

# 2012 Mississippi State University Combined Research and Extension Annual Report of Accomplishments and Results

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## I. Report Overview

### 1. Executive Summary

This Plan of Work Report is a joint report from the Mississippi State University Extension Service (MSU Extension) and the Mississippi Agricultural and Forestry Experiment Station (MAFES) on 1862 Extension and Research efforts. The report is divided among 23 programs defined in the Five-Year Plan. This report includes efforts and results related to a total Hatch appropriation of \$4,863,359 and a total Smith-Lever appropriation of \$6,885,879.

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 FY 2012, MSU Extension professionals (256.2 total FTE) carried out 126,170 educational activities with a total of 3,633,357 contacts.

The Mississippi Agricultural and Forestry Experiment Station (MAFES) conducts fundamental and applied research leading to discovery of knowledge that supports agricultural production, economic development, improved nutrition, food safety, and human health, which benefits all citizens of Mississippi. MAFES develops and delivers emerging technologies to agricultural producers, bridging the gap between science and application. During FY2012 MAFES scientists (59.5 total FTE) produced 419 peer-reviewed scientific publications, 349 other technical publications, 13 patent applications, and supported 338 graduate students.

In 2012, the U.S. Census estimated Mississippi to have approximately 2,984,926 citizens. The population demographics in Mississippi pose unique challenges with a wide range of diversity including both the agricultural and human sectors. In addition to its traditional programming for Mississippi citizens in 2012, Mississippi also dealt with several natural disasters and was able to assist with recovery efforts. Further, significant work was undertaken during FY 2012 to refine state plans, refine our NIFA priority program areas and create new strategic plans.

Grant-funded projects (such as the Mississippi Child Research and Referral Centers) enabled MSU Extension and MAFES to increase actual professional FTEs over our projected number.

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

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	210.0	0.0	53.0	0.0
Actual	256.2	0.0	59.5	0.0

## II. Merit Review Process

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

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

### 2. Brief Explanation

Research projects utilized both an internal university panel and an expert peer review as part of the regional research networks. These reviews covered all aspects of research project proposals, including scientific merit, budgets, and suitability of the research mission for the unit, experiment station, and regional consortium. In addition, commodity-specific advisory committees are used to make research as applicable as possible to the state's needs. Research projects by MAFES scientists are conducted under an approved CRIS project which is reviewed at 3 levels: 1) 2 external and 1 internal discipline specific experts; 2) two internal administrative levels (Department Head and Associate Director); and 3) externally through the CRIS approval process. MAFES annually sponsors several internally competitive RFPs, funded in part with Hatch funds. An RFP is released describing research priorities, format, and evaluation criteria. Submitted proposals are reviewed by an internal/external panel (4 reviewers) based on objective criteria, ranked, and select proposals funded with a 25-45% success rate.

Extension programs underwent an internal university panel review. This review takes into consideration the need for the program (including stakeholder input), the methods utilized, the audience identified, and the methods for outcome/impact evaluation. Each of the programs also has an advisory panel (external non-university panel) which reviewed programs in terms of the need, resources allocated, and expected outcomes. These advisory panels are specific to the programs being delivered. Each advisory panel consisted of industry and/or community leaders in the area of review. The panel members are selected to be reflective of the community represented, and as such reflect the diversity of race, gender and socioeconomic status of the programs' clientele.

An example of one combined internal and external university and external non-university panel is below:

The School of Human Sciences at MSU is home to 24 faculty members, of which 12 have part- or full-time Extension appointments. In September 2012, the School held its first Advisory Council meeting comprised of members representing various organizations such as MSU Extension, local service agencies, local businesses, national corporations, public school systems, and commodity groups. Sessions were held to discuss future education and programming ideas. The Human Development and Family Studies session recommended: 1) more networking to emphasize the importance of relationships to students and 2) community involvement and service learning projects early in coursework. The Agricultural Information Science session focused on the agricultural education program. Many Agriculture and Extension Education masters and doctoral students are current or future MSU Extension employees. Some skills identified needed by graduates were: scientific and general agricultural knowledge; lifelong learning; recognizing social climate of communities to gain support for and promote agricultural programs/services; building relationships among agricultural education components of Extension, teaching, and industry/communications; using advisory committees to conduct needs assessments; and planning, delivering, and evaluation programs.

### 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 specifically with non-traditional groups
- Survey specifically with non-traditional individuals
- Survey of selected individuals from the general public

#### **Brief explanation.**

Efforts to determine economic, social, and environmental issues began with County Extension Advisory Councils. Further needs assessment was carried out through Research and Extension Center Advisory Councils, and through formal and informal interaction with other stakeholders. Issues identified include concerns to be addressed with Extension and/or research programs.

#### County Extension Advisory Councils:

As a formal process, key clientele met under the leadership of county Extension professionals to review results of programs and identify key issues to be addressed in the county or area. Input came from three different groups: the Overall Extension Advisory Council, Program Advisory Councils, and other stakeholders.

#### Overall Extension Advisory Councils:

MSU Extension has an Overall Extension Advisory Council in each county. These advisory councils meet a minimum of two times per year to discuss programming efforts, evaluate programs, legitimize program efforts, assess needs for future programming, and identify human and financial resources needed for county programming. This group includes leaders who provide input from business, social, and economic entities as well as those who represent the needs of underserved and underrepresented clientele.

#### Program Advisory Councils:

Program and/or commodity advisory groups in each county act as subcommittees of the overall advisory council, including people who represent the interests of agriculture, family & consumer sciences, 4-H youth, and community/rural development issues. These groups meet at least two times per year to identify specific areas of program needs, delivery and evaluation.

#### Other Stakeholders:

MSU Extension professional agents are also required to obtain information regarding clientele needs from people outside the advisory councils. They must give special attention to key community leaders and representatives of underserved populations, making sure all groups who are possible beneficiaries of MSU Extension programming efforts are included. These groups meet several times during the year to offer input and react to Extension's efforts to address key issues in the community. MAFES and MSU Extension administration meet annually with state-specific commodity boards representing corn, soybean, cotton, rice, and peanut producers. Annual commodity board meetings help to understand producer requirements, establish research priorities, and communicate research outcomes. MAFES assists commodity board 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 led discussions about programming and research efforts and assessed needs. Various subgroups of the 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. These key partners include such organizations as the 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.

**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
- Open Listening Sessions
- Needs Assessments

**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.

Each year, and again in 2012, MSU Extension and MAFES administrators travelled 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.

**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
- Survey specifically with non-traditional individuals

### **Brief explanation.**

Meetings with traditional stakeholder groups, the general public, and specifically with nontraditional groups are an on-going 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.

As one example, for the past 57 years, the Northeast Mississippi Research and Extension Center has held an annual Producers Advisory Council meeting. At this meeting, 15 Commodity Committees develop and offer a list of 3-5 recommendations for MSU Extension and MAFES to address with Extension/outreach and research activities. In 2012, 150 producers from 27 North MS counties attended this meeting, along with over 110 industry and MSU personnel.

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

- To Identify Emerging Issues
- Redirect Extension Programs
- Redirect Research Programs
- In the Action Plans
- To Set Priorities

### **Brief explanation.**

Stakeholder input had an influence on most aspects of this Plan of Work. Issues were identified through the needs assessment process discussed earlier. The issues helped 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.

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

Each of our programs gain information from stakeholders that is, in turn, used to guide programming and effort.

In 2012, Mississippi experienced a large increase in peanut acreage from 14,000 acres grown in 2011 to about 47,000 acres grown in 2012. This acreage increase brought forth many producers who were new to the crop and needed information and resources in order to be successful. In 2012, the peanut advisory group was critical in relaying the training needs of the new peanut growers/producers and shared information as to how to target this group with educational programs. As a result of their input, MSU Extension conducted three producer educational meetings and three pod-blasting workshops (hands-on) to share critical knowledge and skills with new peanut producers. In response to needs expressed by peanut producers, MSU Extension and MAFES cooperated to develop a new peanut Extension Specialist/Research Professor position that will be filled during CY2013.

As another example, one of MSU's Extension Family Life Specialists held a series of informal needs assessments in 2012, meeting with seven MSU Extension Area Agents and numerous representatives of Community-Based Organizations (CBOs) in Mississippi (e.g., Starkville Teen Parent Coalition, Governor's Teen Pregnancy Prevention Task Force, Institute of Community Services). The most consistent need identified was comprehensive programming for pregnant and parenting teens. Agents also indicated a need for culturally relevant program materials for teen parents. The Governor's Teen Pregnancy Prevention Task Force, on which the Family Life

Specialist serves, works to engage teen parents in evidence-based interventions that will assist them in making healthy decisions for themselves and their children.

IV. Expenditure Summary

<b>1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)</b>			
<b>Extension</b>		<b>Research</b>	
<b>Smith-Lever 3b &amp; 3c</b>	<b>1890 Extension</b>	<b>Hatch</b>	<b>Evans-Allen</b>
6885879	0	4863359	0

<b>2. Totaled Actual dollars from Planned Programs Inputs</b>				
<b>Extension</b>			<b>Research</b>	
	<b>Smith-Lever 3b &amp; 3c</b>	<b>1890 Extension</b>	<b>Hatch</b>	<b>Evans-Allen</b>
<b>Actual Formula</b>	6885879	0	4164921	0
<b>Actual Matching</b>	6885879	0	4245494	0
<b>Actual All Other</b>	0	0	19954753	0
<b>Total Actual Expended</b>	13771758	0	28365168	0

<b>3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous</b>				
<b>Carryover</b>	0	0	2022161	0

## V. Planned Program Table of Content

S. No.	PROGRAM NAME
1	4-H Youth Development
2	Global Food Security and Hunger - Agronomic Crops
3	Global Food Security and Hunger - Animal Science/Forages
4	Global Food Security and Hunger - Aquaculture
5	Global Food Security and Hunger - Poultry
6	Global Food Security and Hunger - Risk/Farm Management
7	Nutrient Management/Water Quality
8	Climate Change
9	Sustainable Energy
10	Integrated Pest Management
11	Forestry
12	Horticulture
13	Wildlife and Fisheries
14	Enterprise and Community Development
15	Food Safety
16	Human Nutrition
17	Childhood Obesity
18	Human Health
19	Early Care and Education
20	Family Life
21	Family Resource Management
22	Family Leadership Development

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

**Program # 1**

**1. Name of the Planned Program**

4-H 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
806	Youth Development	100%		0%	
	<b>Total</b>	100%		0%	

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

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

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	62.5	0.0	0.0	0.0
Actual Paid Professional	84.9	0.0	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
2280760	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
2280760	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

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

**1. Brief description of the Activity**

Activities

- Recruit Youth and Volunteers
- 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 the following:
  - 4-H Club Congress
  - District Achievement Days
  - County, State, & Regional Fairs
  - Livestock and Horse Shows

work: To provide training to Extension personnel on experiential education through subject-matter

- Chartering all 4-H Clubs and groups
- Four Essential Elements
- Legal Use of the Name and Emblem
- Diversity Training
- Financial Management

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

All Mississippians between the ages of 6 and 18.

**3. How was eXtension used?**

eXtension was not used in this program

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

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	136257	129635	317933	302482

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

**Patent Applications Submitted**

Year: 2012

Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	10	0	0

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

**Output Target**

**Output #1**

**Output Measure**

- Number of youth enrolled in 4-H Clubs.

<b>Year</b>	<b>Actual</b>
2012	23383

**Output #2**

**Output Measure**

- Number of clubs operating on military bases.

<b>Year</b>	<b>Actual</b>
2012	4

**Output #3**

**Output Measure**

- Number of youth-at-risk who join 4-H clubs.

