of RISER is to evaluate novel irrigation water management (IWM) practices at the micro-plot scale and then to demonstrate at the field-scale technologies that improve crop water use efficiency and on-farm profitability.

Results

In 2015, the RISER program managed 11 corn, 15 soybean, 11 rice, and 3 cotton on-farm IWM demonstration sites across the Delta. Results from these validation trials indicate that if producers adopt RISER IWM strategies across all furrow irrigated acres then withdrawals from the alluvial aquifer will be reduced by 433,333 acre-feet a year at positive economic impact of $25,400,000 a year. RISER results have been transferred to 3,084 stakeholders at a number of events: 2 scientific talks, 6 field days, 16 grower meetings and 26 technical presentations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
132	Weather and Climate
133	Pollution Prevention and Mitigation
403	Waste Disposal, Recycling, and Reuse

Outcome #3

1. Outcome Measures

Number of producers reducing environmental impacts of pesticide use.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	1418

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Federal Law 40 CFR 170, as a part of the Federal Insecticide Fungicide and Rodenticide Act (FIFRA) as amended, requires that all persons handling or using restricted use pesticides (RUPs) be trained and/or certified/licensed in proper handling and application, including Worker Protection Standards (WPS) in order to protect the public safety, health and welfare of the citizens of the state of Mississippi. In 1975, the Mississippi State Pesticide Law was passed in compliance to and support of the federal legislation.

What has been done
MSU Extension developed two programs. The Private Applicator Certification Program provides training for private applicators who must be certified to apply restricted use pesticides. County Extension Agents are responsible for delivering the Private Applicator courses across the state. The Commercial Applicator Certification Program develops and distributes a wide variety of self-study material used by individuals who are seeking first-time certification or recertification in one of the 14 applicator categories.

Results
In 2015, 195 Private Applicator meetings were conducted to provide for the certification of 2,071 individuals and collection of $20,710 in training fees. Currently there are 11,389 certified private applicators operating in Mississippi. The Commercial Applicator Recertification Program was presented to 204 applicators during 14 scheduled meetings held at 6 locations statewide. In addition, self-study material was mailed to another 328 individuals who sought and achieved first-time certification. The Commercial Applicator training program collected $8,160 in registration fees and $8,850 from the sale of self-study manuals. There are currently 1,948 certified commercial applicators operating in Mississippi.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
206	Basic Plant Biology
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
214	Vertebrates, Mollusks, and Other Pests Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems

Outcome #4

1. Outcome Measures

Number of new technologies, practices, production systems developed that enhance environmental stewardship while sustaining productivity and profitability.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual

2015 4

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Increasing awareness of hypoxia in ocean regions across the globe has led to creation of nutrient reduction strategies targeting this coastal problem. In the Mississippi River Basin, the Governor?s Action Plan has called for a 45% load reduction of both nitrogen (N) and phosphorous (P) to reduce the Gulf of Mexico hypoxic zone. One documented best management practice (BMP) for nutrient reduction is low-grade weirs .

What has been done

MAFES Scientists have investigated the benefits of using low-grade weirs in agricultural ditches for controlled drainage by increasing hydraulic residence time (HRT) and mitigating nutrient loading from storm water and sedimentation.

Results

Maximum nutrient load reductions highlight that systems, with weirs, have the capability to reduce nutrients under certain conditions, while minimum nutrient reductions highlight when drainage ditch capacity limitations were exceeded. Differences in nutrient and sediment concentrations between storm- and low-flow samples ranged from 28 to 97%, indicating water velocity as the driving force behind observed differences. Differences in annual sediment and P trends showed lower concentrations in systems with weirs. While this investigation highlighted both the successes and limitations of utilizing low-grade weirs as a BMP, results suggest that capture capacity of BMPs should be tailored to drainage acreage and site variability.

4. Associated Knowledge Areas

KA Code	Knowledge Area
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
131	Alternative Uses of Land
132	Weather and Climate
136	Conservation of Biological Diversity
901	Program and Project Design, and Statistics

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

MSU Extension agents and specialists, as well as MAFES faculty, used a variety of recommended methods to gather needed information. Specific strategies were initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples). In FY 2015, MSU Extension agents and specialists were required to submit four quarterly reports (January, April, July, and September). This quarterly report collects information about the number of contacts, types of contacts, and number of programs conducted in each Planned Program Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements from MSU Extension and MAFES faculty and staff is also made. The evaluation results shared through our impact statements are a combination of this quantitative and qualitative data.

MSU also has a Standardized Extension Evaluation Survey designed for use in any MSU Extension Service program, workshop, or event with adults. The survey assesses program process, participant satisfaction, knowledge and/or skill change, and behavioral intentions. It provides a ready-made evaluation for agents and specialists to use and will allow us to aggregate data across the state. The number of agents and specialists utilizing the survey has been increasing.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Forestry

☑ 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
122	Management and Control of Forest and Range Fires	20%	0%	0%	0%
123	Management and Sustainability of Forest Resources	40%	0%	100%	0%
124	Urban Forestry	10%	0%	0%	0%
125	Agroforestry	15%	0%	0%	0%
132	Weather and Climate	5%	0%	0%	0%
133	Pollution Prevention and Mitigation	5%	0%	0%	0%
403	Waste Disposal, Recycling, and Reuse	5%	0%	0%	0%
	Total	100%	0%	100%	0%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2015	Extension		Research	
	1862	1890	1862	1890
Plan	11.0	0.0	0.0	0.0
Actual Paid	14.7	0.0	1.6	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
393439	0	128008	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
393439	0	13173	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	37238	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

At MSU, research was conducted in forest production and management, timber harvesting, forest recovery, and environmental impacts of forest practices. MSU Extension programming was conducted to share this information with forest landowners and industry personnel.

2. Brief description of the target audience

The audience for these programs included forest landowners, loggers, professional foresters, industry personnel, and the general public.

3. How was eXtension used?

At MSU, the resources provided through eXtension were used to supplement and enhance our public learning experiences provided by MSU Extension agents and specialists. eXtension was also used as a resource in state-based planning processes. Overall, 202 MSU employees are eXtension users. Further, MSU Extension has 68 employees that serve on one or more of the 68 Communities of Practice (COPs); MSU Extension employees are members of 39 COPs. 9 MSU Extension employees serve as a leader for a COP, leading 7 COPs.

1 MSU Extension employee is a member of the Climate, Forests, and Woodlands COP. 1 MSU Extension employee is a member of the Prescribed Fire COP. 1 MSU Extension employee is a member of the Wood Energy COP. 2 MSU Extension personnel are members of the Wood Products COP.

V(E). Planned Program (Outputs)

1. Standard output measures

2015	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	59302	64515	0	0

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

Patent Applications Submitted

Year:	2015
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2015	Extension	Research	Total
Actual	25	15	40

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of producers and industry attending seminars, workshops, short courses, and demonstrations. (MSU)

Year	Actual
2015	20636

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of producers adopting new technologies or practices based on research/Extension recommendations.
2	Number of timber producers increasing profitability of their forest operations.
3	Number of producers improving their environmental stewardship.
4	Number of producers reporting increased income/decreased expenses based on practice changes.
5	Number of new technologies, practices, production systems developed that enhance forest productivity, environmental stewardship and profitability.

Outcome #1

1. Outcome Measures

Number of producers adopting new technologies or practices based on research/Extension recommendations.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	4127

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
As the economy recovers, manufacturers utilizing wood have increased production. This increase is primarily due to a recovery in housing starts. Hardwood lumber manufacturing and shipping is gaining momentum, and secondary manufacturing is experiencing a resurgence both for residential and industrial markets. Unfortunately, much of the knowledge about wood as a raw material that companies possessed was lost to retirements, turnover, and downsizing. There is a current and pressing need for better, ongoing training for new professionals.

What has been done
Through mill visits, targeted workshops, first-hand technical assistance, and problems-solving sessions by MSU, much of the needed fundamental knowledge, such as wood moisture relations, dimensional stability, and durability, has been and continues to be reintroduced into the industry and professional and trade associations, such as the Forest Products Society and the North American Wholesale Lumber Association, which operate at the national and international level.

Results
Many of the mills have increased production. Also, regional mills are seeing major investments, particularly through international acquisitions. In particular, there is major Canadian investment coming into the U.S. Gulf South region. In the past 5 years, 30-40 locally owned mills have sold with prices in the range of $60-100 million. In some instances alternative wood species have been identified as a means of offsetting costs and servicing product demand.

4. Associated Knowledge Areas

KA Code	Knowledge Area
122	Management and Control of Forest and Range Fires

123	Management and Sustainability of Forest Resources
124	Urban Forestry
125	Agroforestry
133	Pollution Prevention and Mitigation

Outcome #2

1. Outcome Measures

Number of timber producers increasing profitability of their forest operations.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	1585

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Forest certification programs in Mississippi have been around since the early 1940's. However, in the mid 1990's forest certification systems were developed to show that forests were being managed in accordance with independently developed standards. The market for certified wood grew steadily. However, leaders soon realized that the certification system did not meet the needs of the small private forestland owners and changes were made to the program so that demonstration and recognition was not the major focus of the program.

What has been done
In July 2004 "9 Standards of Sustainability" were implemented by Tree Farm as the center of its new forest certification focus requiring landowners to have a written forest management plan. Without a written plan tree farms could not be certified and existing farms would not pass the re-inspection. Several landowners worked with MSU Extension personnel, local Forestry Commission representatives and the county forestry association to complete a written plan that was submitted through the proper channels.

Results
After taking all of the steps necessary to obtain "Tree Farm Certification" status landowners were still unable to become certified due to a change in personnel in the office which documentation is submitted, the loss of the written plan and other issues that occurred. The county agent and the local forestry association president worked with the landowners to complete a new written plan

due to a vacancy in the local Forestry Commission office. Two landowners were able to obtain their certification in October of 2015 and were presented with their signs that were erected on their property. Management plans are now being implemented by the landowners. The certification status will likely mean that these landowners will be able to negotiate better prices when marketing their timber.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
125	Agroforestry

Outcome #3

1. Outcome Measures

Number of producers improving their environmental stewardship.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	1651

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Wood and wood components are used to make thousands of products (i.e., food, shelter, building materials, medicines, fuel). In addition to providing raw materials for goods, forests help hold soil in place, provide homes for countless species of plants and animals, and help renew and clean the air we breathe. A significant number of Mississippians are unaware of the economic, social, and environmental impact of the forestry and forest products industries and of the practices utilized to sustain the forests and natural resources.

What has been done
The MSU Dept of Sustainable Bioproducts, with support from MSU Extension, and Forest & Wildlife Research Center hosts an annual Wood Magic Science Fair to educate on the importance of forest products and steps taken to sustain and renew this vital resource for future generations. Fourth grade students, teachers, and parents attend a half day field trip on the MSU campus that demonstrates the dependence of our society on wood and wood products and

educates on principles of conservation and sustainable forest management.

Results

During the week of October 6-10, 2014, approximately 3,500 students, teachers, parents, and industry stakeholders participated in the WMSF. For many of these students, the WMSF is their first and/or only opportunity to visit a college campus. This visit often plants the seed for a young student to attend college in the future. Thousands of students have attended the WMSF over the past 19 years and many of these have later attended MSU to pursue degrees. Because of the factual basis of the information presented through hands-on active demonstrations, many participants have realized the importance of this industry to our state, regional, and national economy and leave with a better understanding of how our forests are managed and utilized to ensure availability for the future.

4. Associated Knowledge Areas

KA Code	Knowledge Area
122	Management and Control of Forest and Range Fires
123	Management and Sustainability of Forest Resources
124	Urban Forestry
125	Agroforestry
132	Weather and Climate
133	Pollution Prevention and Mitigation
403	Waste Disposal, Recycling, and Reuse

Outcome #4

1. Outcome Measures

Number of producers reporting increased income/decreased expenses based on practice changes.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	1717

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Approximately 70% of Mississippi is forested, and the majority of that 70% is in private ownership of 100 acres or less. It is essential to the sustainability of the resource and the industry that landowners (both present and future) are knowledgeable in forest management, harvesting, and marketing practices and techniques. MSU's Forestry Extension Program has held a major role for almost 90 years in expanding that knowledge base through educational opportunities for landowners, foresters, loggers, 4-H and youth, and the general public.

What has been done
The core goals of the MSU Forestry Extension program are to increase the personal productivity, effectiveness, efficiency, and profitability of its clientele, as well as an understanding of the values of their asset -- the forest. New research and technologies are disseminated to clientele statewide through Extension Forestry programs and materials, including publications, presentations, short courses, workshops, field days, and other programmatic activities.

Results
As one example, 10 county forest landowner short courses (24 classes) were held in 2015, with 735 attendees owning or managing 3,112,588 acres of forestland participating. Attendees placed a collective value of $6,525,239 on the training they received in the areas of extreme weather events and risk management options, managing pine plantations, timber and wildlife, income taxes and the family forest, and forest regeneration.

4. Associated Knowledge Areas

KA Code	Knowledge Area
122	Management and Control of Forest and Range Fires
123	Management and Sustainability of Forest Resources
124	Urban Forestry
125	Agroforestry
132	Weather and Climate
133	Pollution Prevention and Mitigation
403	Waste Disposal, Recycling, and Reuse

Outcome #5

1. Outcome Measures

Number of new technologies, practices, production systems developed that enhance forest productivity, environmental stewardship and profitability.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Subterranean termites are on e of the most destructive pests of wooden structures globally, costing homeowners more than %5 billion annually in control and replacement costs. Control of termites is thus of considerable economic importance. Bait stations are an important method used to protect wooden structures from termite degradation.

What has been done
Bait stations placed in the soil around structures intercept termites and offer a sacrificial food source which can be used to monitor termite presence or treated with a termiticide which the foraging termites carry back to the colony. research conducted by MAFES scientists has shown that sapwood infected by blue-stained fungi is more attractive to foraging termites than non-stained wood and inclusion of blue-stained material in termite bait stations will improve the bait station efficacy.

Results
Blue-stained wood is porous, easily milled, can be included in any currently available termite bait station. Blue-stained wood is often a consequence of bark beetle infestation and use of this wood in bait stations could add value to an otherwise reduced value wood product. The use of blue-stained wood baits, impregnated with a slow-acting termiticide offers a viable alternative to soil liquid barrier termiticide treatments.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Appropriations changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

Alcorn State University School of Agriculture, Research, Extension and Applied Sciences (AREAS) went through substantial changes in 2015 with the reorganization of the Extension Program, Research Department and the Leadership for the School or AREAS that governs both of those units. There were also a number of positions that became vacant

with difficulties in replacing them within the time frame to carry out the duties and responsibilities of their position. Work was not performed in this area.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

MSU Extension agents and specialists, as well as MAFES faculty, used a variety of recommended methods to gather needed information. Specific strategies were initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples). In FY 2015, MSU Extension agents and specialists were required to submit four quarterly reports (January, April, July, and September). This quarterly report collects information about the number of contacts, types of contacts, and number of programs conducted in each Planned Program Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements from MSU Extension and MAFES faculty and staff is also made. The evaluation results shared through our impact statements are a combination of this quantitative and qualitative data.

MSU also has a Standardized Extension Evaluation Survey designed for use in any MSU Extension Service program, workshop, or event with adults. The survey assesses program process, participant satisfaction, knowledge and/or skill change, and behavioral intentions. It provides a ready-made evaluation for agents and specialists to use and will allow us to aggregate data across the state. The number of agents and specialists utilizing the survey has been increasing.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Wildlife and Fisheries

☑ 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
111	Conservation and Efficient Use of Water	5%	0%	0%	0%
131	Alternative Uses of Land	10%	0%	0%	0%
132	Weather and Climate	5%	0%	0%	0%
135	Aquatic and Terrestrial Wildlife	15%	0%	100%	0%
136	Conservation of Biological Diversity	5%	0%	0%	0%
214	Vertebrates, Mollusks, and Other Pests Affecting Plants	15%	0%	0%	0%
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals	5%	0%	0%	0%
604	Marketing and Distribution Practices	10%	0%	0%	0%
605	Natural Resource and Environmental Economics	15%	0%	0%	0%
722	Zoonotic Diseases and Parasites Affecting Humans	5%	0%	0%	0%
903	Communication, Education, and Information Delivery	10%	0%	0%	0%
	Total	100%	0%	100%	0%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2015	Extension		Research	
	1862	1890	1862	1890
Plan	9.4	0.0	1.0	0.0
Actual Paid	8.4	0.0	2.2	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
224440	0	219165	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
224440	0	31505	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	351709	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

MSU in-state and multistate research and Extension activities were conducted related to wildlife and fisheries habitat management, wildlife enterprise development, human-wildlife conflicts, and youth (K-12) education.

2. Brief description of the target audience

The target audience for this project consisted of most Mississippians, including those who hunt, fish, and watch wildlife; those who interact with wildlife at work and home; those who work in related industries and professions; and those who educate our youth (K-12).

3. How was eXtension used?

At MSU, the resources provided through eXtension were used to supplement and enhance our public learning experiences provided by MSU Extension agents and specialists. eXtension was also used as a resource in state-based planning processes. Overall, 202 MSU employees are eXtension users. Further, MSU Extension has 68 employees that serve on one or more of the 68 Communities of Practice (COPs); MSU Extension employees are members of 39 COPs. 9 MSU Extension employees serve as a leader for a COP, leading 7 COPs.

4 MSU Extension personnel are members of the Feral Hogs COP with 2 being leaders. 4 MSU Extension personnel are members of the Freshwater Aquaculture COP. 2 MSU Extension personnel are members of the Invasive Species COP. 2 MSU Extension personnel are members of the Marine Aquaculture COP. 1 MSU Extension employee is a member of the Wildlife Damage Management COP.

V(E). Planned Program (Outputs)

1. Standard output measures

2015	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	77031	54741	0	0

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

Patent Applications Submitted

Year:	2015
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2015	Extension	Research	Total
Actual	2	37	39

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of clientele attending seminars, workshops, short courses, and demonstrations. (MSU)

Year	Actual
2015	21962

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of producers adopting new practices based on research/Extension recommendations.
2	Number of wildlife professionals improving their skills in handling wildlife damage issues.
3	Number of non-industrialized, private landowners initiating wildlife-related enterprises.
4	Number of landowners reporting improved wildlife conservation due to management practices.
5	Number of producers reporting increased income/decreased expenses based on practice changes.
6	Number of youth increasing awareness or knowledge of environmental stewardship or conservation.
7	Number of new management practices, conservation systems, and policies developed that enhance wildlife conservation and environmental sustainability.

Outcome #1

1. Outcome Measures

Number of producers adopting new practices based on research/Extension recommendations.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	3953

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Many in agriculture production know someone who is or are personally dealing with the growing problem of wild hog damage on their property. Farmers lose thousands of dollars every year because of wild hog damage.

What has been done
An MSU Extension professional provided two Wild Hog Control programs for producers. The first program was provided to the Pearl River/Stone County Forestry Association members. The second program was provided to the Pearl River County Cattlemen's Association members.

Results
There were 68 producers that attended the Wild Hog Control programs. Producers indicated on their surveys that wild hog damage was $37,325 on their property last year. Producers expect their total economic loss on their property next year after implementing what was learned in the training to be only $1,300. Before the program, producers had a 2.2 knowledge of Wild Hog Biology and Ecology. After the program, producers indicated their knowledge increased to a 4.3 average score out of a possible 5. Before the program, producers had a 2.4 knowledge of Legal Control Options. After the program, producers indicated their knowledge increased to a 4.3 average score out of a possible 5.

4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife
136	Conservation of Biological Diversity

605 Natural Resource and Environmental Economics

903 Communication, Education, and Information Delivery

Outcome #2

1. Outcome Measures

Number of wildlife professionals improving their skills in handling wildlife damage issues.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	2108

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The Deepwater Horizon Oil Spill had a significant impact on both the economy and ecology of the Gulf of Mexico region. Birds were directly impacted and are an important component of the region with millions of birds using the Northern Gulf of Mexico. Because they are relatively common across the region, tens of thousands of wildlife-watchers visit the Gulf coast annually, spending millions of dollars, to observe and photograph the birdlife. Unfortunately, lack of consistent, region-wide bird data have limited ability to evaluate the effects of the oil spill.

What has been done
In response to need for bird-related data and science, MAFES scientists led a variety of studies to determine the impacts of the Deepwater Horizon spill on the birdlife of the region. A major component of these efforts involves co-leading the development of a rigorous region-wide bird monitoring effort. Using birds as indicators of coastal ecosystem health and function, we are working with scientists from across the region to develop an integrated, detailed, and cost-effective monitoring effort which will allow for the protection of these critical resources.

Results
Birds captivate the public, providing opportunities to educate them about the importance of coastal resources. MAFES scientists have met repeatedly over the past year with over 60 scientists from across the region to co-lead and participate in the development an avian monitoring plan. This effort has garnered the attention of federal agencies and private organizations that control billions of dollars, with multiple requests for presentations at regional symposia and regional bird conservation conferences and participation on a National Academy of

Sciences panel to develop "best monitoring practices." The most direct impact has been a change in behavior of funding management agencies who continue to hold up this effort as an exemplary effort to develop a monitoring program.

4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife
136	Conservation of Biological Diversity
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals
605	Natural Resource and Environmental Economics
903	Communication, Education, and Information Delivery

Outcome #3

1. Outcome Measures

Number of non-industrialized, private landowners initiating wildlife-related enterprises.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	703

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
A majority of imperiled lands and natural resources in MS are in private ownership. Therefore, for conservation to be successfully implemented on these private lands, landowners and producers usually must realize incentives to their lands and incomes before they undertake conservation practices. Research conducted at MSU has shown that private landowners, forest landowners, and agricultural producers can diversify incomes and increase conservation on their lands by developing fee-access outdoor recreational enterprises.

What has been done
The Natural Resource Enterprises Program (NRE) at MSU along with state, federal, and private-sector collaborators have designed educational workshops and demonstrations to train landowners and producers in developing outdoor recreational businesses on working lands that

increase conservation and income diversification. Specifically, NRE staff devised curricula and selected rural properties as host sites for workshops conducted in AR, LA, MS, and OR in 2015. General and advanced workshops are conducted.

Results

Six workshops, general and advanced seminars, were conducted with 329 paid participants. Attendees rated workshops on average 4.69 on a 5-point scale. To measure impacts of efforts, a comprehensive mail survey was developed and has been periodically sent to past participants 6-9 months following their participation in workshops. Survey response from landowner participants has been over 45%, revealing landownership of 1,731,664 acres with a large percentage scheduled to be improved in terms of enhanced conservation as a result of gains in knowledge levels through workshops. Attendees also estimated revenue contributions on their lands based upon engagement in new NRE businesses on their farms: $5,413,747, returning nearly $14,000 per farm or $17/acre from new NRE businesses initiated on private lands in Lower MS River Alluvial Valley.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
131	Alternative Uses of Land
135	Aquatic and Terrestrial Wildlife
136	Conservation of Biological Diversity
604	Marketing and Distribution Practices
605	Natural Resource and Environmental Economics
903	Communication, Education, and Information Delivery

Outcome #4

1. Outcome Measures

Number of landowners reporting improved wildlife conservation due to management practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	1054

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
For decades, biologists have used harvest data to track changes in the deer population. However, harvest data can be biased as hunters may be selecting certain animals for harvest that are not representative of the deer population at large. Additionally, hunters have been reluctant to collect observational information because they had to write down details about their hunts, including hunt duration, time of day and number of deer sighted.

What has been done
The MSU Deer Lab and MSU Extension Service developed a phone app called, "Deer Hunt" that enables hunters and wildlife managers to use mobile technology to easily collect critical deer observation information.

Results
Individuals can record observations and harvest data to share with hunting partners; manage stand locations and identify occupied stands; and view summaries of deer seen and harvested by stand, hunter, and entire property. Hunters can also access weather information (e.g., wind speed and direction) to help them find the best locations in the field for deer-sighting opportunities. The app provides observational and harvest information, in real-time, so deer movements and harvest during hunting season can be better understood. The information will assist in managing the deer herd by providing a more complete picture of the deer population.

4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife
903	Communication, Education, and Information Delivery

Outcome #5

1. Outcome Measures

Number of producers reporting increased income/decreased expenses based on practice changes.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	1406

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Mississippi is home to more than 350,000 people who love to fish, and more than 40,000 out-of-state guests buy fishing licenses in MS each year, generating $528 million in economic activity in the state. Crappie is one of the species of inland fishes for which MS is known. However, sometimes the population drops because of a lack of proper spawning conditions. MSU scientists are studying ways to help hatcheries stock the state's lakes to ensure recreational anglers have a consistently good experience.

What has been done
The MSU Forest and Wildlife Research Center is collaborating with MS Department of Wildlife, Fisheries, and Parks to study methods to better manage and optimize crappie reproduction to provide reliable and effective breeding alternatives to the present system. Studies are focusing on hormone-induced and out-of-season spawning, as well as the cryogenic preservation of sperm.

Results
Being able to preserve viable sperm and to induce female spawning in a tank system without seasonal restriction would allow fish hatchery biologists to manage the reproduction process and timing. This ability would stabilize the workflow and potentially increase hatchery production of crappie fry, which are raised to fingerling size before being released. If spawning is induced early, larger fingerlings can be stocked, which may improve survival. The new method would also save time and money and could also improve the success rate of reproduction because more variables are controlled.

4. Associated Knowledge Areas

KA Code	Knowledge Area
132	Weather and Climate
135	Aquatic and Terrestrial Wildlife
136	Conservation of Biological Diversity
604	Marketing and Distribution Practices

Outcome #6

1. Outcome Measures

Number of youth increasing awareness or knowledge of environmental stewardship or conservation.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	439

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Mississippi's economic stability is dependent upon stewardship of the state's natural resources. However, an increasing percentage of the state's youth and adults have become ecologically disconnected. Additionally, a discrepancy exists between societal readiness and societal need for science-based professionals. Therefore, it is critical that young people and youth-serving adults are educated about the role of conservation of the land and natural resource sciences to ensure the sustainability of agriculture and natural systems in MS.

What has been done
MSU offers Multiple Conservation Camps annually to educate and excite junior and senior students about natural resource conservation and outdoor recreation. The 4-H Wildlife Habitat Education Program (WHEP) and the 4-H Forestry Judging Programs build knowledge of management of wildlife and forest resources. The Youth Environmental Science program and the Starkville Science Club build environmental science competency in upper elementary and junior high students. Natural resource specialists train 4-H volunteer leaders, teachers, and Extension agents.