<b>Year</b>	<b>Actual</b>
2012	7794

**Output #4**

**Output Measure**

- Number of volunteers attending local and/or district training.

<b>Year</b>	<b>Actual</b>
2012	2542

**Output #5**

**Output Measure**

- Number of volunteers attending state volunteer leaders conference.

<b>Year</b>	<b>Actual</b>
2012	491

**Output #6**

**Output Measure**

- Number of volunteers attending the regional 4-H volunteer leaders forum.

<b>Year</b>	<b>Actual</b>
2012	49

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

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

O. No.	OUTCOME NAME
1	Adult and youth volunteers increasing their knowledge and skills in being effective volunteer leaders.
2	Volunteers participating in training conferences incorporate their skills gained from training to work with 4-H clubs.
3	Volunteer-managed 4-H clubs are sustained at the local level.
4	Number of youth who improve life skills.
5	Number of youth who increase knowledge of subject-matter areas.
6	Number of 4-H projects completed.
7	Youth increase their involvement in leadership events and activities at the district, state, and national levels.

**Outcome #1**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	8139

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

**Issue (Who cares and Why)**

Volunteers are essential to the successful delivery of 4-H programs to youth.

**What has been done**

4-H volunteers lead clubs and projects and coordinate or teach school enrichment programs or special interest programs. They also may serve on county advisory boards, fundraising teams, or committees. A variety of methods and locations are available for volunteers to get the latest information or learn new project skills: workshops, forums, and conferences conducted at the county, district, state, and national levels via traditional face-to-face activities or distance education.

**Results**

Each year, the Mississippi 4-H Volunteer Leaders Association recognizes outstanding 4-H leaders for their work and dedication to the Mississippi 4-H program. In 2012, 8 of the 8,139 4-H volunteer leaders in the state were recognized.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

**Outcome #2**

**1. Outcome Measures**

Volunteers participating in training conferences incorporate their skills gained from training to work with 4-H clubs.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	3082

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

**Issue (Who cares and Why)**

The 4-H club program demands a great deal of salaried staff time. The most cost-effective way to reach 4-H youth is to develop a productive staff of volunteers.

**What has been done**

In 2012, more than 8,139 adults served as Mississippi 4-H volunteer leaders working directly and indirectly with Mississippi youth.

**Results**

On average, a 4-H volunteer leader donates 220 hours per year preparing for club meetings and teaching youth. According to national research, the dollar value of volunteer time in Mississippi is \$15.43 per hour, which means the value of volunteer leaders to Mississippi 4-H is approximately \$27,628,649.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

### **Outcome #3**

#### **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**

<b>Year</b>	<b>Actual</b>
2012	1116

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

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

Military children and youth face more than the usual challenges of growing up, such as moving every few years and establishing new friendships, while worrying about family members who may not always be home but temporarily assigned somewhere else for a variety of reasons and length of time.

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

Through the Mississippi 4-H program in 2011-2012, military youth at Columbus and Keesler Air Force Bases, Meridian Naval Air Station and Naval Construction Battalion Center, Gulfport are able to experience a variety of programs and projects focused on experiential learning and the development of personal and life skills.

##### **Results**

More than 252 military youth are enrolled in 6 chartered 4-H clubs with 2 more in the process of chartering. These youth and 20 adult volunteer leaders are not only involved with 4-H projects focusing on science, engineering and technology, healthy living and citizenship through their 4-H club membership, but are actively involved in county, district and state wide community service projects, conferences, leadership roles and contests. There was an overall increase of 93 4-H members participating in 4-H science projects: Keesler AFB had an increase of 45 members; Columbus AFB had an increase of 39 members; Naval CB Gulfport had an increase of 9 members and an increase of teen participation; and although NAS Meridian did not have an increase, all 4-Hers were involved in science activities through the summer program.

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

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

#### **Outcome #4**

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

Number of youth who improve life skills.

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

- 1862 Extension

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	17663

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

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

One of the mission mandates of the 4-H program is Healthy Lifestyles. The state of Mississippi is ranked 48th in health status of its citizens. Tunica County 4-H Move to Lose started as a request of the youth who participate in the county leadership program.

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

Move to Lose is a partnership with Tunica County Health and Wellness Pavilion. That group provided a trainer twice a week for 30-40 minutes and the option of water aerobics or zumba on the third day. There were weekly nutrition classes to help participants be as successful as possible. They kept food journals that included what they were eating, how much they were eating, and most importantly, why. Mini competitions and monthly prizes kept participants excited. The program emphasized the concept of making healthy lifestyle changes, rather than dieting.

###### **Results**

There were 12-15 participants, ranging in age from 10 to 17, at various times during the 7-month program. Most participants lost between 12 and 21 pounds, but one lost a total of 76 pounds. Not surprisingly, that participants' remarkable weight loss has sparked the interest of many youth in the county, motivating them to join the program.

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

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

## **Outcome #5**

### **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**

<b>Year</b>	<b>Actual</b>
2012	15014

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

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

Mississippi has over 800,000 youth, 81% of which cannot read at grade level and are evaluated to be below proficient and with a graduation rate of around 64%. Mississippi's schools are failing and the opportunities for intellectual stimulation are minimal. Children are naturally interested in insects and as such represent an excellent way to gain, nurture and sustain their interest in science.

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

The Entomology Extension Youth Program provides various opportunities. In addition to traditional 4-H competitions, the unit operates the oldest Entomology (and Plant) camp in the world. Entomological, environmental and horticultural programs are supported, and at many of these, campers are invited to participate as speakers or leaders. Other services include: school and bug club visits, presentations at numerous conferences, technical assistance, face-to-face and email communication on entomology, science, environmental and plant education.

#### **Results**

Bug Campers have found insects new to science and formally named some of them, found insects that are new to MS, become young entomologists in their communities and even had principals and farmers bring insects to them to identify and assisted with entomology programs around the state. Campers have produced articles for scientific journals and been invited to speak at professional meetings. Over 12 are known to have or be pursuing advanced degrees in entomology and more are in undergraduate programs with the intent of going into graduate entomology programs. Many that choose other careers have credited camp with their pursuing a college degree as a result of the opportunity to study with and converse with university professors at camp.

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

**KA Code**    **Knowledge Area**  
806            Youth Development

**Outcome #6**

**1. Outcome Measures**

Number of 4-H projects completed.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	8831

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

**Issue (Who cares and Why)**

Mississippi 4-H livestock and horse programs provide tremendous opportunities for youth to develop life skills while learning about the responsibility and dedication needed to raise beef and dairy cattle, sheep, goats, swine, and horses for competition in the show ring. Additionally, many youth in Mississippi lack funds to attend college after graduating from high school.

**What has been done**

The Dixie National Sale of Junior Champions provided an opportunity for the Champion and Reserve Champion market animals to be sold in a bid auction at the conclusion of the 2012 Dixie National Junior Round-Up. Exhibitors received 80% of the sale price of the animal that can be used for their education while 20% was kept for sale expenses and awarded through various scholarships to MS youth. 4-Hers whose livestock project qualified for the Sale can use the money acquired for college expenses.

**Results**

A total of 44 animals qualified for the Dixie National Sale of Junior Champions that totaled \$299,325.50. In addition, another \$51,500 in scholarships was awarded to 34 Mississippi youth.

**4. Associated Knowledge Areas**

**KA Code**    **Knowledge Area**  
806            Youth Development

**Outcome #7**

**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**

<b>Year</b>	<b>Actual</b>
2012	8831

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

**Issue (Who cares and Why)**

4-Hers from the Mississippi 4-H Technology Team developed a program to teach city and county governments about the benefits and use of social media, such as Facebook and Twitter.

**What has been done**

With an investment of \$29,000 from TransCanada this year, the 4-H team expanded its program to include a stronger focus on emergency response across key cities in Mississippi. The 4-H team conducts training sessions with local fire, police, and other emergency management professionals throughout the state at the request of counties.

**Results**

These sessions enable the team to improve emergency communication methods and develop a strong leadership role in their communities. The funds from TransCanada help the Mississippi 4-H group to teach the program in other states. Training sessions were held in 2012 with Tennessee 4-H teams.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

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

### **External factors which affected outcomes**

- Natural Disasters (drought, weather extremes, etc.)
- Appropriations changes
- 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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

### **Key Items of Evaluation**

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

**Program # 2**

**1. Name of the Planned Program**

Global Food Security and Hunger - Agronomic Crops

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	0%		1%	
102	Soil, Plant, Water, Nutrient Relationships	10%		3%	
111	Conservation and Efficient Use of Water	15%		4%	
121	Management of Range Resources	0%		2%	
132	Weather and Climate	5%		0%	
135	Aquatic and Terrestrial Wildlife	0%		2%	
201	Plant Genome, Genetics, and Genetic Mechanisms	0%		15%	
202	Plant Genetic Resources	5%		1%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	10%		4%	
204	Plant Product Quality and Utility (Preharvest)	30%		12%	
205	Plant Management Systems	0%		25%	
206	Basic Plant Biology	0%		1%	
211	Insects, Mites, and Other Arthropods Affecting Plants	10%		2%	
212	Pathogens and Nematodes Affecting Plants	5%		13%	
213	Weeds Affecting Plants	10%		8%	
402	Engineering Systems and Equipment	0%		3%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	0%		4%	
	<b>Total</b>	100%		100%	

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

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890

Plan	18.0	0.0	18.0	0.0
Actual Paid Professional	15.9	0.0	16.8	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
426901	0	1493247	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
426901	0	604171	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	5421214	0

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

**1. Brief description of the Activity**

- Short courses, Workshops or Training Seminars
- Field Consultations
- Demonstration and Verification Programs
- Newsletters and Publications
- Web-based information and E-mail
- Distance Learning Programs
- Field Manuals or Guides
- Farm Management Software/Components
- Direct Technical Assistance/Recommendations/Interpretation/Analysis
- Research Programs to Enhance Yield, Efficiency, Profitability and Stewardship

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

- Crop 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
- Research faculty and personnel

**3. How was eXtension used?**

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, 212 MSU employees are eXtension users, with 15 new registrations during this reporting period. Further, MSU Extension has 64 employees that serve on one or more of the 72 Communities of Practice (COPs); MSU Extension employees are member of 33

COPs. Twelve MSU Extension employees serve as a leader for a COP, leading 9 COPs. MSU Extension personnel are members of the Cotton COP.

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

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	48227	147920	0	0

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

**Patent Applications Submitted**

Year: 2012

Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	9	42	0

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

**Output Target**

**Output #1**

**Output Measure**

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

Year	Actual
2012	32691

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

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

O. No.	OUTCOME NAME
1	Documentation and effect of producers adopting recommended practices, technologies, strategies, or systems.
2	Documentation of growers increasing production levels.
3	Documentation of producers minimizing inputs/expenses associated with crop production.
4	Documentation of efforts and activities which have improved environmental stewardship.

## **Outcome #1**

### **1. Outcome Measures**

Documentation and effect of producers adopting recommended practices, technologies, strategies, or systems.

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

- 1862 Extension
- 1862 Research

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

Change in Action Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	4184

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

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

Sweetpotatoes have a total economic impact of over \$130 million in MS. One of the biggest problems is protecting quality while in storage, which is directly influenced by skinning during harvest. A skinned sweetpotato loses more moisture and is more susceptible to rot. The traditional practice of mechanically defoliating the plant prior to harvest is not compatible with modern bulk harvesting systems because of plant residue conveyed into storage. A new system to toughen the skin prior to harvest would create a higher quality product.

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

It was hypothesized that cutting the growth root of the sweetpotato plant and leaving the storage root intact would allow the skin to toughen in the field prior to harvest. Two new systems, using off-the-shelf components, were created to undercut the plant. One system, the Razor Plow, was based on a root plow produced by Roll-A-Cone Manufacturing. This system features multiple wide horizontal blades connected to vertical shanks. The second system was a modified sweetpotato digger fabricated by Easley Manufacturing.

#### **Results**

During field testing, both systems entered the soil easily, maintained depth, were pulled with equipment available to growers, experienced minimal vine entanglement, and did not damage roots. At 6 days after treatment, undercutting significantly increased skin strength for roots on which the vine had been left on, allowing roots to cure in the ground. Testing, refinement, and on-farm demonstration are ongoing. In 2011, storage losses accounted for \$22.2 million in lost revenue. A 10% reduction in storage losses would result in a savings of \$10.5 million. This technology could improve sweetpotatoes' profitability and ensure continued growth. A higher quality product which is more stable in storage could encourage value-added processors to locate operations in the region which would stimulate economic development.

#### 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
202	Plant Genetic Resources
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants

#### Outcome #2

##### 1. Outcome Measures

Documentation of growers increasing production levels.

##### 2. Associated Institution Types

- 1862 Extension
- 1862 Research

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	5231

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

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

A major decision producers make is nitrogen (N) fertility management. They seek to maximize profitability by optimizing yield relative to input costs. The closer N applications are made to the time plants can efficiently utilize the nutrient, the better for overall crop production efficiency. Research has shown that N application, delayed until just before tassel emergence, has been effective in increasing yields. The greatest response has been at lower standard N rates (less than 180 lb N/acre) with less response at levels above 210 lb N/acre.

###### What has been done

Research was initiated at the Delta Research and Extension Center to evaluate pre-tassel N management for corn in a corn/soybean rotations system. Standard N rates were established at

120, 150, 180, 210, 240 and 270 lb N/acre with 120 lb N/acre applied prior to planting as urea-ammonium nitrate solution (32% N) and the remainder applied as a sidedress (0 to 150 lb N/acre). Pre-tassel nitrogen (PTN) as urea was then hand-applied at rates from 0 to 60 lb N/acre as a broadcast followed by irrigation or rainfall to incorporate.

**Results**

Replicated field studies at the Delta Research and Extension Center have shown a significant response to pre-tassel N (PTN) applications in an irrigated multi-year corn/soybean rotation. The response to PTN was greatest at lower standard N rates (120-180 lb N/acre) compared to higher N rates (210-270 lb N/acre). Grain yields increased with both 20 and 40 lb N/acre broadcast applied as urea. This research shows corn plants continue to take up N from the soil into reproductive growth as long as adequate soil water is available from irrigation or rainfall. This could increase grain yields on many fields where N loss during the early growing season could limit productivity. Higher nutrient utilization efficiency also reduces offsite loss and nutrient transport to adjacent primary water bodies, enhancing water quality.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
202	Plant Genetic Resources
205	Plant Management Systems

**Outcome #3**

**1. Outcome Measures**

Documentation of producers minimizing inputs/expenses associated with crop production.

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	2615

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

**Issue (Who cares and Why)**

Grain production in the Mid-South has increased, especially corn, as cotton production has decreased. Twin-row production systems are relatively new with most efforts in soybean and peanut. Being able to use the same equipment across more acres decreases the cost per acre of the equipment. The major factors considered in corn have been seeding rates and nitrogen (N) rates as a means of increasing yields on the raised-bed production system of the area.

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

Research has shown that in the twin-row (TR) production system, seeding rates could be increased to 35,000 to 40,000 plants/acre from the more common 30,000 to 32,000 plants/acre and significantly increase grain yields. While increasing N rates has significantly increased the grain yield, the increase was often not sufficient to cover the cost of the additional N.

#### **Results**

The N response, while significant, is not always economical. Increasing the seeding rate by 10-15% has significantly increased grain yield in the TR system with most cultivars. These advantages have been accomplished under irrigated conditions in wide-row (38-40 in spacing) bedded plantings. Comparisons of twin-row and single-row production in most years have shown an advantage to the TR system, especially in high yield environments evident in 2012. The overall impact is increased yields and profitability and a spreading use of the system as cotton acreage decreases. By using the planters on more acres the fixed cost of the planter can be spread across more acres.

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

<b>KA Code</b>	<b>Knowledge Area</b>
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
202	Plant Genetic Resources
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants

#### **Outcome #4**

##### **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
2012	2354

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

**Issue (Who cares and Why)**

The overdraft of the shallow well aquifer in the Mississippi Delta should be a concern of all producers who irrigate. Water conservation is one means to help balance our water supply. Better knowledge of soil moisture within the effective rooting zone is some of the information needed to improve irrigation scheduling. Successful application of wireless technology, dataloggers and soil moisture sensors at a reasonable cost will give producers better information to schedule irrigations which can save water and fuel.

**What has been done**

Beginning in 2011, an on-farm irrigation initiation demonstration on cotton has successfully integrated soil moisture sensors, dataloggers, and wireless communication into a commercial cotton farming operation. Two different soil moisture sensors and their associated communications systems were installed each year. After two years, the producer is confident that use of this soil moisture data for irrigation scheduling saved an irrigation event as compared to his normal irrigation scheduling without reducing yield.

**Results**

Reducing pumping by 2-3 inches will help reduce the overdraft on the aquifer and sustain our water resources. Saving water and reducing fuel costs without reducing yields will increase the bottom line of the producers. Although, there are producers that tend to not irrigate enough, collection of soil moisture data to help schedule irrigations should increase their yields and their bottom line.

**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
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.)
- Appropriations changes
- 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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

MAFES scientists operate research programs under an approved Hatch or Hatch-Multistate CRIS project plan of work. Outputs, outcomes, target audiences, and impacts are reported annually through the CRIS (REEport) system. Annual and project termination reports are developed by scientists and reviewed by Department Heads and the Director's office before submission to USDA-NIFA through REEport.

### **Key Items of Evaluation**

**V(A). Planned Program (Summary)****Program # 3****1. Name of the Planned Program**

Global Food Security and Hunger - Animal Science/Forages

 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
202	Plant Genetic Resources	0%		1%	
205	Plant Management Systems	0%		3%	
301	Reproductive Performance of Animals	14%		4%	
302	Nutrient Utilization in Animals	19%		11%	
303	Genetic Improvement of Animals	19%		2%	
304	Animal Genome	4%		27%	
305	Animal Physiological Processes	9%		15%	
306	Environmental Stress in Animals	9%		4%	
307	Animal Management Systems	14%		12%	
308	Improved Animal Products (Before Harvest)	4%		0%	
311	Animal Diseases	3%		3%	
312	External Parasites and Pests of Animals	1%		0%	
313	Internal Parasites in Animals	1%		0%	
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals	1%		0%	
315	Animal Welfare/Well-Being and Protection	2%		0%	
502	New and Improved Food Products	0%		4%	
511	New and Improved Non-Food Products and Processes	0%		14%	
	<b>Total</b>	100%		100%	

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

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

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	14.0	0.0	5.0	0.0

Actual Paid Professional	13.3	0.0	8.6	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
357701	0	942737	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
357701	0	1132362	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	2519573	0

**V(D). Planned Program (Activity)****1. Brief description of the Activity**

Research and Extension programs will be conducted in the following areas (and others as needed):

- MSUcares.com Livestock Web Site
- Beef Cattle Extension Publications
- Cattle Business in Mississippi magazine articles
- Mississippi Master Cattle Producer Program
- Beef Quality Assurance Program
- Beef Cattle Boot Camps
- Beef Cattle Workshops and Short Courses
- Heifer Development Program
- Farm-to-Feedlot Project
- Artificial Insemination School
- Beef Cattle Improvement Assn. sponsored sales
- Beef Cattle Improvement Assn. newsletter
- Feeder Calf Marketing
- Stocker Cattle Conference
- Enrollment on the Dairy Herd Improvement Assn.
- DHIA herd management screening
- Statewide Dairy Field Day
- Swine Producers Extension Program
- Swine Managers Training
- Environmental Continuing Education Classes
- Dietary analyses and consultation
- Pork Quality Assurance Program
- Swine Welfare and Assurance Program
- Forage Nutrient Analysis
- Grazing Schools
- Grazing Conference
- Cattle Transportation Stress Research
- Cattle Temperament Research
- Cattle Breeding and Genetics Research
- Cattle Disease Research

- Livestock Nutrition Research
- Livestock and Equine Reproduction Research
- End Product (Meats) Research
- Forage Production and Utilization Research

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

The target audience for this program includes beef, dairy, swine, equine, and forage producers (full- and part-time) and related industry personnel.

**3. How was eXtension used?**

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, 212 MSU employees are eXtension users, with 15 new registrations during this reporting period. Further, MSU Extension has 64 employees that serve on one or more of the 72 Communities of Practice (COPs); MSU Extension employees are member of 33 COPs. Twelve MSU Extension employees serve as a leader for a COP, leading 9 COPs. MSU Extension personnel are members of the Beef Cattle COP and the Livestock and Poultry COP.

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

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	61201	91705	0	0

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

**Patent Applications Submitted**

Year: 2012  
 Actual: 2

**Patents listed**

1. Patent Pending: Production of Xylo-oligosaccharides Using Autohydrolysis of Fiber Separated by Elusieve Processing of Animal Feeds, serial number 13/285,745
2. Provisional Patent: Generation of Imazapic resistant Switchgrass 61,690,458

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	16	48	0

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

**Output Target**

**Output #1**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2012	25484

**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 optimizing production levels.
3	Number of producers optimizing production inputs/expenses.
4	Number of producers improving their environmental stewardship.
5	Number of producers adding value and capturing added value to products through marketing.
6	Number of producers improving overall herd health, animal welfare, and/or protection.

## **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**

<b>Year</b>	<b>Actual</b>
2012	5097

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

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

Processors, distribution chains, brokers, food service and retail segments from various venues want to enhance muscle foods through marination techniques to add value and quality. Many do not have the expertise and/or knowledge base of the proper techniques, ingredients or methodologies to accomplish proper marination.

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

This workshop has been offered annually to the entire foods industry for the past 6 years and has seen continued growth with attendees from MS industries as well as major food processors across the US and several international companies. This intensive 2½ day workshop offers both technical information and hands-on exercises from some of the most recognized industry leaders in this field. Existing marination science as well as new technologies and ingredients are covered in this workshop.

#### **Results**

In 2012, 41 people attended the workshop. Numerous networking contacts among participants, MSU and various companies have established varying degrees of working relationships as a result of these workshops. This workshop facilitates recruitment of students, research contracts, and outreach partnerships. While a definite economic figure cannot be affixed directly to these educational events, consider the following as a very realistic hypothetical example, for each company represented last year (~35), if they were able to improve their yields by a mere 1% on a very conservative figure of 300 million pounds at an average of \$2.00/lb, that would equate to \$6 million for just these companies in one year. Several of the companies represented produce well over that amount of product a year each, much less collectively.

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

<b>KA Code</b>	<b>Knowledge Area</b>
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)

**Outcome #2**

**1. Outcome Measures**

Number of producers optimizing production levels.

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	2079

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

**Issue (Who cares and Why)**

The MAFES White Sand Branch Unit station sits on 440 acres of forage. Currently 120 acres can be prepared and planted for grazing from January to May. On these 120 acres stocking rate is 600-700 lbs of cattle per acre, with historical daily gains of 3-3.5 lbs/day. More winter annuals could be drilled into summer pastures, but that would result in lower stocking rate and reduced grazing period. Summer grazing usually results in 1 lb or less daily gain from May until October without supplementation and 1.5-1.7 lbs daily gain with supplementation (usually 2-4 lbs of supplement per head daily).