Results
Ninety-one youth participated in WHEP, Forestry and Conservation Visuals in 2015, an increase in participation over past years, possibly the result of greater program familiarity in county Extension agents. Approximately 185 youth leaders received training by specialists; assuming each leader impacts minimum of 24, the potential impact of this training increases exponentially to almost 4,500 young people. Post-camp knowledge assessments from 35 teenagers showed an average increase in pre-test scores of 21%, indicating improved knowledge of environmental science topics. All of the 16 camp participants who pursued Hunter Safety certification were successful, which may lead to fewer hunting accidents, greater income for conservation via license sales, and improved conservation practices on the landscape.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
131	Alternative Uses of Land
132	Weather and Climate
135	Aquatic and Terrestrial Wildlife
136	Conservation of Biological Diversity
214	Vertebrates, Mollusks, and Other Pests Affecting Plants
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals
605	Natural Resource and Environmental Economics
722	Zoonotic Diseases and Parasites Affecting Humans

903 Communication, Education, and Information Delivery

Outcome #7

1. Outcome Measures

Number of new management practices, conservation systems, and policies developed that enhance wildlife conservation and environmental sustainability.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
USDA Farm Bill conservation programs provide landowners incentives to remove less productive and environmentally sensitive lands from agricultural production and establish natural vegetation to achieve conservation objectives. However, allocation of land to conservation purposes may create direct and indirect costs for producers. Moreover, producers often do not understand either eligibility opportunities for conservation practices or the true economic costs/benefits for enrollment.

What has been done
MAFES scientists developed a geospatial decision support tool that utilizes common geospatial data layers, programmatic eligibility criteria, and producer provided yield data to identify conservation opportunities at the field, farm and landscape scale and project economic costs and benefits of spatially explicit programmatic enrollment.

Results
This tool, when utilized by resource planners, crop consultants, or wildlife biologists enables producers to visualize spatially explicit economic and environmental tradeoffs and optimize both profitability and environmental stewardship.

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
- Government Regulations
- Competing Programmatic Challenges

Brief Explanation

Alcorn State University School of Agriculture, Research, Extension and Applied Sciences (AREAS) went through substantial changes in 2015 with the reorganization of the Extension Program, Research Department and the Leadership for the School or AREAS that governs both of those units. There were also a number of positions that became vacant with difficulties in replacing them within the time frame to carry out the duties and responsibilities of their position. Work was not performed in this area.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

MSU Extension agents and specialists, as well as MAFES faculty, used a variety of recommended methods to gather needed information. Specific strategies were initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples). In FY 2015, MSU Extension agents and specialists were required to submit four quarterly reports (January, April, July, and September). This quarterly report collects information about the number of contacts, types of contacts, and number of programs conducted in each Planned Program Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements from MSU Extension and MAFES faculty and staff is also made. The evaluation results shared through our impact statements are a combination of this quantitative and qualitative data.

MSU also has a Standardized Extension Evaluation Survey designed for use in any MSU Extension Service program, workshop, or event with adults. The survey assesses program process, participant satisfaction, knowledge and/or skill change, and behavioral intentions. It provides a ready-made evaluation for agents and specialists to use and will allow us to aggregate data across the state. The number of agents and specialists utilizing the survey has been increasing.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Community Resource and Economic 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
608	Community Resource Planning and Development	25%	80%	0%	0%
609	Economic Theory and Methods	25%	5%	0%	0%
802	Human Development and Family Well-Being	5%	4%	0%	0%
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	20%	5%	0%	0%
805	Community Institutions, Health, and Social Services	25%	6%	100%	0%
	Total	100%	100%	100%	0%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2015	Extension		Research	
	1862	1890	1862	1890
Plan	40.0	2.0	1.0	4.0
Actual Paid	29.2	2.0	0.1	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
782326	80000	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
782326	80000	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	178866	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Extension and research assisted local communities in conducting the following activities to build human capital for empowering citizens and leaders to promote community and economic development:

- Developing demographic, economic, and fiscal profiles;
- Developing economic analyses (e.g., feasibility, impact, export-base, business plans, commuting, trade, shift share, location quotients);
- Providing technical assistance and holding community forums;
- Taking strategic planning surveys (e.g., market assessment, customer satisfaction, hospitality, health);
- Developing market strategies;
- Conducting strategic planning workshops;
- Publishing a directory of local services;
- Developing quantitative profiles of health organizations;
- Conducting feasibility studies;
- Producing gap analyses;
- Promoting coalition building trainings;
- Conducting tourism development workshops;
- Providing customer service/hospitality trainings;
- Conducting leadership development workshops;
- Conducting anti-poverty programs; and
- Providing technical assistance to counties and municipalities in such areas as general management, financial administration, personnel administration, leadership development, economic development, community facilities and services, and solid waste management.

2. Brief description of the target audience

The target audience for this program consisted of local communities and their leaders, community members interested in improving their community, community-based organizations, nonprofit organizations, cooperatives, entrepreneurs, and limited-resource individuals and families. This included master Extension volunteers and 4-H volunteers.

3. How was eXtension used?

At MSU, the resources provided through eXtension were used to supplement and enhance our public learning experiences provided by MSU Extension agents and specialists. eXtension was also used as a resource in state-based planning processes. Overall, 202 MSU employees are eXtension users. Further,

MSU Extension has 68 employees that serve on one or more of the 68 Communities of Practice (COPs); MSU Extension employees are members of 39 COPs. 9 MSU Extension employees serve as a leader for a COP, leading 7 COPs.

3 MSU Extension personnel are members of the Creating Healthy Communities COP, with 1 being a leader. 1 MSU Extension employee is a member of the Diversity Equity and Inclusion COP. 1 MSU Extension employee is a member of the Enhancing Rural Capacity COP. 5 MSU Extension personnel are members of the Entrepreneurs and Their Communities COP. 4 MSU Extension personnel are members of the Extension Disaster Education Network COP. 5 MSU Extension personnel are members of the Network Literacy COP. 5 MSU Extension personnel are members of the Community, Local, and Regional Food Systems COP. 1 MSU Extension is a leader of the Cooperatives COP.
ASU eXtension was not utilized in this program area.

V(E). Planned Program (Outputs)

1. Standard output measures

2015	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	149075	168699	495	2012

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

Patent Applications Submitted

Year:	2015
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2015	Extension	Research	Total
Actual	0	16	16

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of clientele attending workshops, seminars, and short courses. (MSU)

Year	Actual
2015	50568

Output #2

Output Measure

- Number of communities requesting economic analyses. (MSU)

Year	Actual
2015	0

Output #3

Output Measure

- Number of communities participating in community health improvement activities. (MSU)

Year	Actual
2015	0

Output #4

Output Measure

- Conduct social, psychological, marketing, and economic impact surveys to develop profiles of communities and their economic landscape (Number of surveys) (ASU)

Year	Actual
2015	5

Output #5

Output Measure

- Develop educational bulletins, manuscripts, and documentation of findings and disseminate results and models to promote food security, community development, and empowerment of residents. (Number of special reports, newsletters, and fact sheets) (ASU)

Year	Actual
2015	7

Output #6

Output Measure

- Conduct educational programs, events, and activities on leadership development and E-commerce strategies to facilitate economic and community development. (ASU)

Year	Actual
2015	8

Output #7

Output Measure

- Conduct educational programs, events, and activities to facilitate workforce development and financial management opportunities for limited-resource audiences. (ASU)

Year	Actual
2015	49

Output #8

Output Measure

- Conduct educational programs, events, and activities on cooperative development, home-based, faith-based, and agricultural and non-agricultural business development to enhance economic development opportunities in communities. (ASU)

Year	Actual
2015	24

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

Outcome #1

1. Outcome Measures

Number of community leaders improving knowledge and skills.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	10114

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Local governments and water associations often face the balancing act of meeting the water and sewer infrastructure needs of the residents they serve and keeping costs for those services affordable. Tunica Mayor Chuck Cariker and the town's board of aldermen knew last year that enterprise fund revenues were becoming insufficient to support the water and sewer services they provided. The money to operate and maintain a city's water and sewer system must come from the enterprise fund, which is funded by customer user fees.

What has been done
MSU's Center for Government and Community Development visited with the mayor, utility superintendent, water operator, sewer operator, and the city clerk to get an overall understanding of the water and sewer systems. The Center helped the city streamline its budgeting process to generate the revenue needed to adequately fund the utility enterprise funds. In order to assist, the Center conducted a rate and consumption study comparing the city with peer-sized systems of comparable size and treatment classification.

Results
Through the Center's research and presentations, city leaders learned that the city charged significantly less than its peers for every 5,000 gallons for water, sewer and sanitation usage per customer. Instead of raising rates, aldermen lowered the amount of gallons covered by the minimum base fee from 6,000 gallons per month to 4,000. The adjustment had no effect on the 45% of consumers who had already only used up to 4,000 gallons each month. With the additional revenue generated from the adjustment to the rate structure, the city was able to begin making up its annual enterprise fund shortfall of $424,000.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
609	Economic Theory and Methods
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
805	Community Institutions, Health, and Social Services

Outcome #2

1. Outcome Measures

Number of participants implementing strategies to improve public decision-making and/or increase civic engagement.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	8091

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The collection of Ad Valorem taxes is necessary for local government to provide essential services to citizens, like infrastructure, education, and safety. The collection of these taxes requires adherence to the Mississippi Constitution of 1890, the MS Code of 1972, rules as promulgated by the Office of the State Auditor, the MS Department of Revenue, and other entities. Not following laws and guidelines is a burden and disservice to taxpayers and can easily lead collectors and deputies to incarceration in addition to poor customer service.

What has been done
In partnership with the MS Office of the State Auditor, MS Department of Revenue, and MS Association of Tax Assessors and Collectors, MSU Extension developed the MS Tax Collector Education and Certification Program. In 2010, proposed legislation was signed by the Governor to address the need for collectors and deputies to be educated and certified to remain compliant to laws and guidelines. In July 2012, the first education course for Collectors was held.

Results
To date 460 tax collectors and deputy tax collectors have been certified through the program. Participants have come from 78 of 82 counties in Mississippi. This has closed knowledge gaps

between county tax collectors and oversight agencies, improved services for citizens through more efficient practices, saving taxpayers time and money.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
609	Economic Theory and Methods
802	Human Development and Family Well-Being
805	Community Institutions, Health, and Social Services

Outcome #3

1. Outcome Measures

Number of local government officials obtaining required certifications.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	754

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
In 1980, as part of the Mandated Reappraisal Law, 27-3-52, the Mississippi Department of Revenue, under the direction of the Legislature, created the two-track Mississippi Education and Assessor Certification Program. This program is vital to ensuring that all appraisal of property is done in a way that the property taxes imposed are uniform and equal throughout the State of Mississippi as required by law.

What has been done
In partnership with the Mississippi Department of Revenue and the Mississippi Association of Tax Assessors and Collectors, MSU Extension developed and has managed the MS Tax Assessor Education and Certification Program for over 35 years.

Results
In 2015, 24 assessors from across the state earned their Certified Appraisers Certification in the program. Four hundred and thirteen people maintained their certification through annual recertification in the program. Seventy-two percent of the participants hold an advanced

designation in the program. As a result of the program property tax payers in all 82 counties are receiving uniform and equal assessments of their property.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
609	Economic Theory and Methods
802	Human Development and Family Well-Being
805	Community Institutions, Health, and Social Services

Outcome #4

1. Outcome Measures

Number of local communities adopting recommended strategies to improve their local economy.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	15

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Agricultural communities throughout rural Mississippi struggle to find local economic development opportunities to promote commerce and trade within and among regions. Using the Mississippi Bricks to Clicks (B2C) Extension Program, entrepreneurs in Mississippi can increase access to new customers, increase their online brand values, and expand local sales and employment.

What has been done
The B2C program was created to help entrepreneurs and communities start and grow their online businesses through the adoption of social media, blogs, websites, mobile applications, and/or e-commerce tools. The program focuses on helping both communities and entrepreneurs grow their respective market opportunities.

Results
In 2015, the B2C program trained 12 managers and staff on the economics and management of using Facebook to expand markets for the Oktibbeha County Cooperative; MG Farms, Inc.;

Mississippi Farmers Market; Mississippi Agriculture and Forestry Museum; Woodville Deer and Wildlife Festival; Mississippi Main Street Association; Volunteer Starkville; and Mississippi State University Extension's Tomato Short Course. The B2C program supported/saved a total of 164 jobs, increased customer network size by 3,253,600 and increased the collective intangible asset value of online brands by $1,013,264 million dollars. The Oktibbeha County Cooperative; MG Farms, Inc.; and the Mississippi Farmers Markets reported increased sales of 15, 33, and 15 percent, respectively, directly as a result of participation in the B2C program.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
609	Economic Theory and Methods
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
805	Community Institutions, Health, and Social Services

Outcome #5

1. Outcome Measures

Number of local communities adopting recommended strategies to improve health services.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	25

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Governing boards face challenges managing public utilities including regulatory scrutiny, deteriorating infrastructure, and limited funds in today's economy and MS's demographic. The MS Department of Health (MSDH) conducts annual Capacity Assessment inspections for every MS water system, and assigns a Capacity Assessment score (0-5.00) comprised of technical, managerial, and financial components. In 2002, the average score was 3.19 for the 1,200+ MS public water systems, with 46.5% of reporting systems in the critical range of 3.00 or below.

What has been done
MS Legislature enacted Senate Bill 2597 requiring members of water system boards to attend 8 hours of training. MSU Extension developed and maintains a partnership with MSDH to provide overall coordination and curriculum for the Public Water System Board Management Training Program. Extension developed comprehensive curricula for municipal and association water systems and training materials covering laws/regulations, responsibilities, customer service, rates, finance management, long range planning, and emergency preparedness.