**What has been done**

We conducted a SWOT analysis as part of proposing that MAFES White Sand Unit graze cattle belonging to individuals and get paid on a weight gain basis for income generation and as a source for cattle to be used in research. The research focus of the station is stocker cattle production. With the current cow herd size and composition, it is difficult to conduct any

publishable nutrition/reproduction/production studies. Additionally, industry funding is more available for stocker cattle studies.

**Results**

Based upon gain data from last year, over 33,000 lb of gain were put on beef cattle used in studies at White Sand. This would result in a profit of over \$13,000.00 at \$0.40/lb (the current rate for stocker gains) This data were generated utilizing 130 animals throughout the whole year on various studies.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
303	Genetic Improvement of Animals
305	Animal Physiological Processes
306	Environmental Stress in Animals
307	Animal Management Systems

**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**

<b>Year</b>	<b>Actual</b>
2012	2039

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

**Issue (Who cares and Why)**

Forage utilization has remained unchanged for long period of times in Mississippi leading to losses in forage quality and reducing stocking rates. Over 90% of the livestock producers use rotational grazing due to economic constrains and how their farm is set up for grazing management.

### **What has been done**

This pilot program looks at ways to extend the grazing season and reduce supplementation. It identifies 2-3 farms in each of district in collaboration with extension area agents. Farms participate for a minimum of two years. Part of the farm follows grazing and nutrient management guidelines established by the MSU Forage program to compare current management practices to alternatives. The program focuses on soil testing, rotational grazing, forage quality, animal performance, stockpiling, weed control and environmental stewardship.

### **Results**

Producers that participated in the first year have become more aware of the advantages rotational grazing can offer. They have developed skills to determine grazing capacity, rotation patterns, and the use of soil survey to determine species suitability and how to manage nutrient applications. Producers participating in the program have been able to increase stocking rates from 0.5 to 0.8 animal units per acre and extend the grazing season by an average of 47 days. Nutrient application has decreased by 60% when using soil test recommendations, forage utilization has increased from 35% to 57%, and forage quality has increased by 4%. The application of this program has reduced forage production cost by 20% saving producers an average of \$250.00 per acre. Full implementation in MS will save \$250M annually.

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

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

### **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
2012	1875

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Many MSU Extension beef cattle educational programs focus on complex problems or topics, with the target audience being established beef cattle producers with experience in cattle production. Rather than focus on that target audience, the Beef Cattle Boot Camps offered a new approach. They focused on novice producers, who may not have the experience or knowledge of longer established producers. The goal of the Boot Camps was to provide basic information to producers in a hands-on, applicable manner.

#### What has been done

Boot Camp topics in 2012 included implants, heifer development, newborn calf feeding, vaccinations, fertilizer planning, making hay and baleage, troubleshooting reproduction, mycotoxin management, and input purchasing. Live animal demonstrations and interactive participant exercises were included. Both MSU Extension and MAFES personnel were involved in the Boot Camp planning and program implementation.

#### Results

Post-program evaluations demonstrated on a 1 to 5 scale, with 1="poor" and 5="excellent," the average rating for all Boot Camp presentations was 4.6. Hands-on learning experiences are considered valuable to beef cattle producers, especially novice producers who may require more hands-on experiences to understand basic practices. The Beef Cattle Boot Camps provide opportunities for these experiences while also highlighting MAFES beef cattle research activities. In addition, they facilitate MSU Extension and MAFES personnel interactions with beef cattle producers.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
306	Environmental Stress in Animals
307	Animal Management Systems

### Outcome #5

#### 1. Outcome Measures

Number of producers adding value and capturing added value to products through marketing.

Not Reporting on this Outcome Measure

## **Outcome #6**

### **1. Outcome Measures**

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

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

- 1862 Extension
- 1862 Research

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

Change in Action Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	122

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

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

Many weeds are nonpalatable or toxic to livestock and compete with consumable forages to increase livestock production costs and lower profits for these producers.

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

Research to determine effective management methods for weeds in forages combined with local outreach to deliver this information enables producers to make decisions that will improve weed control and forage quality.

#### **Results**

In 2012, 877 livestock producers, 38 county extension personnel, and 132 USDA NRCS employees were better prepared to make informed choices of weed control tactics to produce higher quality forages with fewer toxic weeds.

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

<b>KA Code</b>	<b>Knowledge Area</b>
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
303	Genetic Improvement of Animals
306	Environmental Stress in Animals
307	Animal Management Systems

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

### **External factors which affected outcomes**

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

### **Brief Explanation**

{No Data Entered}

## **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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

MAFES scientists operate research programs under an approved Hatch or Hatch-Multistate CRIS project plan of work. Outputs, outcomes, target audiences, and impacts are reported annually through the CRIS (REEport) system. Annual and project termination reports are developed by scientists and reviewed by Department Heads and the Director's office before submission to USDA-NIFA through REEport.

### **Key Items of Evaluation**

**V(A). Planned Program (Summary)****Program # 4****1. Name of the Planned Program**

Global Food Security and Hunger - Aquaculture

 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	0%		2%	
301	Reproductive Performance of Animals	0%		15%	
302	Nutrient Utilization in Animals	48%		3%	
305	Animal Physiological Processes	0%		1%	
306	Environmental Stress in Animals	13%		2%	
307	Animal Management Systems	8%		51%	
308	Improved Animal Products (Before Harvest)	23%		3%	
311	Animal Diseases	3%		3%	
312	External Parasites and Pests of Animals	1%		2%	
313	Internal Parasites in Animals	1%		0%	
315	Animal Welfare/Well-Being and Protection	3%		1%	
402	Engineering Systems and Equipment	0%		2%	
405	Drainage and Irrigation Systems and Facilities	0%		1%	
603	Market Economics	0%		8%	
903	Communication, Education, and Information Delivery	0%		6%	
	<b>Total</b>	100%		100%	

**V(C). Planned Program (Inputs)****1. Actual amount of FTE/SYs expended this Program**

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	2.0	0.0	4.0	0.0
Actual Paid Professional	0.1	0.0	3.2	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
2869	0	105475	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
2869	0	20715	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	2295685	0

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

### 1. Brief description of the Activity

Currently, Mississippi is the number one catfish producer in the nation and catfish ranks seventh among Mississippi agricultural products in total farm gate value. In 2005, Mississippi had 400 catfish farms, with 101,000 surface acres producing a farm gate value of nearly \$250 million. High production costs, foreign competition, and low wholesale prices have contributed to an industry-wide contraction. In 2012, Mississippi had 180 operations with 51,200 surface acres producing a food fish crop valued at \$165 million. The goals of this program area are to increase production efficiency, reduce production costs, expand markets, and increase profitability and sustainability of this industry through the following specific objectives:

- Develop alternative feeds for optimal nutrition, increased production, and improved water quality of pond-raised catfish.
  - Increase the reliability, efficiency, and cost-effectiveness of catfish fry production through the use of new and improved technologies.
  - Increase reliability, efficiency, and cost-effectiveness of catfish production through the use of new and improved culture system technologies.
  - Researchers will develop referred journal articles and give scientific presentations at professional societies and at producer meetings.
  - Extension specialists will conduct workshops and seminar programs. Extension publications and newsletters will aid in transferring new knowledge to producers. Farm visits will help producers adapt new procedures on farms.
  - Develop diagnostic tools to detect and monitor diseases in commercially raised channel catfish and determine virulence factors associated with those diseases.
  - Develop fish health management procedures to control economically important diseases of channel catfish.
  - Determine factors associated with emerging diseases in pond-raised channel catfish.
  - Researchers will develop referred journal articles and give scientific presentations at professional societies and at producer meetings.
  - Extension specialists will conduct workshops and seminar programs. Extension publications and newsletters will aid in transferring new knowledge to producers. Farm visits will help producers adapt new procedures on farms.

### 2. Brief description of the target audience

The target audience for this program includes producers of catfish, crayfish, and freshwater prawns, and related industry personnel.

**3. How was eXtension used?**

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, 212 MSU employees are eXtension users, with 15 new registrations during this reporting period. Further, MSU Extension has 64 employees that serve on one or more of the 72 Communities of Practice (COPs); MSU Extension employees are member of 33 COPs. Twelve MSU Extension employees serve as a leader for a COP, leading 9 COPs. MSU Extension personnel are members of the Marine Aquaculture COP and the Freshwater Aquaculture COP.

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

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	201	31	0	0

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

**Patent Applications Submitted**

Year: 2012  
 Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	2	7	0

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

**Output Target**

**Output #1**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2012	39

**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 improving production efficiency.
3	Number of producers improving their environmental stewardship.

## **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**

<b>Year</b>	<b>Actual</b>
2012	8

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

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

High protein feeds are fed up to 50% of catfish fry standing crop. After fry are stocked, they are not at the surface eating offered feeds for the first 4-6 weeks. It is unknown if fry consume commercial feeds during that time, but it is believed fry feed may serve as a secondary food source and as a fertilizer to keep the pond fertile. Overfeeding had been preferred because of low fish biomass and the pond's ability to assimilate nutrients from excess feed. However, with current high feed prices and low fish prices, any feed wasting should be avoided.

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

In 2012, MAFES scientists compared production variables between fish fed by the standard practice of feeding immediately at stocking to an alternative practice of delaying feeding for 6 weeks after stocking.

#### **Results**

After 18 weeks, there were no differences in water quality, zooplankton abundance, and fish length between the two treatments. Survival and total weight harvested were similar. Amount of feed fed was significantly lower in the delayed feeding treatment. Cost of the 35% protein fry feed used for the first 6 weeks was \$0.78/kg. For farmers feeding 50% fry standing crop, initial feed savings would be \$191.10/ha. Interestingly, amount of feed fed continued to be significantly ( $P < 0.05$ ) higher with standard feeding compared to delayed feeding in the study's final 12 weeks which could produce savings of 650 kg/ha (\$507/ha). If proper fertilization practices are implemented, natural productivity can sustain catfish fry stocked up to 250,000/ha. No commercial diets are required during the first 6 weeks.

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

<b>KA Code</b>	<b>Knowledge Area</b>
302	Nutrient Utilization in Animals
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)

## **Outcome #2**

### **1. Outcome Measures**

Number of producers improving production efficiency.

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

- 1862 Extension
- 1862 Research

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

Change in Action Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	6

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

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

Catfish production has decreased by more than 50% over the last decade, primarily due to increased feed cost, reduced fish prices, and competition from imported catfish or other aquaculture products. To remain competitive in a global market, U. S. catfish producers must reduce production costs. Feed represents the largest expenditure, accounting for 50%-60% of total variable operation cost. Use of less expensive alternative feedstuffs without compromising fish performance and product quality would make catfish farming more sustainable.

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

MAFES scientists conducted several studies in the past few years to evaluate the use of alternative feed ingredients such as cottonseed meal, corn gluten feed, corn germ meal, and distillers dried grains with solubles as partial replacement for more expensive soybean meal and corn. In 2012, a pond study was conducted to evaluate the use of a combination of cottonseed meal and corn germ meal to partially replace soybean meal and corn in catfish feeds.

#### **Results**

Results demonstrate that reducing soybean meal from 40% to 25% by the use of cottonseed meal and corn germ meal did not affect growth, net yield, and processed yield of catfish. Although feed ingredient prices fluctuate, potential savings by using these ingredients in least-

cost formulations as compared with traditional feeds are estimated to be about \$10-15 per ton of feed or \$4-6 million annually to the catfish industry.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
306	Environmental Stress in Animals
307	Animal Management Systems

#### 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 Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	3

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

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

Channel catfish anemia (CCA) is a disease of unknown etiology that has plagued the catfish industry since its inception. The disease results in chronic type losses that can extend over periods of 4-6 weeks with losses averaging about 5,000 lbs/10 acre pond. Larger food-sized fish are typically affected making the disease particularly costly, considering 2.0 pounds of feed are lost for every pound of fish that dies.

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

Studies at the Thad Cochran National Warmwater Aquaculture Center showed oral administration of iron fortified diets, administered twice weekly to anemic fish, stimulated the production of red blood cells (RBC) resulting in normal packed cell volumes (PCV) levels after two weeks. Similar results were obtained in commercial field trials.

###### **Results**

As a result of this research, catfish operations with re-current anemia have begun using diets fortified with modest levels of ferrous sulfate to promote RBC production. To date this practice

has resulted in a dramatic decrease in the incidence of CCA which cost the industry between \$5-10 million annually.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

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

##### External factors which affected outcomes

- Economy
- Public Policy changes

##### Brief Explanation

{No Data Entered}

#### 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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

MAFES scientists operate research programs under an approved Hatch or Hatch-Multistate CRIS project plan of work. Outputs, outcomes, target audiences, and impacts are reported annually through the CRIS (REEport) system. Annual and project termination reports are developed by scientists and reviewed by Department Heads and the Director's office before submission to USDA-NIFA through REEport.

##### Key Items of Evaluation

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

**Program # 5**

**1. Name of the Planned Program**

Global Food Security and Hunger - Poultry

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%		8%	
302	Nutrient Utilization in Animals	10%		68%	
303	Genetic Improvement of Animals	0%		8%	
305	Animal Physiological Processes	10%		5%	
306	Environmental Stress in Animals	10%		0%	
307	Animal Management Systems	10%		0%	
308	Improved Animal Products (Before Harvest)	10%		0%	
311	Animal Diseases	10%		11%	
312	External Parasites and Pests of Animals	10%		0%	
313	Internal Parasites in Animals	10%		0%	
315	Animal Welfare/Well-Being and Protection	10%		0%	
	<b>Total</b>	100%		100%	

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

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	1.0	0.0	2.0	0.0
Actual Paid Professional	1.3	0.0	1.7	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
33739	0	30567	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
33739	0	472069	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	651712	0

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

### 1. Brief description of the Activity

Extension personnel will communicate with poultry producers and the general public through seminars, workshops, and extension bulletins and newsletters distributed in paper copy and electronically via the internet. Field demonstrations may also be required to encourage acceptance of new practices and methodologies. Results of research projects will also be published in peer-reviewed scientific journals. Research disseminated to the stakeholders will consist of, but is not limited to, the following:

- Flock hatchability and fertility
- Male broiler breeder viability measurements
- Dietary and managerial regimes to decrease layer Mycoplasma infections
- Optimizing early chick performance through: broiler and breeder nutrition, embryo physiological assessment, incubation management, and physiological assessment
  - Applied nutrition with feed additives and alternative feed ingredients
  - Ammonia management in broiler houses: minimization of nitrogen input, ammonia chemical modification and capture, and ammonia impacts on bird performance
  - Minimization of physiological stress in broilers and layers
  - Understanding broiler intestinal microorganisms and their role in nutrient utilization and disease
  - Identification of physiological responses associated with poultry welfare.

### 2. Brief description of the target audience

The target audience for this program consists of commercial poultry producers and related industry personnel.

### 3. How was eXtension used?

eXtension was not used in this program

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

### 1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	1121	187	0	0

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

Year: 2012  
 Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
Actual	1	55	0

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

**Output Target**

**Output #1**

**Output Measure**

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

Year	Actual
2012	218

**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 efficiency.
3	Number of producers reducing the environmental impact of production.

## **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**

<b>Year</b>	<b>Actual</b>
2012	44

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

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

Meat and Poultry producers and processors as well as other food producers and processors must comply with various aspects of the new Food Safety and Modernization Act of 2011. USDA has similar programs that are currently voluntary. USDA is pushing for 90% of all plants to have an active and workable Food Defense Plan by Jan. 2015. If not, then it most likely will be mandatory and the southeast U. S. is behind by more than 20% compliance with this expectation.

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

A program for meat and poultry processors was developed and offered in three different locations across Mississippi in September 2012. The USDA's Pathogen Reduction and Hazard Analysis Critical Control Point (HACCP) regulation states that certain functions in the processing plant be conducted by certified personnel and/or HACCP trained individuals. Trainers in the Department of Food Science, Nutrition, and Health Promotion put together a one day training program with training materials for producers and processors in the industry.

#### **Results**

Forty-one industry personnel from MS, TN, and AL attended the programs. Sixty-eight percent of participants showed improvement in post-test scores. For food processors to be eligible to bid on government food contracts (i.e., school lunch, military), they must have a workable Food Defense plan in place. For example, the pork, lamb, chicken and fish industries in August of 2012 were offered the opportunity to bid for \$170 million of these products through federal purchase programs. Without a food defense plan in place, the contracts would not be considered. These trainings will allow multiple businesses the opportunity to bid on various food contracts while increasing their profitability and enhancing overall food safety.

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

<b>KA Code</b>	<b>Knowledge Area</b>
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
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
315	Animal Welfare/Well-Being and Protection

## **Outcome #2**

### **1. Outcome Measures**

Number of producers increasing production efficiency.

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

- 1862 Extension
- 1862 Research

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

Change in Condition Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	35

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

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

In 2012, the Mississippi poultry industry produced 758,000,000 broilers with a farm gate value of \$2.32 billion on 1478 farms. Additionally, 288 farms produce 1.3 million eggs with a farm gate value of \$201 million. Two issues of economic importance to the poultry industry in Mississippi are Mycoplasma gallisepticum (MG) infection in laying hens and embryo development and hatchability of broilers. MAFES researchers are investigating ways to improve the nutrition and growth of the state's most profitable bird.

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

Chicken embryos are made up of water, protein and fat. To get energy to hatch, protein and fat are converted into carbohydrates. So hatchlings can reserve fat and protein for growth, MSU scientists are injecting eggs (in ovo injection) with carbohydrates before they hatch. Poor hatchability can also occur due to eggshell bacterial contamination. While this can be decreased by UV light or hydrogen peroxide, the antimicrobial effects of these two treatments combined are unknown. MAFES scientists are testing these combined treatments.

**Results**

Research indicates that in ovo injection of carbohydrates can provide benefits to commercially grown poultry with an earlier increase in body weight and good hatching. Scientists are also experimenting with injection of vitamin supplements. Results of anti-microbial egg treatments have shown that the combined treatments further reduced bacterial contamination compared with each treatment individually, supporting greater hatchability of chicks.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
305	Animal Physiological Processes
306	Environmental Stress in Animals
307	Animal Management Systems
311	Animal Diseases
312	External Parasites and Pests of Animals
313	Internal Parasites in Animals
315	Animal Welfare/Well-Being and Protection

**Outcome #3**

**1. Outcome Measures**

Number of producers reducing the environmental impact of production.

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	17

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Maintaining a safe, nutritious, and environmentally sustainable food supply is of paramount importance, especially as the world population grows toward nine billion by 2050. Global food security is a MAFES, Extension, and university priority, and our scientists are in position to discover solutions for critical food supply issues. MAFES and Extension Station expertise in food safety and quality includes every aspect of production, harvesting, processing, packaging, and preparation.

#### What has been done

MSU scientists in Poultry Science and Agricultural and Biological Engineering develop poultry litter management systems that improve profitability, control harmful pathogens, and minimize environmental impacts. One study evaluates new methods of reducing poultry exposure to pathogenic bacteria which harm consumers and reduce broiler industry profits. The study examines how poultry house litter management can help prevent these problems, as well as offsite transmission of pathogens in poultry litter used for fertilizer.

#### Results

Scientists found that bacterial concentrations are reduced and other benefits are achieved when litter is treated using a process called "windrowing," in which litter is piled in rows down the length of a broiler house. Heat generated in the composting piles partially sterilizes the litter. Changes in other variables, such as pH, ammonia, and moisture, may also play a role in improving litter quality and need further study. MAFES scientists also studied the role of vertical transmission, the process by which adult chickens spread bacteria to their offspring.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
307	Animal Management Systems
311	Animal Diseases
313	Internal Parasites in Animals
315	Animal Welfare/Well-Being and Protection

### 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

{No Data Entered}

### 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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

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## **Key Items of Evaluation**

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

**Program # 6**

**1. Name of the Planned Program**

Global Food Security and Hunger - Risk/Farm Management

Reporting on this Program

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

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	0%		3%	
104	Protect Soil from Harmful Effects of Natural Elements	0%		1%	
123	Management and Sustainability of Forest Resources	0%		1%	
205	Plant Management Systems	0%		14%	
206	Basic Plant Biology	0%		1%	
601	Economics of Agricultural Production and Farm Management	40%		13%	
602	Business Management, Finance, and Taxation	0%		11%	
603	Market Economics	0%		24%	
604	Marketing and Distribution Practices	40%		3%	
605	Natural Resource and Environmental Economics	0%		3%	
607	Consumer Economics	0%		1%	
609	Economic Theory and Methods	0%		10%	
610	Domestic Policy Analysis	20%		15%	
	<b>Total</b>	100%		100%	

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

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	2.0	0.0
Actual Paid Professional	1.9	0.0	3.8	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
51857	0	294999	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
51857	0	496637	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	820124	0

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

### 1. Brief description of the Activity

This program includes three areas designed to assist farmers in making their enterprises more profitable:

The Farm Management Information and Training area provides farmers and agribusiness professionals with timely and relevant information on a variety of topics potentially impacting management decisions on their operations. It offers a number of practical decision aids along with training on the use of these aids as well as providing a resource for managers who need help with business planning.

The Extension Agricultural Marketing Information and Education area provides 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 will be made available on the use of commonly used marketing tools and strategies.

The Agricultural Policy Analysis and Education area provides 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.

### 2. Brief description of the target audience

The target audience for this program consists primarily of agricultural producers and related agribusiness personnel.

### 3. How was eXtension used?

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, 212 MSU employees are eXtension users, with 15 new registrations during this reporting period. Further, MSU Extension has 64 employees that serve on one or more of the 72 Communities of Practice (COPs); MSU Extension employees are member of 33 COPs. Twelve MSU Extension employees serve as a leader for a COP, leading 9 COPs. An MSU Extension employee is a member of the Extension Disaster Education Network COP.

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

### 1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	6528	6481	0	0

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

Year: 2012  
 Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
Actual	2	18	0

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

**Output Target**

**Output #1**

**Output Measure**

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

Year	Actual
2012	2168

**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.

## **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**

<b>Year</b>	<b>Actual</b>
2012	434

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

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

Over the last several years, a structural change occurred in the markets of many commodities that resulted in higher prices received, but higher costs. In 2012, every major agricultural commodity (but cotton) either recorded a record price level or came very near eclipsing a previous record. While this has benefited MS's agricultural economy, the high price levels were accompanied with extreme price volatility. Today, commodity agricultural production has tremendous capital requirements and very narrow profit margins.

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

The MSU Agricultural Economics Department utilizes all available tools to disseminate timely market information to Mississippi producers. Faculty transmit weekly podcasts on cattle and crop markets, regularly contribute to the Farmweek television show broadcast by the Agricultural Communications Department, present market outlook information for crop and livestock producers at county and regional meetings, and utilize social media such as Twitter, Facebook, and blogs to provide analysis of relevant news affecting MS producers.