Results
Preliminary research shows the Board Management Training Program has had a significant impact on the increase in inspection scores for MS public water systems. Since 2002, 5,000 board members have participated in 446 trainings using the Extension-developed curricula. Participant feedback indicates notable support of the curricula. Data from 2015 show an average Capacity Assessment score of 4.43 (a 38.8% increase over 2002), with only 7.6% of systems scoring 3.00 or below. Additional data show 41% of 2015 reporting systems received a perfect score of 5.00. This program positively impacts water systems' ability to provide high quality drinking water service to Mississippi's nearly 3 million residents by providing curricula to better educate governing members of public water systems.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
805	Community Institutions, Health, and Social Services

Outcome #6

1. Outcome Measures

Number of communities implementing strategies for improvement, development, and/or marketing of tourist attractions.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	37

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
West Point, Mississippi is a town with 14.7% unemployment, but it is a community very rich in cultural and natural resources. These resources could be used to increase community development and generate revenue. Recently, the following needs were identified by the West Point Main Street (WPMS) program: (a) improvements in decision making regarding marketing and spending for the WPMS tourism efforts; (b) increases in tourism to promote economic development; and (c) knowledge of potential resources and potential market growth.

What has been done
MSU Extension's Center for Government and Community Development conducted a market analysis of the Prairie Arts Festival and Howlin Wolf Blues Festival, both of which take place in West Point, MS, and assessed current advertising strategies for the events. The Center made marketing recommendations related to allocation of funds and improving results. A tourism assessment was conducted and recommendations were also made about development of a community tourism package.

Results
The WPMS program applied the recommendations. Specifically, they spent more time on branding their event, hired a marketing consultant to create more targeted advertising strategies, and developed separate marketing strategies for the two festivals. They also secured $6,000 in new funding for the events and built relationships with local resources, such as Prairie Wildlife, Ritz Hotel, and Old Waverly historic home. They have also developed a regional tourism package and a video to showcase local restaurants, cultural tourism opportunities, and nature tourism attractions.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
805	Community Institutions, Health, and Social Services

Outcome #7

1. Outcome Measures

Number of communities reporting an increase in local broadband adoption and use.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	4

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Broadband use and adoption is very important today. With the digital age in full swing, it is critical to make sure communities adopt and use the technology for community economic development. Socioeconomic indicators such as education, income, and age affect broadband adoption. Older, less educated, and lower income individuals tend to lag behind in broadband adoption. Unfortunately, low income and low education rates are above average in Mississippi.

What has been done
MSU's Extension Center for Technology Outreach, in partnership with the Governor's office, coordinated and implemented a statewide project called the Extension Broadband Education and Adoption Team (e-BEAT) in an effort to increase broadband adoption and use. Six coordinators were hired to focus on both availability and adoption and were also responsible to put together a regional advisory council to help them guide their efforts. To better understand the issues at hand, the coordinators completed more than 20 roundtables across the state and an online survey to help prioritize recommendations from a statewide plan.

Results
All in all, a total of 1,706 events were completed split between technical assistance (50.8%) and planning (49.2%) reaching over 22,000 MS residents and leaders. In addition, 5 surveys were completed showing that use of broadband at home or elsewhere among MS households increased from 78.6% in 2011 to 83% in 2014; broadband use at home or elsewhere also increased among low-income MS households (making less than $30,000/ year) from 66.4% in 2011 to 71% in 2014; among older households (age 65+) also increased from 45.3% in 2011 to 54.8% in 2014; and among rural households from 74.7% in 2011 to 80.2% in 2014. Not only broadband adoption increased, but also a more diverse use of broadband from 8.51 in 2011 to 9.47 overall; 7.85 to 8.49 among low income households; 5.27 to 7.03 among older households; and 7.95 to 8.78 among rural households.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

Outcome #8

1. Outcome Measures

Number of clientele who make use of leadership skills by volunteering for community organizations.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	3210

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Mississippi's rural towns struggle with a variety of planning and design issues. Some of these problems are small and straightforward such as the need for coordinated pedestrian infrastructure, and other issues are complex and long-term, such as the desire to incubate small businesses to fill empty storefronts and the need to guide future growth. While elected officials, volunteers, and concerned citizens may have a strong desire to improve their community's quality of life few have the planning and design expertise necessary to address issues such as these.

What has been done
The Smart Growth for Small Towns project includes online and printed resource guides as well as service-learning. The resource guides relate the principles of Smart Growth to small MS communities by providing explanation, discussion, and specific strategies for each of the 10 Smart Growth principles. The service-learning activities are completed by landscape architecture students and provide community-specific tactics that other small towns can emulate. Both the resource guides and service-learning efforts were developed by MSU Extension and the Stennis Institute.

Results
While evaluation of the resource guides is ongoing, the payoff from the related service-learning effort is already tangible. In 2015, landscape architecture graduate students worked with the Chamber of Commerce, the Mayor, and other concerned citizens from the City of Fulton to develop strategies to address design and planning issues in and around the community's downtown. The students developed recommendations to resolve transportation issues, to promote small businesses and to plan for future growth and development. Students reviewed and critiqued the town's zoning ordinances and presented a series of design and planning proposals at a public meeting. These interactions will have a lasting impact by extending citizens' knowledge of design and planning solutions and issues.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
609	Economic Theory and Methods
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
805	Community Institutions, Health, and Social Services

Outcome #9

1. Outcome Measures

Number and/or percentage of participants that utilize research data, knowledge, and skills disseminated to attract and retain businesses, encourage economic development projects, and improve food security.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	20

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
As local communities are made aware of Rural Development funding opportunities for small and emerging business the need continues to increase for business related educational services within the nine county service areas. Recognizing development need of leadership is the origin of change for limited-resource communities, it is paramount that CRD unit and other service agencies have a base knowledge necessary to integrate project planning with business planning. Program investments of time in education and professional development have proven successful in creating desired program success when specific core issues are addressed.

What has been done
To address programmatic needs, a planning/consultation session was requested including staff persons from MDA, Small Business Entrepreneur Center, and ASUEP CRD Unit. Brainstormed program and community needs, the primary need was to implement a Business Development Train-the-Trainer session. Mississippi Development Authority and Entrepreneur Center staff

assisted with the development of a tailored Business Development Train-The-Trainer curriculum to address: Working knowledge of business strategic plans and objectives; Understanding the role of every individual directly or indirectly involved in the entire business development process; Understanding of business development products, services, markets and customers; Knowledge of the human resources and organizational development capacity to assist clients in designing and building a successful business development process.

Results

Business Development Train-the-Trainer sessions were held July 16th, 23rd, 30th, and August 06. Time investments provided professional development to nine different business development service agencies. 15 individuals attended the training session and businesses throughout the state of Mississippi have benefited. Business expansions have been reported, new establishments, business owners have applied recommendations to become certified.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
609	Economic Theory and Methods

Outcome #10

1. Outcome Measures

Number and/or percentage of individuals that gain awareness of the role of entrepreneurship in achieving economic development.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	340

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

As local communities are made aware of Rural Development funding opportunities for small and emerging business the need continues to increase for business related educational services within the nine county service areas. Recognizing development need of leadership is the origin of change for limited-resource communities, it is paramount that CRD unit and other service agencies have a base knowledge necessary to integrate project planning with business planning.

Program investments of time in education and professional development have proven successful in creating desired program success when specific core issues are addressed.

What has been done

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4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
609	Economic Theory and Methods

Outcome #11

1. Outcome Measures

Number and/or percentage of community leaders that demonstrate greater knowledge, develop leadership skills, and become involved in civic activities, community, and economic development opportunities.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	10

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Effective leadership development empowers communities to discover the cache of human capital from which existing and emerging leaders can be recognized and trained. Leadership development is the source from which community success will flow. The results of prepared community leadership are community-based solutions to community problems coming from a group that has a vested interest in the outcome and the origin of change for limited-resource communities. Leaders come in the form of elected official, board members, and lay-persons that spear-head civic organizations and community watch groups. In every aspect of life leadership roles abound. Opportunities must exist for leaders to build their knowledge, skills and confidence as a leader in order to achieve greater success in every area of life, Explore current, relevant issues that will spark engaged citizenship, practice strategies for leading positive change.

What has been done

Several programs have been planned and conducted to address programmatic needs of leadership development and events to allow civic engagement. Programming efforts have included: Business Development Train-the-Trainer session, Be In The Know Forum, Volunteer Opportunities, Grant Writing Workshop, Extension Awareness platforms and One-on-one technical assistance.

Results

Business Development Train-the-Trainer sessions were held July 16th, 23rd, 30th, and August 06. Time investment allowed for professional development to nine different business development service agencies. Over 40 community leaders volunteered to assist with MS Scholars event. Board Development technical assistance was provided to Brenda Travis Foundation, and five local residents with interest in government volunteered with campaigns and/or participated in the electoral process conducted during August 2015 Election. Networking opportunities, campaign strategies, technical assistance were provided to Tammy Witherspoon (District 38 Senator), Tasha Dillon (District 98 House of Representative Candidate). Leadership Strategies were also provided to Christopher Ross, Eddie Simmons and Cedric McDowell.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
609	Economic Theory and Methods

Outcome #12

1. Outcome Measures

Number and/or percentage of cooperatives that report improvements in their production, marketing, financial, and management practices.

Not Reporting on this Outcome Measure

Outcome #13

1. Outcome Measures

Number and/or percentage of community officials and organizations that gain awareness of local issues on food security, economic, and demographic profiles of communities.

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	24

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
As communities are force to evolve steps to sustain healthy communities start with broad community engagement, effective leadership, development of a shared vision and realistic community goals, effective planning, local government commitment and a collaborative use of internal and external resources. In order to successfully complete task aforementioned having research based knowledge is critical. Equally important is awareness of community resources and the ability to function while acknowledging demographic profile changes. With useful and resourceful information strategies can be properly implemented to link community development with research and resources.

What has been done
Extension Awareness efforts have been planned and conducted. CRD Unit have met with mayors, governing boards, county administrators, and planning agencies to provide information, technical assistance, and funding source updates that target development and enterprise projects for communities with 50,000 population or less. Brainstorming for training needs have also been discussed for newly elected officials.

Results
With election and administration changes underway. Knowledge was well received however, action to seek funding or decisions to make definite community development plans were postponed until further notice.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

609 Economic Theory and Methods

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

Alcorn State University School of Agriculture, Research, Extension and Applied Sciences (AREAS) went through substantial changes in 2015 with the reorganization of the Extension Program, Research Department and the Leadership for the School or AREAS that governs both of those units. There were also a number of positions that became vacant with difficulties in replacing them within the time frame to carry out the duties and responsibilities of their position.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

MSU Extension agents and specialists, as well as MAFES faculty, used a variety of recommended methods to gather needed information. Specific strategies were initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples). In FY 2015, MSU Extension agents and specialists were required to submit four quarterly reports (January, April, July, and September). This quarterly report collects information about the number of contacts, types of contacts, and number of programs conducted in each Planned Program Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements from MSU Extension and MAFES faculty and staff is also made. The evaluation results shared through our impact statements are a combination of this quantitative and qualitative data.

MSU also has a Standardized Extension Evaluation Survey designed for use in any MSU Extension Service program, workshop, or event with adults. The survey assesses program process, participant satisfaction, knowledge and/or skill change, and behavioral intentions. It provides a ready-made evaluation for agents and specialists to use and will allow us to aggregate data across the state. The number of agents and specialists utilizing the survey has been increasing.

Alcorn State University evaluated and surveyed each event using Pre/Post that determined the need to increase leadership skills among limited resource communities.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 9

1. Name of the Planned Program

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
703	Nutrition Education and Behavior	0%	20%	0%	0%
724	Healthy Lifestyle	0%	20%	0%	0%
801	Individual and Family Resource Management	0%	20%	0%	0%
802	Human Development and Family Well-Being	0%	20%	0%	0%
806	Youth Development	100%	20%	100%	0%
	Total	100%	100%	100%	0%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2015	Extension		Research	
	1862	1890	1862	1890
Plan	75.0	9.0	0.0	0.0
Actual Paid	65.3	9.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
1747578	654786	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
1747578	654786	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	9388	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

At MSU, activities included:
• Recruit youth and volunteers;
• Provide educational programs, events and activities in local schools and community settings to aid youth in resisting risky behaviors and promoting healthy development;
• Coordinate leadership camps;
• Provide financial resource management programs and career days/fairs;
• Provide programs, events, and activities to improve parenting practices that will enhance parent-child relationships;
• Provide programs on child development for developing and enhancing afterschool programs and other learning environments for children;
• Conduct research to address the nutrition, health, fitness, wellness, and obesity issues facing youth;
• Provide volunteer leader training for youth leaders and adult volunteers;
• Provide training on organization and maintenance of community clubs;
• Provide recognition events for youth to exhibit project skills, including 4-H Club Congress, District Achievement Days, County, State, & Regional Fairs, and Livestock and Horse Shows, National 4-H Congress; and
• Provide training to Extension personnel on experiential education through subject-matter work, as well as Chartering all 4-H Clubs and groups, Four Essential Elements, Legal Use of the Name and Emblem, Diversity Training, and Financial Management.