#### **Results**

Approximately 60 unique individuals download each market podcast. While the exact number of Farmweek viewers is unknown, the show is broadcast throughout MS and across the U.S. The information disseminated through web-based outlets is universally available, and averaged 457 views each month from September to November 2012. A more widely distributed, collective outlet for crop producers experienced 14,713 views at its peak in July of 2012.

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

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

<b>Year</b>	<b>Actual</b>
2012	347

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

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

The U. S. Congress has been in the midst of a farm bill debate for many months. This legislation will have a direct impact on every crop and livestock producer in the United States who is actively involved with commodity programs within the reach of the bill and/or who participates in insurance offerings through the Risk Management Agency. This represents a large majority of MS crop producers and numerous livestock producers.

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

The MSU Agricultural Economics Department has developed simulation models that use actual farm, county, state and national data to determine the impact of the various proposed farm bill programs. While the bill is still being shaped, the department continues to analyze the potential outcomes for Mississippi. This allows us to disseminate our preliminary results to commodity groups and policy makers so that they can make informed and objective decisions.

#### **Results**

Under the most current proposal, analysis shows that the gap between the farm bill commodity program that offers the lowest return versus the one that offers the highest return is \$7.95, \$12.99, \$4.76 and \$14.68 per acre for soybeans, corn, cotton and rice, respectively. Using acreage amounts from 2012, the knowledge gained from this analysis results in a gain of \$32.6 million for informed producers. Once a final farm bill is announced, results similar to these will be disseminated to stakeholders in the state so that these types of outcomes can be realized.

#### 4. Associated Knowledge Areas

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

##### Brief Explanation

{No Data Entered}

#### 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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

MAFES scientists operate research programs under an approved Hatch or Hatch-Multistate CRIS project plan of work. Outputs, outcomes, target audiences, and impacts are reported annually through the CRIS (REEdport) system. Annual and project termination reports are developed by scientists and reviewed by Department Heads and the Director's office before submission to USDA-NIFA through REEdport.

##### Key Items of Evaluation

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

**Program # 7**

**1. Name of the Planned Program**

Nutrient Management/Water Quality

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%	
111	Conservation and Efficient Use of Water	15%		15%	
112	Watershed Protection and Management	0%		32%	
133	Pollution Prevention and Mitigation	0%		41%	
401	Structures, Facilities, and General Purpose Farm Supplies	10%		0%	
402	Engineering Systems and Equipment	15%		2%	
403	Waste Disposal, Recycling, and Reuse	15%		0%	
404	Instrumentation and Control Systems	10%		0%	
405	Drainage and Irrigation Systems and Facilities	15%		0%	
903	Communication, Education, and Information Delivery	0%		10%	
	<b>Total</b>	100%		100%	

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

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

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	2.0	0.0	0.2	0.0
Actual Paid Professional	1.3	0.0	0.6	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
34916	0	149137	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
34916	0	23479	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	234093	0

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

### 1. Brief description of the Activity

Water quantity and water quality are two emerging issues that will shape the future sustainability of high yield agriculture in Mississippi and the nation. Offsite transport of nutrients applied to agricultural crops, haylands, and pastures are a significant source of non-point source nutrient pollution affecting water quality in local primary water bodies, major river systems (e.g. Mississippi River, Tombigbee River), and the Gulf of Mexico, contributing to environmental concerns such as hypoxia and subsequent effects on coastal economies. Agricultural irrigation is a primary use of groundwater and aquifer overdrafts in recent decades illustrate the need for greater adoption of water conservation. In high yield, intensive agricultural systems such as the Mississippi Delta, the issues of water quantity and water quality are inextricably connected. To address these needs MSU Extension and MAFES work with state and regional advisory groups and serve on work groups to address specific issues and tasks associated with nutrient management and water quality to engage participation of targeted audiences such as agricultural producers in environmental education programs through development of publications, fact sheets, web pages and other educational materials as program support, and reporting documents. Specific programs targeted toward agricultural producers in this plan include 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.

### 2. Brief description of the target audience

Stakeholders and customers of research and Extension programs represent a broad section of audiences, including agricultural producers and other rural audiences, agricultural support groups, environmental and water quality agencies, consumers, and traditionally under-served groups.

### 3. How was eXtension used?

eXtension was not used in this program

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

### 1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	5235	2235	0	0

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

**Patent Applications Submitted**

Year: 2012

Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
Actual	6	6	0

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

**Output Target**

**Output #1**

**Output Measure**

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

Year	Actual
2012	1245

**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 improving their environmental stewardship.
3	Number of pounds of waste pesticides, pharmaceuticals and personal care products collected or disposed of properly.

## **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**

<b>Year</b>	<b>Actual</b>
2012	249

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

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

Irrigation scheduling is a method of managing water to better match the timing and application of water with crop water needs. Understanding soil and crop water relations, irrigation scheduling, and crop water management will enable producers to make water use decisions that are economically and environmentally sustainable. Currently available scheduling tools are usually not accurate in humid areas such as Mississippi, are time-consuming to operate, and require users to install, update and run software to make the management decision.

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

The Mississippi Irrigation Scheduling Tool (MIST) allows users to assess water needs and schedule irrigation according to crop need. MIST is based on the latest scientific knowledge of crop growth and water use, soil hydrology, and weather conditions. MIST queries external soil and weather databases, calculates plant water needs, and recommends timing and amount of water application using a water-balance approach. The system will be delivered to producers through MSU Extension's website, MSUCares.

#### **Results**

The MIST will bring farmers greater yields at lower costs when irrigation more closely matches plant needs. This research has developed knowledge of corn and soybean water use for a range of soil types, planting dates, and management practices in MS. The MIST was tested in 2011 and 2012 in seven production fields and three research fields. Preliminary results indicate that the MIST gives a good estimate of crop water use, and indicates when sufficient water has been lost and irrigation is needed. Significant progress has been made in implementing the MIST into the web-based user interface. Water management tools and the web-based irrigation scheduler will improve timing and amount of water applications, improve crop yield and quality, and reduce excess water use in corn production.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
401	Structures, Facilities, and General Purpose Farm Supplies
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
404	Instrumentation and Control Systems
405	Drainage and Irrigation Systems and Facilities

#### Outcome #2

##### 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
2012	199

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

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

Farmers and landowners are faced with two major issues with regard to sustainably managing agroecosystems in the MS Delta region, namely, declining groundwater levels in the MS Delta Shallow Alluvial Aquifer and nutrient loads into the Mississippi River and the Gulf of Mexico. Groundwater depletion is expected to cause severe ecological and economic impacts if irrigation demand continues at the current rate. On-farm water storage (OFWS) systems offer the benefits of providing irrigation water and reducing nutrient runoff from irrigated fields.

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

Preliminary research examines recycling of agricultural water on two farms in MS. Objectives are to 1) estimate the amount of water supply from OFWS systems that could be recycled on farms without interfering with downstream flow levels and 2) establish downstream nitrogen and phosphorus levels of effluent from such systems. The outreach objective is to disseminate

benefits of OFWS systems and increase adoption of irrigation conservation measures to reduce nutrient runoff and minimize water withdrawn from the MS River Alluvial Aquifer.

### Results

The amount of water from OFWS systems used for irrigation was recorded throughout the 2012 growing season. A total of 183.51 acre-foot of water from OFWS was used to irrigate corn on the 158-acre Pitts Farm, which translates to a savings of approximately 60 million gallons of water which were not pumped from the aquifer for irrigation. Effluent from OFWS systems at both sites had 50% lower nitrate levels compared to water that entered the systems. Phosphate levels of effluent water in Metcalf and Pitts farms were reduced by 75% and 56%, respectively. Both farms showed higher concentrations of measured parameters in the tailwater recovery ditch and storage ponds because these areas were designed to have higher retention times. Data from this project will also be used to develop nutrient criteria for the MS Delta.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
401	Structures, Facilities, and General Purpose Farm Supplies
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
404	Instrumentation and Control Systems
405	Drainage and Irrigation Systems and Facilities

### Outcome #3

#### 1. Outcome Measures

Number of pounds of waste pesticides, pharmaceuticals and personal care products collected or disposed of properly.

Not Reporting on this Outcome Measure

### 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

{No Data Entered}

### 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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

MAFES scientists operate research programs under an approved Hatch or Hatch-Multistate CRIS project plan of work. Outputs, outcomes, target audiences, and impacts are reported annually through the CRIS (REEport) system. Annual and project termination reports are developed by scientists and reviewed by Department Heads and the Director's office before submission to USDA-NIFA through REEport.

## **Key Items of Evaluation**

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

**Program # 8**

**1. Name of the Planned Program**

Climate Change

Reporting on this Program

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

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources	0%		24%	
111	Conservation and Efficient Use of Water	15%		0%	
112	Watershed Protection and Management	0%		22%	
132	Weather and Climate	85%		0%	
201	Plant Genome, Genetics, and Genetic Mechanisms	0%		1%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%		30%	
206	Basic Plant Biology	0%		23%	
	<b>Total</b>	100%		100%	

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

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	0.2	0.0	0.5	0.0
Actual Paid Professional	0.1	0.0	0.6	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
2171	0	27227	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
2171	0	2667	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	52799	0

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

**1. Brief description of the Activity**

Research and outreach must not only adapt to a changing climate, but must improve efficiency under these new conditions. They must anticipate more limited access to both energy and water.

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

Rural Communities, small towns that are seeing new challenges for handling stormwater due to higher rainfall intensities.

**3. How was eXtension used?**

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, 212 MSU employees are eXtension users, with 15 new registrations during this reporting period. Further, MSU Extension has 64 employees that serve on one or more of the 72 Communities of Practice (COPs); MSU Extension employees are member of 33 COPs. Twelve MSU Extension employees serve as a leader for a COP, leading 9 COPs. An Extension faculty member is on the Climate, Forests, and Woodlands COP.

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

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	80	1181	0	0

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

**Patent Applications Submitted**

Year: 2012

Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

<b>2012</b>	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Actual</b>	0	2	0

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

**Output Target**

**Output #1**

**Output Measure**

- Number of people attending workshops, short courses, etc.

<b>Year</b>	<b>Actual</b>
2012	210

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

## **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**

<b>Year</b>	<b>Actual</b>
2012	42

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

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

Water and energy conservation will become critical needs for sustaining high yield agricultural under climate change models that predict locally increasing temperature and declining rainfall for portions of the Southeast. Development of production systems that conserve water and energy are the focus of integrated research and Extension programs in the Mississippi Delta.

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

MAFES and MSU Extension scientists have worked with rice growers to determine if intermittent flooding could work in Mississippi, as it does in Asia. Under this system, farmers flood their rice fields and then let the floodwaters naturally subside. When saturated mud is exposed in the upper half of the paddy, they pump back to a full-flood depth of about four inches. Growers using this method might pump water onto their fields only every five to nine days, depending on weather and soil conditions.

#### **Results**

By allowing the water level in the paddies to decrease, growers can better capture rainfall. For every inch of rainwater that is captured or groundwater that is not pumped, farmers save about one gallon of diesel fuel per acre. For large operations, such savings can add up to tanker truckload quantities of fuel. Typically the MS Delta gets 10-14 inches of rain during the growing season. If rice paddies are completely filled, there is no room to capture rainfall. Runoff may carry away nutrients and other chemicals that are expensive to purchase and may contaminate streams and rivers. The study found that even partial adoption of intermittent flooding can save producers money on energy and relieve stress on those producers who struggle to maintain their rice crop when other crops also need watering.

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

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

## **Outcome #2**

### **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**

<b>Year</b>	<b>Actual</b>
2012	34

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

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

With sub-tropical climate, abundant water resources, and long growing seasons, rice performs well and is an important crop in the Mid-south. However, high temperatures during flower formation and grain-fill can cause reductions in yield and grain quality. Increasing temperatures associated with climate change may threaten the rice industry in the southeast if heat tolerant varieties are not developed.