At ASU, Area Extension educators and State Specialist conducted educational programs, events and activities in local schools and communities to aid youth in resisting risky behaviors such as Bullying, becoming sexually active, and STD's drug and alcohol. Extension educators, community volunteers, state specialists and other collaborators planned and organized programs, summits, events and activities that provided educational information to youth on the following program areas. Career days/fairs and workshops were conducted in local schools and communities. Regional and State forums were planned and undertaken to develop the skills of volunteer leaders to organize and maintain school and community-based clubs. Youth and volunteer leaders participated in the following Leadership activities and events: 4-H Project Achievement Day: 4-H State Club Congress; 4-H State Fair Exhibit/4-H Day at Fair; National 4-H Congress; Citizenship Washington Focus, Health & Wellness, and leadership camps. The ASUEP staff conducted educational events and programs that provided Youth with information and skills that will enable them to manage their money, develop a budget and use credit cards wisely. Conducted National 4-H Science Day experiment in two local sciences that focused on the science of motion show how things move through space and time. Additionally, educational programs and workshops were conducted to promote nutrition and other factors contributing to healthy lifestyles. Health fairs, workshops, and other activities were implemented that focused on behavior changes needed for healthy Living and Lifestyles. Educational programs were implemented focusing on recipe modification, portion control, food safety, calorie reduction Healthy Snacking, Healthy Food Choices, increased consumption of fruits and vegetables and adding physical activity to daily routine.

2. Brief description of the target audience

The target audiences were at-risk limited-resource youth between the ages 5 to 19, adult volunteers, and families from small and rural communities in Mississippi.

3. How was eXtension used?

At MSU, the resources provided through eXtension were used to supplement and enhance our public learning experiences provided by MSU Extension agents and specialists. eXtension was also used as a

resource in state-based planning processes. Overall, 202 MSU employees are eXtension users. Further, MSU Extension has 68 employees that serve on one or more of the 68 Communities of Practice (COPs); MSU Extension employees are members of 39 COPs. 9 MSU Extension employees serve as a leader for a COP, leading 7 COPs.

2 MSU Extension personnel are members of the eXtension Alliance for Better Child Care COP. 2 MSU Extension personnel are members of the Families and Child Well-Being Learning Network COP. 11 MSU Extension personnel are members of the Families, Food and Fitness COP, with 9 being leaders. 3 MSU Extension personnel are members of the Family Caregiving COP. 1 MSU Extension employee is a leader of the Financial Security for All COP. 2 MSU Extension personnel are members of the Healthy Food Choices in Schools COP. 1 MSU Extension employee is a member of the Youth Agriculture COP.

ASU personnel serve on the TLC Leadership Development Community of Practice.

V(E). Planned Program (Outputs)

1. Standard output measures

2015	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	116505	138007	301236	317851

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

Patent Applications Submitted

Year: 2015

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2015	Extension	Research	Total
Actual	8	0	8

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of youth enrolled in 4-H Clubs. (MSU)

Year **Actual**

2015	20881

Output #2

Output Measure

- Number of clubs operating on military bases. (MSU)

Year	Actual
2015	4

Output #3

Output Measure

- Number of volunteers attending local, district, state, and/or regional leader trainings or conferences. (MSU)

Year	Actual
2015	1031

Output #4

Output Measure

- Conduct educational programs, events, and activities on risky behaviors affecting youth. (ASU)

Year	Actual
2015	15

Output #5

Output Measure

- Conduct career/workforce educational sessions in local schools and communities. (ASU)

Year	Actual
2015	25

Output #6

Output Measure

- Conduct leadership development educational programs, events, and activities to provide opportunities at the county, regional, state, and national levels (e.g., Youth Leadership Academy, 4-H Achievement Day, State Club Congress, MS State Fair, National 4-H Conference, and National 4-H Congress). (ASU)

Year	Actual
2015	12

Output #7

Output Measure

- Conduct science, engineering, and technology programs, events, and activities to attract the interest of youth in these educational fields. (ASU)

Year	Actual
2015	2

Output #8

Output Measure

- Conduct educational training for volunteer leaders to organize and maintain school and community clubs. (ASU)

Year	Actual
2015	6

Output #9

Output Measure

- Conduct educational programs, events and activities on credit and financial resource management.

Year	Actual
2015	18

Output #10

Output Measure

- Conduct educational programs on nutrition, health, physical fitness and wellness for limited resource youth.

Year	Actual
2015	80

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Adult and youth volunteers increase their knowledge and incorporate skills in being effective volunteer leaders.
2	Volunteer-managed 4-H clubs are sustained at the local level.
3	Number of youth who improve life skills.
4	Number of youth who increase knowledge of subject-matter areas.
5	Youth increase their involvement in leadership events and activities at the district, state, and national levels.
6	Number of youth that report reduction of risky behavior that benefits his/her social and educational development.
7	Number of minority youth that independently select to participate in leadership competitions, youth events, activities, and community projects.
8	Number of trained volunteer leaders that independently organize and manage school and community youth clubs.
9	Number of youth that report seeking and gaining employment based on training and guidance provided by the 4-H program on financial well-being.
10	Number of youth that participate in science, engineering, and technology programs.
11	Number of youth that participate in career/workforce development program to prepare for the future.
12	Increase number of limited-resource families and youth who utilize both healthy eating practices and physical fitness to manage obesity, weight and health related diseases.

Outcome #1

1. Outcome Measures

Adult and youth volunteers increase their knowledge and incorporate skills in being effective volunteer leaders.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	5976

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
An emergency or disastrous situation can occur at any time. Preparedness is key when a disaster strikes. Emergency personnel are highly trained and do their best to respond to emergencies as quickly as possible. Parents and school personnel often focus on protecting the children. However, youth can play a vital role before, during, and after a disaster. Involving youth in disaster preparedness increases their knowledge, helps them gain awareness about hazardous situations, builds confidence, and empowers them to become competent responsible citizens.

What has been done
Mississippi Youth Preparedness Initiative (MyPI) is a comprehensive MSU Extension program that fosters emergency preparedness, civic responsibility, and leadership. In January 2015, a MSU Extension Agent in Kemper County, along with the help of agents in neighboring counties, conducted MyPI with Health Science students at John C. Stennis Vocational Complex in DeKalb. Collaboration with local law enforcement, emergency management, media, and others was included to ensure that participants received comprehensive training and exposure to various resources.

Results
Fifteen students participated in and completed the MyPI program, gaining knowledge and skills on the three components of the program. They gained awareness in fire safety, of weather radios, and on the media role in preparing the community for disaster. Participants also worked with their family plus 6 other families to develop emergency kits and family communication plans. As a result, there are a total 15 teens that are better capable of keeping themselves and others safe during a disaster, know how to safely respond to the immediate needs in their community, and help others become better prepared. Those 15 students also reported that they are more confident in their ability to recognize potential hazards. Because of MyPI and these students commitment, there are 105 families in Kemper that are better educated, informed, and prepared.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #2

1. Outcome Measures

Volunteer-managed 4-H clubs are sustained at the local level.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	1062

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Mississippi faces a shortage of youth prepared to enter careers in science, technology, engineering, and math (STEM). Less than 10% of MS's college students will graduate with a degree in STEM, while only 2% will graduate with a degree in computer science. This shortage may be attributed to lack of exposure at an early age. Often schools do not have the resources to offer hands-on learning opportunities to students, particularly in technology and engineering. By engaging youth in content areas early, the pipeline for STEM youth can be expanded in MS.

What has been done
The 4-H Robotics Academy was developed by MSU Extension faculty to train Extension Agents and their volunteers on how to create a robotics club, maintain a robotics club, program four different types of robots, and understand general coding. A training was held in July 2015. The training brought together specialists in the area of robotics, coding, evaluation, youth development, and volunteerism. Participants received comprehensive training in these areas to more effectively plan, promote, conduct, and maintain robotics clubs in their county.

Results
There were 13 Extension Agents and 32 Extension volunteers trained during the 4-H Robotics Academy. Participants received hands-on training in coding (i.e., Dash, WeDo, NXT-G, Java, Scratch Jr., Scratch), as well as methods to support and sustain the 4-H robotics club at the local county level. One group of participants from Stone County were able to take what they had learned in the Cloverbud robotics training and introduce that robot and its coding to 300 elementary students. Another group, based out of Madison County was able to take the

knowledge they learned and implement it in the Madison County Public Library system reaching over 100 youth. As a result of the program, participants were better able to start and manage clubs in their county.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #3

1. Outcome Measures

Number of youth who improve life skills.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	14941

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Many youth lack sufficient funds to further their education in their chosen career path so that they may achieve their utmost potential. While youth gain character and responsibility through owning, working with, and exhibiting animals in a competitive environment at the Dixie National Junior Round-Up, they are faced with financial obstacles between them and their ultimate educational goals. The Sale of Junior Champions provides an opportunity for MS youth to sell champion animals and support the educational efforts of other youth through scholarships.

What has been done
MSU Extension managed the Dixie National Junior Round-Up livestock shows where champion and reserve champion market animals were selected and sold in a bid auction through the Sale of Junior Champions. Exhibitors of animals in the sale received 80% of the sale price of their animal that can be used for their college education. Furthermore, 15% of the sale of each animal went toward funding scholarships for recipients to use at a college in Mississippi to further their education.

Results

A total of 43 animals qualified for the 2015 Dixie National Sale of Junior Champions that totaled $382,595. In addition, $55,500 in scholarships was awarded as follows: 25 scholarships ($1,500 each) awarded to seniors in high school that did not qualify an animal for the Sale of Junior Champions; 6 scholarships ($2,000 each) awarded to the winners of the Premier Exhibitor Contest in Beef Cattle, Dairy Cattle, Sheep, Swine, Meat Goats, and Dairy Goats; and 4 scholarships ($1,500 each) to the exhibitors of the Supreme Beef Male, Supreme Beef Female, Supreme Dairy Cattle Female, and Supreme Dairy Goat Female. The sale proceeds and scholarships awarded to Mississippi youth will greatly assist them in their educational pursuits.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being
806	Youth Development

Outcome #4

1. Outcome Measures

Number of youth who increase knowledge of subject-matter areas.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	12700

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Firearm safety training teaches participants that firearms are inherently dangerous and must always be stored carefully and handled with care. Participants are taught to treat firearms with respect for their destructive capabilities and that handling them as if they are always loaded can prevent accidents. Due to media coverage related to firearm accidents, shooting incidents, and shooting deaths of innocent victims, the general public often has a negative concept of any use of firearms, especially by youth.

What has been done
MSU Extension 4-H Shooting Sports Program's goal is youth development. Through participation in firearm safety training and shooting sports activities, young men and women are given the opportunity to learn responsibility, sportsmanship, self-discipline, and other life skills critical to the development of productive citizens. MSU 4-H Shooting Sports involves thousands of youth and

continues to grow annually. Over 700 trained adult volunteer instructors and 4-H agents provide safety training and leadership.

Results
In 2015 4-H Shooting Sports, 32 youth participated in practices and shooting events developing their firearm safety and shooting skills. Over half received an award for accuracy skills developed through the program. In addition, they learn teamwork, time management, responsibility, good sportsmanship, cooperation, problem-solving skills, and more as they care for their firearm, plan for, and participate in practice and competitions. In addition, during 2015 we certified over 200 youth and adults in Hunter Education Programs. These participants learn firearm and outdoor safety and skills that they will apply in life. Students must score a minimum of 70 on the final exam and demonstrate safe firearm handling at their range qualification.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #5

1. Outcome Measures

Youth increase their involvement in leadership events and activities at the district, state, and national levels.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	7471

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Proper evaluation of equine conformation is a vital aspect to the success of any breeding, training or showing program. Youth programs such as Horse Judging provide participants with the skills necessary in proper equine evaluation, not to mention the impact this program can make in the areas of confidence, self-esteem, and leadership. However, MS 4-H has not been nationally competitive in horse judging competitions in the past; thus, successful judging programs impacting our youth in equine conformation and life skill development has been lacking.

What has been done

Numerous outreach efforts have been made by MSU to address this issue. Youth and adult judging camps are offered in the summer to educate and excite adult leaders, Extension agents, and youth participants about horse judging competitions and team participation. Participants received numerous lectures from industry professionals, as well as receive the newly created MSU Horse Judging manual to assist in their development. Additionally, numerous evening clinics have been held across MS to provide support to all seeking information regarding horse judging.

Results

This year, the first year, the judging camps brought 42 people to MSU, including 7 from Oklahoma. Of the participants, 86% strongly agreed that the information presented improved their knowledge of the subject matter; the remaining 14% agreed. Furthermore, the MSU Horse Judging Team was created which is comprised of 8 university students who started national competitions in April winning Reserve High Team Halter. This team will travel throughout the fall competing in National competitions in Oklahoma, Ohio, and Texas, thus bringing additional exposure to this new program while impacting students.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #6

1. Outcome Measures

Number of youth that report reduction of risky behavior that benefits his/her social and educational development.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	15

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

One consequence of a teenager's struggle with dependence and independence is a rapid rise in risk-taking behavior. For some, risk-taking takes the form of pursuing new interests, trying on new clothing, experimenting with hairstyles, and getting that first real job. For others, it can mean drinking, smoking, drug use, criminal behavior, violence, and sexual activity.

What has been done

To address the issue of risky behavior the Alcorn State University 4-H Youth Development Program staff conducted 15 Risky Behavior Programs such as: Bullying Education; Pregnancy Prevention: Drug, Alcohol and Tobacco Prevention workshops. These workshops where conducted in local elementary, middle and high schools in Southwest Mississippi. 3016 youth and 445 adults participated in the workshops.
The workshops focused on the following topics:
1) Effective Decision-Making Skills
2) How to resist risky behavior
3) Effective Communication skills
4) Consequences of participating in Risky Behaviors

Results
Of the 3461 youth and adults participating in the various Risky Behavior Programs. 56% indicated that they knew and understand the consequences of participating in risky behaviors. 44% indicated that the know the steps in the decision-making process and would use them when making a decision. 54% know at least two ways to avoid being involved in risky behavior. Approximately (50%) youth stated they know someone that had participated in a risky behavior. 37% reported that they would feel comfortable talking to the peers about risky situations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #7

1. Outcome Measures

Number of minority youth that independently select to participate in leadership competitions, youth events, activities, and community projects.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	12

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
In order to compete for leadership roles in their schools and community's youth must acquire adequate leadership and communication skills. These skills are essential for them to be able to

acquire leadership roles in their schools and communities. These skills are also need in team building, problem solving and decision-making. Once these skills are obtained they will be effective leaders in their schools, communities and other organizations.