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

MSU scientists in the Department of Plant and Soil Sciences utilize a unique artificial environment called the SPAR (Soil-Plant Atmospheric-Research) Units to precisely simulate diverse combinations of environmental conditions and rapidly screen for heat tolerance in a multitude of elite lines of rice. The facility provides a robust platform for studying crop physiology, crop modeling, climate change, drought tolerance, and carbon sequestration.

#### **Results**

In one experiment, 20 standard cultivars and seven advanced lines grown in outdoors were transferred to sunlit controlled environmental SPAR Units. All cultivars produced panicles with filled grains in the optimum temperature, although there were differences among the cultivars. Under higher temperatures, many cultivars/lines either produced no panicles or panicles, but no filled grains. The advanced lines were not much different compared many of the commonly cultivated cultivars with most of them either produced no panicles or sterile panicles. The identified cultivars/lines will be valuable resource in the rice breeding programs in developing heat

tolerant cultivars.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
132	Weather and Climate

#### 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

{No Data Entered}

#### 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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

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##### Key Items of Evaluation

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

**Program # 9**

**1. Name of the Planned Program**

Sustainable Energy

Reporting on this Program

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

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
112	Watershed Protection and Management	0%		8%	
202	Plant Genetic Resources	0%		1%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	20%		0%	
204	Plant Product Quality and Utility (Preharvest)	0%		15%	
401	Structures, Facilities, and General Purpose Farm Supplies	0%		10%	
402	Engineering Systems and Equipment	70%		8%	
403	Waste Disposal, Recycling, and Reuse	10%		0%	
511	New and Improved Non-Food Products and Processes	0%		43%	
601	Economics of Agricultural Production and Farm Management	0%		15%	
	<b>Total</b>	100%		100%	

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

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	0.3	0.0	1.0	0.0
Actual Paid Professional	1.0	0.0	0.4	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
26685	0	38263	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
26685	0	48346	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	2777300	0

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

**1. Brief description of the Activity**

Development of sustainable energy production systems based on renewable biofuels is one of the great challenges of the 21 century and is essential for attaining energy independence for the nation. Development of low input biomass crops that do not compete with food crops, harvesting and transporting systems, and conversion technologies are central to creation of a biofuels economy. This program area includes research and extension activities carried out with the goal of developing biomass used for biofuels, design of optimum technologies for processing forest products and crops for bioenergy production, and production of alternative energy.

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

Target audience will be agricultural producers, home owners and energy developers.

**3. How was eXtension used?**

eXtension was not used in this program

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

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	1303	65	0	0

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

**Patent Applications Submitted**

Year: 2012

Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

<b>2012</b>	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Actual</b>	0	16	0

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

**Output Target**

**Output #1**

**Output Measure**

- Number of people attending workshops, short courses, etc.

<b>Year</b>	<b>Actual</b>
2012	228

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

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

O. No.	OUTCOME NAME
1	Number of producers adopting new practices due to research/extension recommendations.

## **Outcome #1**

### **1. Outcome Measures**

Number of producers adopting new practices due to research/extension recommendations.

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

- 1862 Extension
- 1862 Research

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	46

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

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

Advanced transportation fuels can be produced from a wide variety of renewable biomass products, however, to be economically and environmentally sustainable biofuels systems must be based on high yielding biomass crops that can be readily grown on land not otherwise used for food production, economically harvested and transported to processing facilities and converted to biofuels with a life-cycle carbon footprint less than conventional fossil fuels.

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

Working through the Sustainable Energy Research Center, MSU scientists in the: 1) Department of Plant and Soil Sciences are developing and evaluating advanced bioenergy crops as an energy source, 2) Forest and Wildlife Research Center are using Fast Pyrolysis to thermally decompose wood and other biomass in the absence of oxygen at ~500C producing bio-oil, and 3) Department of Agriculture and Biological Engineering developed a process using fewer steps and novel catalyses that produces more fuel per unit biomass than conventional approaches.

#### **Results**

The use of renewable plants and trees to grow energy will result in less dependence upon foreign oil and reduce greenhouse emissions. Outcomes include development, patenting, and licensing of an improved variety of giant miscanthus, development of varieties of switchgrass with substantively higher germination and superior yield, and testing of varieties of energy cane with greater cold-hardiness, allowing them to be cultivated at more northern latitudes. The pyrolytic conversion process has been optimized for various biomass types including southern yellow pine and giant miscanthus. A 4-ton/day pilot plant, located at the Energy Institute, has been constructed for research and demonstration. This technology is currently being licensed for commercial application.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse

#### 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

{No Data Entered}

#### 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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

MAFES scientists operate research programs under an approved Hatch or Hatch-Multistate CRIS project plan of work. Outputs, outcomes, target audiences, and impacts are reported annually through the CRIS (REEport) system. Annual and project termination reports are developed by scientists and reviewed by Department Heads and the Director's office before submission to USDA-NIFA through REEport.

##### Key Items of Evaluation

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

**Program # 10**

**1. Name of the Planned Program**

Integrated Pest Management

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
205	Plant Management Systems	10%		0%	
206	Basic Plant Biology	5%		0%	
211	Insects, Mites, and Other Arthropods Affecting Plants	10%		11%	
212	Pathogens and Nematodes Affecting Plants	5%		22%	
213	Weeds Affecting Plants	5%		18%	
214	Vertebrates, Mollusks, and Other Pests Affecting Plants	5%		0%	
215	Biological Control of Pests Affecting Plants	10%		2%	
216	Integrated Pest Management Systems	50%		43%	
512	Quality Maintenance in Storing and Marketing Non-Food Products	0%		4%	
	<b>Total</b>	100%		100%	

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

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	3.5	0.0	3.0	0.0
Actual Paid Professional	5.8	0.0	6.5	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
157109	0	260328	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
157109	0	295762	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	2088249	0

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

**1. Brief description of the Activity**

Research and extension programming will be conducted 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
6. public health issues related to vector control

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

The target audience for this program includes home pest control providers, homeowners, cotton producers, corn producers, soybean producers, greenhouse tomato producers, and public health officials.

**3. How was eXtension used?**

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, 212 MSU employees are eXtension users, with 15 new registrations during this reporting period. Further, MSU Extension has 64 employees that serve on one or more of the 72 Communities of Practice (COPs); MSU Extension employees are member of 33 COPs. Twelve MSU Extension employees serve as a leader for a COP, leading 9 COPs. MSU Extension personnel are members of the Urban Integrated Pest Management COP and Imported Fire Ants COP.

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

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	50697	29924	0	0

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

**Patent Applications Submitted**

Year: 2012  
 Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
Actual	4	39	0

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

**Output Target**

**Output #1**

**Output Measure**

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

Year	Actual
2012	13437

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

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

O. No.	OUTCOME NAME
1	Number of producers adopting IPM production practices.
2	Number of producers increasing profits.
3	Number of producers reducing environmental impacts of pesticide use.

## **Outcome #1**

### **1. Outcome Measures**

Number of producers adopting IPM production practices.

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

- 1862 Extension
- 1862 Research

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

Change in Action Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	2687

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

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

1) Alternatives to conventional fungicides are needed by homeowners, Horticultural growers, and peanut growers to address environmental and personal safety and management needs not met by products currently available. 2) Most growers do not know why their crops decline/die and use pesticides indiscriminately to address the problem. 3) Peanuts are new crop to MS. Diseases common to other production regions may or not be here, resulting in unneeded or ineffectual disease management. 4) Soil compaction seems to contribute to decline of Urban trees.

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

1) Conducted biological "fungicide" trials in greenhouse poinsettias and peanuts to control common production diseases. Collaborated with greenhouse and sweetpotato growers who desire to try such products by helping them to establish and rate their private trials. 2) Received grower samples and visited their production sites to identify and effectively address pest problems. 3) Created a disease calendar linked to images to help growers and consultants identify the problems. Conducted trials for white mold.

#### **Results**

1) Biological 'fungicides' work erratically in apparently similar circumstances, so products not fully recommended. 2) Site visits and diagnoses produced major savings in (crops/number of producers): pansy/6, impatiens/2, chrysanthemum/4, poinsettia/6 and the basil/1. Peanut grower visits saved numerous fungicide sprays planned for non-problematic leaf spots. 3) Determined that a fungicide application in white mold history fields <45 days after planting, when soil temperatures at planting exceed ca. 70° F, may reduce problems >45 days later.

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

<b>KA Code</b>	<b>Knowledge Area</b>
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 #2**

**1. Outcome Measures**

Number of producers increasing profits.

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	2150

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

**Issue (Who cares and Why)**

Invasive species are a widespread problem in terrestrial and aquatic agroecosystems across the U. S. Invasive species increase the cost of growing row crops, grazing cattle, raising timber, managing highways, preventing flooding, managing recreational lakes, maintaining turf, and preserving constructed installations. These species include pathogens of plants and animals, insect pests, weeds, and vertebrates. The best solutions are to empower local landowners and governments to manage these issues, and coordinate between groups involved in local efforts.

**What has been done**

We have developed the Invasive Plant Atlas of the MidSouth to train volunteers in identifying problem plant species, and recording locations on the accompanying webpage ([www.gri.msstate.edu/ipams](http://www.gri.msstate.edu/ipams)). In this, we have partnered extensively with local, state, and federal government agencies and nongovernment organizations (such as the Mississippi Cooperative Weed Management Area) to improve the detection, monitoring, and early response for these

and delivered outreach products for the use of public and private landowners.

### Results

In 2012, we held two workshops for the Invasive Plant Atlas of the MidSouth ([www.gri.msstate.edu/ipams](http://www.gri.msstate.edu/ipams)) in Mississippi, training 32 volunteers. We also organized and led a training workshop on invasive aquatic plant management for approximately 50 attendees at the MidSouth Aquatic Plant Management Society. We have managed two invasive species webpages: Invasive Plant Atlas of the MidSouth ([www.gri.msstate.edu/ipams](http://www.gri.msstate.edu/ipams)) and the Cactus Moth Detection and Monitoring Network ([www.gri.msstate.edu/cactus\\_moth](http://www.gri.msstate.edu/cactus_moth)). Our specific collaborations include the Mississippi Cooperative Weed Management Area, Pearl River Valley Water Supply District, Mississippi Department of Agriculture and Commerce, and others.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
216	Integrated Pest Management Systems

### 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
2012	1075

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

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

Traditionally Mississippi faces almost exclusively tobacco thrips in cotton which are easily controlled with insecticide seed treatment. However, in 2012 the primary species present in MS cotton was Western flower thrips which are not controlled with insecticide seed treatments or many of the traditional foliar insecticide sprays.

##### What has been done

As soon as cotton began emerging across the state, severe injury from thrips feeding began to show up and foliar treatments began to be applied. It was discovered that the traditional organophosphate chemistry used for foliar thrips control was not adequate, and producers began to reapply the same products. MSU Extension identified the species as Western flower thrips, only controlled with insecticides in the spinosad family. MSU Extension immediately released information with recommendations to control this pest.

### Results

In 2012, producers averaged 2.3 foliar applications for Western flower thrips on 85% of the acres (480,000 acres planted). It is conservatively estimated that if producers would have continued to apply the incorrect insecticides to control this pest, it would have required at least one additional application on (480,000 x 85% = 408,000 acres) of the cotton acres as well as unneeded insecticide into the environment. This is a cost savings to producers directly related to quick action of MSU Extension of \$3,672,000.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
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

### 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

{No Data Entered}

### 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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

MAFES scientists operate research programs under an approved Hatch or Hatch-Multistate CRIS project plan of work. Outputs, outcomes, target audiences, and impacts are reported annually through the CRIS (REReport) system. Annual and project termination reports are developed by scientists and reviewed by Department Heads and the Director's office before submission to USDA-NIFA through REReport.