What has been done

In an effort to improve youth leadership skills the Alcorn State University Extension Program implemented twelve (12) Leadership Development Programs. The workshops were delivered in two educational sessions. The first session part focused on Understanding Leadership, Types of leadership Styles, Developing Leadership and Team Building Skills. The second session involved hands on activities that explored Effective Communication, Decision-Making and Listening Skills. 3735 youth participants in the educational sessions. The also participated in local, state and National leadership programs.

Results

According to the post-test 48% of the youth participating in the program learned essential characteristics required to become an effective leader. 48% understood the concept of verbal and nonverbal communication. 38% reported that they could use the decision-making process to make important decisions. 45% felt that the team building skills they obtained will help them work better on teams. 49% understood the definition of leadership and could list the three types of leadership styles.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #8

1. Outcome Measures

Number of trained volunteer leaders that independently organize and manage school and community youth clubs.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	6

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

It has been increasing difficult to recruit and retain volunteer leaders to recruit minority youth for community and school-based 4-H club. Many of the volunteer leaders that are currently working with community and school clubs lack the skills needed to manage, facilitate, and provide educational, cultural, and citizenship opportunities for the youth enrolled in these clubs.

What has been done

To address this problem, the 4-H volunteer leaders attended and participated in the 4 local community 4-H Volunteer Leaders Trainings; 2015 Southern 4-H Volunteer Leader Forum/Training in Raymond, MS and the 2015 Annual Volunteer Leaders Forum in Starkville, MS. The training sessions were conducted by both ASUEP and MSUES Youth Specialists. The topics addressed were: 4-H 101; Youth and adult partnership; effective communication; 4-H SET; Nutrition Education and Physical Fitness and Financial Management. A total of 397 volunteer leaders from Adams, Claiborne, Copiah and Jefferson, Counties attended and participated in the forums.

Results

As a result of the Volunteer Leader Forums and trainings 55% of the 3 4-H volunteer leaders felt they were better prepared to work with youth in community and school clubs and will be able to provide a variety of educational, cultural and citizenship opportunities. 58% of the volunteers also reported that the felt more confidence in organizing, planning and implementing programs for the youth in the community and school clubs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #9

1. Outcome Measures

Number of youth that report seeking and gaining employment based on training and guidance provided by the 4-H program on financial well-being.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	20

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

According to the National Endowment for Financial Education, financial illiteracy is expensive to both individuals and society. Youth are particularly vulnerable because they not prepared to money their money and properly use credit card. Some leave high school and college already in debt. They need to learn to identify the uses as well as the abuses of credit and credit cards, and explore ways to effectively utilize them to be better able to spend, save, invest, and to meet their needs and wants.

What has been done

To address this, issue the Alcorn State University Program staff implemented 20 Financial Management Programs entitled "The Real World." The program provided information concerning money management and credit management. 2,957 youth from various school districts in Southwest Mississippi participated in various educational workshops that were designed to provide them with information and skills that help them manage their money, develop a budget and use credit cards wisely. The topics presented were the facts about money management, how to develop a budget, credit card facts and the advantages/disadvantages of credit cards.

Results

According to the post evaluation of the 2,957 youth participating in the program 55% reported that they understood the terms money management, goods, services and budget. They also understood how to budget for the three uses of money: spending, saving, and investing. 48% stated they could develop a budget. 47% increased their knowledge of credit and credit card usage. 57% reported they would be able to identify the pros and cons/uses and abuses of credit cards and apply this information.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #10

1. Outcome Measures

Number of youth that participate in science, engineering, and technology programs.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
It is the mission of the ASU 4-H Youth Development Program to empower youth to reach their full potential working and learning from caring adults. To provide direction this program will focus on one of the four Mission Mandates Science Engineering & Technology, building an interest and identifying opportunities for youth to pursue the field of science and technology.

What has been done
The Alcorn State University 4-H Extension staff conducted the 2015 National Science Day Experiment Motion Commotion! at Oak Forest and Wilkins Elementary Schools for 668 4th and 5th graders. The experiment was designed to help youth explore and learn about physics, speed and safety. Youth will explore the science of motion through the relationship of speed and stopping distance. The activity extends to real-world investigations on reaction time and safety, making connections to the dangers of distracted driving.

Results
The 668 youth participating in the event learned physic concepts, reaction time concern speed and stopping, they also have a better understanding of the danger of distracted driving. Develop math skills, learn about nutrition and help solve a relevant, global issue.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #11

1. Outcome Measures

Number of youth that participate in career/workforce development program to prepare for the future.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	25

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Youth and adults in Mississippi often make unhealthy decisions concerning food and lifestyle choices and many live sedentary life styles. These decisions occur in all communities with people

of all ages. These choices result in 41.7% of the population being obese or overweight. According to the Surgeon General, being overweight or obese is a risk factor for health issues such as: increased blood pressure (hypertension), Type II diabetes, heart Disease increased cholesterol, insulin resistance, sleep apnea, depression, and anxiety.

What has been done

Alcorn State University Extension Program staff (ASUEP) conducted 25 Career/Workforce programs in the Jefferson County Voc. Tech Center, Natchez High School, Mayor?s Youth Urban Corp, AJFC Community Action Agency, Annie Jeffers Library and Claiborne County School District for 746 Youth ages 14 to 18. Topics addressed were: Establishing career goals; Preparing job search tools; Selling yourself to a potential employer and dressing for success.

Results

Of the 746 youth participating in the educational programs 48% stated that they have a better understanding of the job search process. After completing the session on preparing job search tools 49% of the participants stated they would be able to properly complete these job search skills: (1) Develop a cover letter (2) Complete a job application and (3) Develop a resume. Thirty-six (36) percent indicated that they understand the do?s and don?ts of interviewing and would be able to successfully sell themselves at an interview.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #12

1. Outcome Measures

Increase number of limited-resource families and youth who utilize both healthy eating practices and physical fitness to manage obesity, weight and health related diseases.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	99

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Youth and adults in Mississippi often make unhealthy decisions concerning food and lifestyle choices and many live sedentary life styles. These decisions occur in all communities with people of all ages. These choices result in 41.7% of the population being obese or overweight. According to the Surgeon General, being overweight or obese is a risk factor for health issues such as: increased blood pressure (hypertension), Type II diabetes, heart Disease increased cholesterol, insulin resistance, sleep apnea, depression, and anxiety.

What has been done

The Alcorn State University Extension Program conducted 99 Health and Wellness educational workshops in local schools and communities. 15,450 Youth and 950 adults participated in the educational workshops and activities a total of 6,594 youth & adults participated in the Health and Wellness Programs. The workshops focused on the following topics: Breakfast First, Healthy Food Choices, Healthy Snacking, Consuming Fruit and Vegetables, and The Importance of Being Physically Active.

Results

Of the 16,400 youth and adults participating in the Health and wellness Program 58% of the participants felt that they are better equipped to make healthier food choices and eat and prepare healthy snacks. 59% stated that they will be able to use the knowledge and skills learned to make healthier food and snack choices. 64% reported they will make better food choices that will improve their lifestyle. 69% reported they will include 30 minutes of physical activity to maintain a healthy lifestyle.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)
- Other (Relocation of youth)

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

MSU Extension agents and specialists, as well as MAFES faculty, used a variety of recommended methods to gather needed information. Specific strategies were initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples). In FY 2015, MSU Extension agents and specialists were required to submit four quarterly reports (January, April, July, and September). This quarterly report collects information about the number of contacts, types of contacts, and number of programs conducted in each Planned Program Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements from MSU Extension and MAFES faculty and staff is also made. The evaluation results shared through our impact statements are a combination of this quantitative and qualitative data.

MSU also has a Standardized Extension Evaluation Survey designed for use in any MSU Extension Service program, workshop, or event with adults. The survey assesses program process, participant satisfaction, knowledge and/or skill change, and behavioral intentions. It provides a ready-made evaluation for agents and specialists to use and will allow us to aggregate data across the state. The number of agents and specialists utilizing the survey has been increasing.

MSU utilizes the 4-H Common Measures instruments to evaluate various 4-H programming (e.g., robotics, nutrition, physical activity).
ASU utilized the 4-H Common measures evaluation system to evaluate various 4-H Programs

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 10

1. Name of the Planned Program

Family and Consumer Sciences

☑ 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	0%	5%	2%	0%
702	Requirements and Function of Nutrients and Other Food Components	0%	0%	3%	0%
703	Nutrition Education and Behavior	20%	30%	1%	0%
704	Nutrition and Hunger in the Population	0%	0%	1%	0%
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	5%	0%	2%	0%
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	5%	0%	31%	0%
722	Zoonotic Diseases and Parasites Affecting Humans	0%	0%	3%	0%
723	Hazards to Human Health and Safety	0%	0%	20%	0%
724	Healthy Lifestyle	25%	30%	1%	0%
801	Individual and Family Resource Management	15%	20%	0%	0%
802	Human Development and Family Well-Being	30%	15%	36%	0%
	Total	100%	100%	100%	0%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2015	Extension		Research	
	1862	1890	1862	1890
Plan	39.9	6.2	6.0	0.0
Actual Paid	46.2	5.0	4.2	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
1236829	228818	188618	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
1236829	228818	352085	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	3445154	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Considering the breadth of this program, Extension and research focused on numerous areas:

- healthy lifestyles education (nutrition, health, fitness, wellness, and obesity),
- proper food handling,
- family resource management,
- preparing a competent early child care workforce, and
- human development.

A variety of approaches were utilized:

- Educational programs, events, and activities, as well as research, in local schools and communities;
- Hands-on application and demonstration related to community gardens, nutrition education, and physical fitness; and
- Training, technical assistance, and certification for childcare workers and centers.

2. Brief description of the target audience

At MSU, the audience for this program included all Mississippians. Aspects of this program targeted specific professionals or employees, such as food handlers (food safety) and early care/education providers (Mississippi Child Care Research and Referral Network). Other activities in this program--such as those focused on childhood obesity and human health and nutrition--had a broader focus.

At ASU, the target audiences were at-risk youth between the ages of 5 to 19, adults, volunteers, limited-resource families, and limited-resource and socially disadvantaged communities.

3. How was eXtension used?

At MSU, the resources provided through eXtension were used to supplement and enhance our public learning experiences provided by MSU Extension agents and specialists. eXtension was also used as a resource in state-based planning processes. Overall, 202 MSU employees are eXtension users. Further, MSU Extension has 68 employees that serve on one or more of the 68 Communities of Practice (COPs); MSU Extension employees are members of 39 COPs. 9 MSU Extension employees serve as a leader for a COP, leading 7 COPs.

2 MSU Extension personnel are members of the Community Nutrition Education COP. 5 MSU Extension personnel are members of the Community, Local and Regional Food Systems COP. 3 MSU Extension

personnel are members of the Creating Healthy Communities COP, with 1 being a leader. 4 MSU Extension personnel are members of the Educational Technology Learning Network. 2 MSU Extension personnel are members of the eXtension Alliance for Better Child Care COP. 4 MSU Extension personnel are members of the Extension Disaster Education Network. 2 MSU Extension personnel are members of the Families and Child Well-Being Learning Network COP. 11 MSU Extension personnel are members of the Families, Food, and Fitness COP, with 2 being leaders. 3 MSU Extension personnel are members of the Family Caregiving COP. 1 MSU Extension is a leader of the Financial Security for All COP. 3 MSU Extension personnel are members of the Food Safety COP. 2 MSU Extension personnel are members of the Healthy Food Choices in Schools COP. 3 MSU Extension personnel are members of the Just In Time Parenting COP. 5 MSU Extension personnel are members of the Network Literacy COP.

At ASU, eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2015	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	186932	222595	283134	323644

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

Patent Applications Submitted

Year:	2015
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2015	Extension	Research	Total
Actual	4	69	73

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of clientele attending workshops, seminars, and short courses. (MSU)

Year	Actual
2015	45752

Output #2

Output Measure

- Number of people attending certification courses. (MSU)

Year	Actual
2015	650

Output #3

Output Measure

- Conduct educational programs on nutrition, health, physical fitness, and wellness for limited-resource adults. (ASU)

Year	Actual
2015	53

Output #4

Output Measure

- Conduct research on nutrition, health, wellness, obesity, and opportunities for physical fitness on youth and adults. (ASU)
  Not reporting on this Output for this Annual Report

Output #5

Output Measure

- Disseminate information about nutrition, chronic diseases, and weight management. (ASU)

Year	Actual
2015	24

Output #6

Output Measure

- Conduct educational programs, events, and activities on effective parenting practices. (ASU)

Year	Actual
2015	22

Output #7

Output Measure

- Conduct educational programs on nutrition, health, physical fitness, and wellness for limited-resource youth. (ASU)

Year	Actual
2015	43

Output #8

Output Measure

- Conduct educational programs, events, and activities on family financial resource management. (ASU)

Year	Actual
2015	30

Output #9

Output Measure

- Conduct educational programs, events, and activities on food safety practices to preserve food quality and food sanitation. (ASU)

Year	Actual
2015	16

Output #10

Output Measure

- Conduct educational programs of food safety and sanitation practices. (ASU)

Year	Actual
2015	16

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of clientele reporting changes in lifestyle to improve health.
2	Number of foodservice professionals achieving required certification in food handling techniques.
3	Number of clientele who learn how to use nutritional guidelines to make food decisions.
4	Number of clientele adopting new practices related to financial management.
5	Number of clientele increasing wealth or reducing debt.
6	Number of families adopting recommended family strategies and behaviors.
7	Number of families reporting improved strengthened family life.
8	Number of early childhood providers maintaining certification requirements.
9	Number of early care and education providers increasing the quality of care provided to young children.
10	Number of early childhood educators increasing knowledge in child care and development content areas as measured by pre- and post-assessments.
11	Number of clientele (limited access to fresh fruit and vegetables) that report increase in access to healthy food and vegetables as the main sources of their everyday diets.
12	Number of clientele (limited access to exercise equipment and facilities) that report positive changes in physical activity, decreased caloric intake, and behavior changes connected to adoption of new recommendations on how to prepare healthier meals.
13	Number of limited-resource families and youth that report using better healthy eating practices and increased physical activity to manage obesity, weight, and health-related diseases.
14	Percentage of participants that utilized knowledge gained and made adjustments in their nutrition and lifestyle behaviors.
15	Number of limited-resource participants that demonstrate the adoption of effective parenting practices to improve parent/child relationships.
16	Number of limited-resource families and youth that report using learned skills to analyze their financial well-being and make effective financial management decisions.
17	Number of new technologies developed that enhance food safety and nutritional quality.

Outcome #1

1. Outcome Measures

Number of clientele reporting changes in lifestyle to improve health.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	1187

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
According to the Youth Risk Behavior Surveillance System, a majority of youth in Mississippi consistently report unhealthy dietary behaviors and physical inactivity. The Centers for Disease Control and Prevention recommends that health education be delivered in an in-school setting. Implementation of evidence-based 4-H Healthy Living programs in in-school settings could provide education on healthy behaviors related to diet and physical activity.

What has been done
MSU volunteers and the local 4-H agent were trained to implement Jump Into Food and Fitness (JIFF), a curriculum with evidence of improving healthy eating and physical activity. This program, consisting of 9 health education sessions, was taught in elementary schools. Each session was 1 hour. Health newsletters were given to all students to include parent involvement. Seventy-four students completed a pre- and post-survey.

Results
Participants indicated they learned what a healthy diet is, and why it is important. After the program there was a 7.6% increase in eating vegetables, a 12.3% increase in eating whole grains, and a 4.9% decrease in eating junk foods. There was an 8.15% increase in reports of engaging in moderate activities, and a 6% increase in exercising for 60 minutes a day. After the program, participants more frequently agreed that being active is good for them and will help them stay fit.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
723	Hazards to Human Health and Safety
724	Healthy Lifestyle
802	Human Development and Family Well-Being

Outcome #2

1. Outcome Measures

Number of foodservice professionals achieving required certification in food handling techniques.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	623

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Under the Mississippi Food Code, anyone seeking a license to serve food in MS is required to have at least one individual who has certified training in food safety. This requirement applies to commercial, institutional, catering, and other food service establishments. If a business or individual has more than one location, each location must have at least one individual trained. Required training leads to cleaner, safer facilities and employees with understanding of how food becomes unsafe and which groups are at an increased risk for foodborne illnesses.

What has been done
MSU Extension, in partnership with the MS Hospitality and Restaurant Association and the MS State Department of Health, provides the primary food safety management certification course in MS. The ServSafe program is an 8-16-hour, face-to-face training with a national certification offered by the NRAEF. Certification requires a score of 75 on a secure, proctored exam. Recertification is required every 5 years. MSU Extension employees provides a managerial course to personnel from a variety of food service operations. MSU Extension agents serve as instructors.

Results

From October 2014 to September 30, 2015, 48 classes were taught by 15 ServSafe certified MSU Extension instructors. A total of 337 participants completed the ServSafe Certification training. Passage rate for all attendees taking the certification exam was 71.8%. ServSafe certification courses were offered at 27 primary locations throughout the state of MS during the program year. MSU Extension instructors have been praised for their dedication and professionalism regarding the curriculum and training by many of the participants. The MSU Extension ServSafe program continues to be recommended by the MS State Department of Health to businesses and individuals seeking certification in MS.

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
802	Human Development and Family Well-Being

Outcome #3

1. Outcome Measures

Number of clientele who learn how to use nutritional guidelines to make food decisions.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	6304

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Poor diet and physical inactivity are the most important factors contributing to the epidemic of overweight and obesity in America as well as the shortened life spans and decreased quality of life associated with chronic diseases. In Mississippi, these chronic diseases are prevalent as indicated by 12% of Mississippians reporting diagnosis of diabetes, 40% reporting diagnosis of high blood pressure, and over 10% reporting some kind of cerebrovascular disease. MS rates the 3rd highest obesity rate at 35.5% for adults and 21.7% obesity rate for adolescents 10-17 years old.

What has been done

The USDA and the USDHHS release the Dietary Guidelines for Americans every 5 years. The goal of the Dietary Guidelines is to improve the health of our nation's current and future generations by facilitating and promoting science-based recommendations for healthy eating and physical activity. MSU Extension Service administers two nutrition education programs based on the Dietary Guidelines which serve resource-limited audiences by providing evidence-based education and helping to create communities that provide supportive environments.

Results

The Expanded Food and Nutrition Education Program (EFNEP) serves resource-limited families with children. After participating, 93% of EFNEP adult participants showed a positive change in consumption of at least one food group. As a result of EFNEP youth programs, 79% of youth improved their abilities to choose foods according to federal dietary recommendations or gained knowledge. Additionally, the Supplemental Nutrition Assistance Program Education (SNAP-Ed) actively provided nutrition education in public venues. After the intervention, 30% of elementary aged SNAP-Ed participants chose healthy snacks more frequently. Among middle school participants, 41% ate vegetables more frequently and 39% ate fruits more frequently. 34% of high school participants drank less sugar-sweetened beverages and 27% showed improvement in selection of whole grains.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle
802	Human Development and Family Well-Being

Outcome #4

1. Outcome Measures

Number of clientele adopting new practices related to financial management.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	927

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

According to the 2015-2016 College Board "Trends in College Pricing" study, increases in tuition and fee prices were relatively small, but the low rate of inflation made this year's increase in college prices larger than those from 2013-2015. There was a 14% decline in dollars borrowed through student loans, but total student loan debt rose to $1.16 trillion. 64% of full-time college students use loans to pay for college with 35% using loans as the primary funding source. 72% of college students reported financial stress, however, only 23% of students reported taking a financial class or workshop in college.

What has been done

The MSU Extension Center for Economic Education and Financial Literacy constructed a program for college students, Financial State of Mind. Peer and community mentors, classroom presentations, and various online modalities are used to create a behavioral-based learning experience both to address current financial practices and to foster and facilitate sound future financial beliefs and practices. Topics include budgeting and cutting costs, saving, investing, building good credit, minimizing student loan debt, preparing and paying for graduate school, and more.

Results

The MSU Extension Center for Economic Education and Financial Literacy worked with units across campus to develop a peer mentoring program and classroom presentation to provide students with strategies and tools to improve their financial habits and practices. Programs were presented in True Maroon and First Year Experience classes and through an interactive financial simulation called "Welcome to the Real World." Over 1,200 students were served in 2014 and 1,033 students were served in 2015. Participant evaluations showed most agreed or strongly agreed when asked if they found the presentations relevant to their situations and would attend more sessions. Participants improved in their understanding of the importance of delayed gratification and their ability to delay gratification.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
802	Human Development and Family Well-Being

Outcome #5

1. Outcome Measures

Number of clientele increasing wealth or reducing debt.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	593

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
First-time home purchasers applying for loans through Rural Housing are required to take a homebuyer education course and needed access to organizations that provided the course.

What has been done
In response, MSU Extension obtained the approval to offer the course through USDA. Extension is an approved provider of education required by USDA Rural Development for consumer applying for a home mortgage. Family Resource Management Extension Agents have provided homebuyer workshops to over 50 home buyers across the state.

Results
By offering homebuyer workshops, Extension helped these 50 homebuyers meet the requirement to complete a homebuyer education course. Considering that Mississippi homes have an average value of $114,500 (http://www.housingpredictor.com/2015-mississippi-real-estate/), the potential impact of this education could be $5,700,000. In addition, Extension agents participate in home planning seminars, homebuyer fairs, and one-on-one counseling to assist Mississippians in achieving the American dream of homeownership.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
802	Human Development and Family Well-Being

Outcome #6

1. Outcome Measures

Number of families adopting recommended family strategies and behaviors.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	834

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Recent research has highlighted the influence of non-clinical sleep disruptions on physical health, cognitive processing, and social-emotional health. However, scant information is available regarding non-clinical sleep of adults and less is known of associations between adult sleep and family processes. It is imperative to understand associations with parenting, as sleep takes place in the context of the family. Researchers aim to examine the association between maternal daytime sleepiness and three mother-reported parenting variables.

What has been done
58 mothers of preschool children (African American = 98%; M age = 29.73 years; SD = 8.88) participated in a 6-week MSU Extension program focused on enhancing children's school readiness through family conflict management and sleep hygiene education (SHAPE CARE). Mother relationship status was single (43%), married or living with a partner (29%), dating (19%), and did not report (9%). The data presented were gathered from the pre-education data collection. Maternal daytime sleepiness, coparenting quality, mother's perception of parenting ability, and parenting behaviors were assessed.

Results
All participants reported some level of daytime sleepiness, with 22% of the sample reporting levels that would be considered to be in the clinical range. Variability in scores were present for all parenting variables. Maternal daytime sleepiness was significantly associated with poor coparenting quality and lower parenting efficacy. Additionally, no significant associations were found between maternal daytime sleepiness and the use of negative parenting behaviors. Understanding rates of daytime sleepiness in mothers, as well as how sleepiness may impact parenting, particularly as it relates to at-risk populations, is essential for family researchers. Sleep is malleable and reflects both biological and sociocultural influences. Thus, it lends itself to be incorporated into intervention and prevention measures focused on improving parenting and family functioning.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
802	Human Development and Family Well-Being

Outcome #7

1. Outcome Measures

Number of families reporting improved strengthened family life.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	742

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Mississippi is a highly impoverished state with elevated rates of domestic violence, teenage pregnancy, child abuse and neglect, and single-family households; all of which significantly impact the health and well-being of children. Teenagers are at an increased risk for sleep difficulties, as are new parents. However, little is known about the sleep of teenage parents and their young children, and few, if any, interventions have targeted this population. This project focused on the delineation of the sleep of teenage parents and their young children.

What has been done
Participants in an MSU Extension parent education program focused on improving family functioning and sleep in teenage parent families consisted of 22 teenage parents (ages 17-25 years old; 18% fathers). These 18 families have a total of 20 children, with data gathered on 6 children ages 2-5 years. Participants were 50% Native American, 22.7% African American, and 27.3% of European American. Relationship status of participants were as follows: living with a partner (59.1%), dating (27.3%), married (4.5%), and single (9.1%).

Results
Research assistants called teen parents to obtain sleep diary information for 7 days/nights. To assess children's sleep, parents were asked to complete the BEARS Sleep Screening Tool, a 5-item assessment of children's sleep difficulties. Results indicate that teen parents are experiencing shorter sleep than recommended, but that they do not report their sleep to be a problem. The sleep data, although very preliminary, raise a number of questions regarding the sleep in this population: Do the teenage parents recognize child sleepiness?, How do teenage parents define a "regular" sleep routine?, Are parents sleeping through child night wakings?, and What does a bedtime routine within these homes look like? Results indicate that teen parents are experiencing less sleep than recommended, but that they do not report their sleep to be a problem.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
802	Human Development and Family Well-Being

Outcome #8

1. Outcome Measures

Number of early childhood providers maintaining certification requirements.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	271

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Across state and national lines, education requirements for early childhood educators are increasing. Additional professional development creates providers who deliver more developmentally-appropriate care and education and higher quality classroom experiences to young children than those who do not participate in advanced levels of education. The Child Development Associate credential serves as the professional education tool that inspires and enables best practices beyond the annually required 15 contact hours of staff development.

What has been done
The Child Development Associate Credential, MS Director's Credential, and National Director's Credential have been adopted by MSU's Early Years Network (EYN). In November 2014, EYN began providing a Special Needs Credential to provide performance-based training, assessment, and credentialing of early care and education teachers. EYN provides opportunities to access these credentials through scholarships made available with funding provided by the MS DHS. Child care educators are provided with a plethora of staff development opportunities.

Results
There were 71 early care and education teachers who completed the CDA with more than 8,500 online training hours successfully accomplished. There were 12 early care and education teachers who renewed their CDA with more than 500 online training hours successfully accomplished. There were 121 early care and education teachers who completed the MS

Director's Credential with over 16,000 training hours successfully completed. There were 27 early care and education teachers who completed the National Director's Credential with more than 3,800 online training hours successfully accomplished. There were 40 early care and education teachers who completed the Special Needs Credential with 1,600 training hours successfully completed.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #9

1. Outcome Measures

Number of early care and education providers increasing the quality of care provided to young children.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	103

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Mississippi has over 1,500 licensed child care facilities and over 1,100 documented family child care facilities. On average, classrooms in licensed centers and family homes that enroll in the Network's technical assistance programs have Environment Rating Scale pre-assessment scores of 2.62 and 3.57, respectively, out of a 7-point scale.

What has been done
MSU's Early Years Network has continued to reach out to child care facilities to provide research-based technical assistance to improve the quality of care provided to children. The technical assistance programs offer developmentally-appropriate, two-hour lessons and mentoring as a solution to the issue.

Results
There were 27 licensed child care facilities and 76 family child care facilities that increased the quality of care provided to children. Post-assessment scores increased in both settings as measured by the Environment Rating Scale. Licensed centers scored 3.44 and in-home providers scored 5.10 on the 7-point ERS scale after technical assistance. This increase in scores indicates

that centers in the state that have not received assistance provide less than minimum quality education to the children they serve.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle
802	Human Development and Family Well-Being

Outcome #10

1. Outcome Measures

Number of early childhood educators increasing knowledge in child care and development content areas as measured by pre- and post-assessments.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
There is a demand for early care and education providers in Mississippi to improve the quality of care provided to children through use of research-based, developmentally-appropriate practices. The Quality Rating and Improvement System, known as Quality Stars, while a voluntary program, has more stringent requirements for education and staff development hours for centers enrolled in the program beyond the 15 contact hours required for licensing.

What has been done
MSU's Early Years Network provided workshop opportunities on the Mississippi Early Learning Guidelines (ELG) and Mississippi Early Learning Standards (ELS) developed from curricula created by the Division of Early Childhood Care and Development of the Mississippi Department of Human Services in collaboration with the Mississippi Department of Education.

Results
Due to the creation and implementation of the ELSs over the past fiscal year, the pre- and post-assessments are undergoing a revision to more accurately convey the early childhood educators' understanding of training received and its subsequent effect on their content area knowledge.

Thus official assessments were not conducted related to knowledge increases.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #11

1. Outcome Measures

Number of clientele (limited access to fresh fruit and vegetables) that report increase in access to healthy food and vegetables as the main sources of their everyday diets.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	5328

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Mississippi continues to have the highest obesity rate in the nation. Overweight children significantly miss more school days and their academic performances are lower than non-overweight children. The risk factors for heart disease (such as high cholesterol and high blood pressure) and Type 2 diabetes occur more frequently in overweight children. The good news is that we have a growing body of evidence and approaches that we know can help reduce obesity, improve nutrition and increase physical activity based on making healthier choices easier for Americans. The bad news is we're not investing anywhere near what we need to in order to bend the obesity curve and see the returns in terms of health and savings. Obesity-related conditions, include heart disease, stroke, type 2 diabetes and certain types of cancer, are some of the leading causes of preventable death.

What has been done
Extension program implemented the 6 week program that promotes physical activity, proper nutrition, and gardening. The physical activity education was taught using an Aerobics and Fitness Association of America (AFAA) certified primary group exercise and personal trainer staff that allowed participants to learn exercises including proper stretching, basic aerobic exercise, and exercise modification. The nutrition education was taught using the Choose Health; Food, Fun, Fitness (CHFFF) curriculum from Cornell University and the Eat Smart, Be Active curriculum from Kansas State University. Participants learned the basics on reading food labels, how to

increase fruit and vegetable consumption, and food safety. The garden education was taught using "The Garden Tabloid" with participants learning the basics to starting a garden, including how to take a soil test, selecting crops to plant, and how to care for plants. Participants learned how to start and maintain container gardens.

Results
50% of program participants have maintained a garden to benefit the family or community and have engaged limited resource youth, adults and families with learning about agriculture and gardening. In addition, a community garden has been established that will act as a community learning site with a master plan that calls for a walking trail to encourage physical activity.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #12

1. Outcome Measures

Number of clientele (limited access to exercise equipment and facilities) that report positive changes in physical activity, decreased caloric intake, and behavior changes connected to adoption of new recommendations on how to prepare healthier meals.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	5938

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Mississippi continues to have the highest obesity rate in the nation. Overweight children significantly miss more school days and their academic performances are lower than non-overweight children. The risk factors for heart disease (such as high cholesterol and high blood pressure) and Type 2 diabetes occur more frequently in overweight children. The good news is that we have a growing body of evidence and approaches that we know can help reduce obesity, improve nutrition and increase physical activity based on making healthier choices easier for Americans. The bad news is we're not investing anywhere near what we need to in order to bend the obesity curve and see the returns in terms of health and savings. Obesity-related conditions, include heart disease, stroke, type 2 diabetes and certain types of cancer, are some of the leading causes of preventable death.

What has been done

Extension program implemented the 6 week program that promotes physical activity, proper nutrition, and gardening. The physical activity education was taught using an Aerobics and Fitness Association of America (AFAA) certified primary group exercise and personal trainer staff that allowed participants to learn exercises including proper stretching, basic aerobic exercise, and exercise modification. The nutrition education was taught using the Choose Health; Food, Fun, Fitness (CHFFF) curriculum from Cornell University and the Eat Smart, Be Active curriculum from Kansas State University. Participants learned the basics on reading food labels, how to increase fruit and vegetable consumption, and food safety. The garden education was taught using "The Garden Tabloid" with participants learning the basics to starting a garden, including how to take a soil test, selecting crops to plant, and how to care for plants. Participants learned how to start and maintain container gardens.

Results

Local communities groups have been able to secure funding for walking trails and community park revitalization projects with support from ASU Extension. 50% of trails targeted for this year have been paved or improved. These walking trails will encourage communities to become physically active through walking and new playground equipment will encourage children to be physically active in outdoor environments.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #13

1. Outcome Measures

Number of limited-resource families and youth that report using better healthy eating practices and increased physical activity to manage obesity, weight, and health-related diseases.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	7655

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Mississippi continues to have the highest obesity rate in the nation. Overweight children significantly miss more school days and their academic performances are lower than non-overweight children. The risk factors for heart disease (such as high cholesterol and high blood pressure) and Type 2 diabetes occur more frequently in overweight children. The good news is that we have a growing body of evidence and approaches that we know can help reduce obesity, improve nutrition and increase physical activity based on making healthier choices easier for Americans. The bad news is we're not investing anywhere near what we need to in order to bend the obesity curve and see the returns in terms of health and savings. Obesity-related conditions, include heart disease, stroke, type 2 diabetes and certain types of cancer, are some of the leading causes of preventable death.

What has been done

Extension program implemented the 6 week program that promotes physical activity, proper nutrition, and gardening. The physical activity education was taught using an Aerobics and Fitness Association of America (AFAA) certified primary group exercise and personal trainer staff that allowed participants to learn exercises including proper stretching, basic aerobic exercise, and exercise modification. The nutrition education was taught using the Choose Health; Food, Fun, Fitness (CHFFF) curriculum from Cornell University and the Eat Smart, Be Active curriculum from Kansas State University. Participants learned the basics on reading food labels, how to increase fruit and vegetable consumption, and food safety. The garden education was taught using "The Garden Tabloid" with participants learning the basics to starting a garden, including how to take a soil test, selecting crops to plant, and how to care for plants. Participants learned how to start and maintain container gardens.

Results

Approximately 50% of program participants have continued with healthier lifestyle choices, including healthier eating and increased physical activity, and have provided assistance to their local communities with support from ASU Extension to promote healthier lifestyle choices. Youth that have participated in the program are able to make healthier food options and increase physical activity in an effort to control obesity and obesity-related diseases.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle
801	Individual and Family Resource Management
802	Human Development and Family Well-Being

Outcome #14

1. Outcome Measures

Percentage of participants that utilized knowledge gained and made adjustments in their nutrition and lifestyle behaviors.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	44

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Mississippi remains one of two states in the United States with the highest rates of overweight and obesity. The prevalence of obesity was found to be at 35% or greater (35.1) by the Behavioral Risk Factor Surveillance System (BRFSS) and Center for Disease Control and Prevention (CDC), 2013. In Mississippi, 32.5% of adults and children were found to be obese and 44.4% of children ages 10 to 17 to be classified as overweight or obese. Fayette, MS of Jefferson County, has an extremely high concentration of overweight and obese residents and is definitely one of the poorest counties in the United States as well as Mississippi. Residents of Jefferson County and an adjacent County, Claiborne County have very low average incomes and high unemployment rates.

What has been done
ASU Extension Program conducted healthy lifestyle educational programs/efforts incorporating interactive activity with behavior modification mentoring to empower targeted participants to better enact behavior changes relative to improved dietary quality, physical activity, food resource management, food safety behaviors, food security management, family financial management, a decreased prevalence of lifestyle-related chronic diseases, and other healthy lifestyle concerns pertinent to the target population. Specific programs were conducted in various venues, including churches, community centers, health fairs, schools, community programs, and other agencies in alignment with needs of the participants.

Results
After conduction of healthy lifestyle programs/efforts among the target populations, the pre-/post survey showed a 49% healthy lifestyle behavior change improvement for adult participants and a 38% improvement for youth participants.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle
801	Individual and Family Resource Management
802	Human Development and Family Well-Being

Outcome #15

1. Outcome Measures

Number of limited-resource participants that demonstrate the adoption of effective parenting practices to improve parent/child relationships.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	192

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Educational programs for limited-resource families and youth are needed to help families focus on utilizing financial management skills to analyze their financial well-being and also help them to make better financial management decisions. The more confident families become the better chances they have at working towards financial fortitude for themselves and their families in the future. Educational programs are available for all needed participants and families to promote financial security.

What has been done
Extension program implemented several programs for limited-resource families and youth are needed to help them focus on utilizing financial management skills that would help them strengthen their abilities to sustain and build their families wealth. Participants learned basic knowledge on preparing family budgets, ways to effectively save money, grocery store tours, and Real-World experiences that allowed them to enact real life situation where the participants need to adhere to a given budget.

Results
Participates expressed positive changes within their family lives and actively expressed how the educational programs help them make better financial management decisions. Participants also expressed the need for more in-depth programs pertaining to this topic and those similar.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #16

1. Outcome Measures

Number of limited-resource families and youth that report using learned skills to analyze their financial well-being and make effective financial management decisions.

Not Reporting on this Outcome Measure

Outcome #17

1. Outcome Measures

Number of new technologies developed that enhance food safety and nutritional quality.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2015	4

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Vibiro parahaemolyticusis (Vp) is an enteric pathogen found in estuaries and various types of seafood throughout the world. Vp infections can cause gastroenteritis in humans and are most frequently associated with consumption of raw or undercooked seafood. Detection and elimination of contaminated seafood from the value chain is essential for reducing morbidity and mortality associated with Vp.

What has been done
MAFES scientists have developed rapid, inexpensive assay kits based on 2 biomarker expressions that provide high selectivity and specificity for detecting Vp contamination at concentrations as low as a single cell.

Results
Illness outbreaks cause by Vp have led to multiple closures and greatly disrupted the oyster industry, producing substantive economic losses. The interstate Shellfish Sanitation Conference has requested that FDA reassess the Vp risk calculator used by states to evaluate monthly risk levels. The availability of a validated method that is simple, fast, and economical will greatly enhance the accuracy of risk models that underpin regulatory compliance.

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
722	Zoonotic Diseases and Parasites Affecting Humans
723	Hazards to Human Health and Safety

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 Programmatic Challenges
- Other (Cultural traditions)

Brief Explanation

Alcorn State University School of Agriculture, Research, Extension and Applied Sciences (AREAS) went through substantial changes in 2015 with the reorganization of the Extension Program, the Research Department Leadership and the Leadership for the School or AREAS that governs both of those units. Also, there were a number of positions that became vacant, and there were some difficulties were replacing them within the time frame to carry out the duties and responsibilities of their position.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

MSU Extension agents and specialists, as well as MAFES faculty, used a variety of recommended methods to gather needed information. Specific strategies were initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples). In FY 2015, MSU Extension agents and specialists were required to submit four quarterly reports (January, April, July, and September). This quarterly report collects information about the number of contacts, types of contacts, and number of programs conducted in each Planned Program Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements from MSU Extension and MAFES faculty and staff is also made. The evaluation results shared through our impact statements are a combination of this quantitative and qualitative data.

MSU also has a Standardized Extension Evaluation Survey designed for use in any MSU Extension Service program, workshop, or event with adults. The survey assesses program process, participant satisfaction, knowledge and/or skill change, and behavioral intentions. It provides a ready-made evaluation for agents and specialists to use and will allow us to

aggregate data across the state. The number of agents and specialists utilizing the survey has been increasing.

Key Items of Evaluation

Information from the evaluation will be of use to all the different type of stakeholders; some will be needed by only one or two of the groups. The program leaders will want to know how many people were reached and served by the initiative, as well as whether the initiative had the community -level impact it intended to have. They will work with Community groups because they also may want to use evaluation results to guide them in decisions about their programs, and where they are putting their efforts. University-based researchers will likely be interested in proving whether any improvements in community health were caused by your programs or initiatives; they may also want to study the overall structure of your group or initiative to identify the conditions under which success may be reached.

VI. National Outcomes and Indicators

1. NIFA Selected Outcomes and Indicators

Childhood Obesity (Outcome 1, Indicator 1.c)	
8564	Number of children and youth who reported eating more of healthy foods.
Climate Change (Outcome 1, Indicator 4)	
2	Number of new crop varieties, animal breeds, and genotypes whit climate adaptive traits.
Global Food Security and Hunger (Outcome 1, Indicator 4.a)	
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.
Global Food Security and Hunger (Outcome 2, Indicator 1)	
1	Number of new or improved innovations developed for food enterprises.
Food Safety (Outcome 1, Indicator 1)	
4	Number of viable technologies developed or modified for the detection and
Sustainable Energy (Outcome 3, Indicator 2)	
0	Number of farmers who adopted a dedicated bioenergy crop
Sustainable Energy (Outcome 3, Indicator 4)	
0	Tons of feedstocks delivered.