### **Key Items of Evaluation**

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

**Program # 11**

**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%	
123	Management and Sustainability of Forest Resources	45%		2%	
124	Urban Forestry	10%		0%	
125	Agroforestry	15%		0%	
133	Pollution Prevention and Mitigation	10%		0%	
201	Plant Genome, Genetics, and Genetic Mechanisms	0%		10%	
211	Insects, Mites, and Other Arthropods Affecting Plants	0%		86%	
901	Program and Project Design, and Statistics	0%		2%	
	<b>Total</b>	100%		100%	

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

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	13.0	0.0	0.5	0.0
Actual Paid Professional	13.9	0.0	0.8	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
373933	0	68848	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
373933	0	17417	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	177402	0

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

**1. Brief description of the Activity**

Research will be conducted in forest production and management, timber harvesting, forest recovery, and environmental impacts of forest practices. Extension programming will be conducted to share this information with forest landowners and industry personnel.

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

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

**3. How was eXtension used?**

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, 212 MSU employees are eXtension users, with 15 new registrations during this reporting period. Further, MSU Extension has 64 employees that serve on one or more of the 72 Communities of Practice (COPs); MSU Extension employees are member of 33 COPs. Twelve MSU Extension employees serve as a leader for a COP, leading 9 COPs. MSU Extension personnel are members of the Wood Products COP, the Prescribed Fire COP, and the Climate, Forests, and Woodlands COP.

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

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	56536	47033	0	0

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

Year: 2012  
 Actual: 1

**Patents listed**

Provisional Patent: Compositions for control of subterranean Termites, 61/646,005

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
Actual	4	53	0

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

**Output Target**

**Output #1**

**Output Measure**

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

Year	Actual
2012	17262

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

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

O. No.	OUTCOME NAME
1	Number of timber producers adopting new technologies and practices.
2	Number of forest producers increasing profitability of their forest operations.
3	Number of producers improving their environmental stewardship.

**Outcome #1**

**1. Outcome Measures**

Number of timber producers adopting new technologies and practices.

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	3452

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

**Issue (Who cares and Why)**

Forests comprise approximately 19.8 million acres, or nearly 70% of the state's land base. As such, forests and forestry play a significant role in the Mississippi economy, contributing an economic impact to the state of 36,160 jobs (2.4% of the state total) and over \$10 billion in annual economic impacts.

**What has been done**

In 2012, MSU Extension Forestry conducted 21 county forest landowner short courses, 40 workshops, and 52 youth programs, among others, with 21,000 participants.

**Results**

Reported acres impacted by Extension Forestry programming in 2012 [MSU Forestry Extension Annual Report 2012] 303,118 (Short Courses) + 461,636 (Workshops) = 764,754 acres.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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 forest 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**

<b>Year</b>	<b>Actual</b>
2012	2762

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

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

Forestry is an important income source and heritage to more than 300,000 private forest landowners throughout the state. Improved management through educational programs will increase the economic input from these lands.

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

In 2012, MSU Extension Forestry conducted 428 educational programs with 21,000 participants.

#### **Results**

Economic Impact of MS forest land benefiting from 2012 MSU Extension Service Forestry

Programming:

Employment = 2447

Wages/salaries = \$101,505,258

Output = \$400,935,030

Value Added = \$152,409,292

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

<b>KA Code</b>	<b>Knowledge Area</b>
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**

<b>Year</b>	<b>Actual</b>
2012	1381

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

**Issue (Who cares and Why)**

Forest landowners need educational programs in order to better manage their land.

**What has been done**

In 2012, MSU Extension Forestry conducted 21 county forest landowner short courses, 40 workshops, and 52 youth programs, among others, with 21,000 participants.

**Results**

Programs impacted the management on over 750,000 acres of Mississippi forestland. Participants valued the information they received from Extension Forestry programs at over \$4 million.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
122	Management and Control of Forest and Range Fires
133	Pollution Prevention and Mitigation

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

### **External factors which affected outcomes**

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

### **Brief Explanation**

{No Data Entered}

## **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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

MAFES scientists operate research programs under an approved Hatch or Hatch-Multistate CRIS project plan of work. Outputs, outcomes, target audiences, and impacts are reported annually through the CRIS (REEport) system. Annual and project termination reports are developed by scientists and reviewed by Department Heads and the Director's office before submission to USDA-NIFA through REEport.

### **Key Items of Evaluation**

**V(A). Planned Program (Summary)****Program # 12****1. Name of the Planned Program**

Horticulture

 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	15%		2%	
202	Plant Genetic Resources	0%		3%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%		4%	
204	Plant Product Quality and Utility (Preharvest)	15%		5%	
205	Plant Management Systems	60%		53%	
206	Basic Plant Biology	0%		3%	
211	Insects, Mites, and Other Arthropods Affecting Plants	0%		6%	
212	Pathogens and Nematodes Affecting Plants	0%		7%	
216	Integrated Pest Management Systems	0%		2%	
601	Economics of Agricultural Production and Farm Management	10%		4%	
602	Business Management, Finance, and Taxation	0%		1%	
603	Market Economics	0%		1%	
604	Marketing and Distribution Practices	0%		1%	
903	Communication, Education, and Information Delivery	0%		8%	
	<b>Total</b>	100%		100%	

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

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

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	20.0	0.0	3.5	0.0
Actual Paid Professional	22.3	0.0	5.4	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
598936	0	210386	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
598936	0	669266	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	621077	0

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

**1. Brief description of the Activity**

Research and extension activities designed to:

- Increase commercial producer profitability by promoting cultural practices that are research based;
- Improve marketing of horticultural crops;
- Determine commercial producer and support industry needs via interaction with commodity groups, grower meetings, advisory councils, etc.
  - Reduce economic and environmental impact of commercial production by facilitating implementation of integrated pest management techniques in commercial production;
  - Increase commercial production efficiency by decreasing labor requirements, i.e. mechanization, automation, etc.
  - Continue selection of appropriate varieties for local environments in Mississippi;
  - Increase the sustainability, efficiency, and enjoyment of home and non-commercial horticulture; and
  - Contribute to the overall art and science of horticulture.

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

The target audience includes commercial producers, manufacturers, suppliers, managers, and consumers, within the vegetable and fruit production, sweetpotato, turf, floriculture, and ornamental nursery industries. It also includes gardeners, landscapers, turf owners/managers, retailers and wholesalers in commercial and/or non-commercial horticulture.

**3. How was eXtension used?**

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, 212 MSU employees are eXtension users, with 15 new registrations during this reporting period. Further, MSU Extension has 64 employees that serve on one or more of the 72 Communities of Practice (COPs); MSU Extension employees are member of 33 COPs. Twelve MSU Extension employees serve as a leader for a COP, leading 9 COPs. MSU Extension faculty lead the All About Blueberries COP, Bee Health COP, and Grapes COP. Extension personnel are members of these COPS as well as the Consumer Horticulture COP.

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

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	153743	148229	0	0

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

**Patent Applications Submitted**

Year: 2012

Actual: 6

**Patents listed**

1. Provisional Patent - Crapemyrtle Plant Named Neshoba, serial number 61/626,458
2. Provisional Patent - Crapemyrtle Plant Named Pascagoula, serial number 61/626,459
3. Provisional Patent - Crapemyrtle Plant Named Sequoyah, serial number 61/626,463
4. Provisional Patent - Crapemyrtle Plant Named Shumaka, serial number 61/626,497
5. Provisional Patent - Crapemyrtle Plant Named Tishomingo, serial number 61/626,484
6. Patent Awarded - Bermuda grass Plant Named "MSB-04-264." Patent Application submitted and notice of Allowance received.

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	7	17	0

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

**Output Target**

**Output #1**

**Output Measure**

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

Year	Actual
2012	50329

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

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

O. No.	OUTCOME NAME
1	Number of clientele adopting recommended practices, new technologies, strategies, systems, or cultivars.
2	Number of producers reporting increasing profitability levels.
3	Number of Master Gardeners completing training.
4	Number of attendees at field days and events reporting knowledge gains in post event surveys.

## **Outcome #1**

### **1. Outcome Measures**

Number of clientele adopting recommended practices, new technologies, strategies, systems, or cultivars.

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

- 1862 Extension
- 1862 Research

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

Change in Action Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	10666

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

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

MSU Extension has provided relevant, timely, and appropriate information to Mississippi fruit growers for more than a century. However, as electronic technology advances and becomes faster and more affordable, it is inevitable that the next generation of users will desire information delivered in this format.

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

To satisfy the current need and prepare for future needs, a blog was begun to address fruit education in Mississippi. The blog, Mississippi Fruit and Nut Blog ([msfruitextension.wordpress.com](http://msfruitextension.wordpress.com)) allow an extension educator to communicate directly with their audiences, delivering timely information, and initiating online conversation in a collaborative

#### **Results**

The blog started in December 2011. From December 2011 to September 2012, nearly 6,000 views were made by visitors from 110 countries. Visitors gain knowledge in various areas including pest control, cultural management, and variety selection. The posts have been shared 62 times by readers and have elicited 66 comments. These numbers are growing rapidly. Deriving a monetary value is difficult, but readers must find the time investment worthwhile in finding the material and then implement the knowledge after reading. Writing a blog can be a rewarding experience, both for the author and reader. An engaging blog allows the author to become more familiar to the audience, breaking down barriers between the university and the grower and creating trust between the parties on a more personal level.

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

<b>KA Code</b>	<b>Knowledge Area</b>
----------------	-----------------------

102	Soil, Plant, Water, Nutrient Relationships
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
601	Economics of Agricultural Production and Farm Management

## **Outcome #2**

### **1. Outcome Measures**

Number of producers reporting increasing profitability levels.

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

- 1862 Extension
- 1862 Research

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	8053

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

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

Roses are a major horticultural crop highly desired for their beauty, fragrance and nostalgia. However, numerous cultivars are challenged by the heat and humidity of MS, making them a high maintenance plant for gardens. Gardeners and landscape professionals will use roses in their landscapes if sustainable cultural techniques and cultivars can be developed. Program goals are to provide best management practices for production and garden maintenance of roses and broaden opportunities for low-maintenance gardens and land restoration.

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

Research and extension activities are carried out at the Veterans Memorial Rose Garden (VMRG) at MSU. Roses are present for public viewing as well as for research observation. Research plots contain experiments that investigate sustainable gardening and landscape practices for roses and other ornamental species. Two years of data collection on a study of modern shrub roses concluded in spring, and a second experiment on heat tolerance on the shrub roses was initiated. A study of soil influences on growth of native perennials is ongoing.

#### **Results**

A constant flow of visitors to the site are observed year-round. Tours, demonstrations, videotapes and other media capable of reaching a diverse audience are used to promote landscape design, gardening, and care of roses. The garden is also used for teaching classes, exercise and meeting place. Analysis of the recently finished shrub rose research project will provide best management

practices for optimum spacing of these roses in the landscape, which is a common issue in garden installations. Completion of the study on effect of soil flora on the growth of native perennials will indicate whether native perennials, as a group, are improved by addition of soil biological amendments.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
601	Economics of Agricultural Production and Farm Management

#### Outcome #3

##### 1. Outcome Measures

Number of Master Gardeners completing training.

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	195

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

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

Popularity of home gardening and landscaping continues to rise with a corresponding need for accurate and timely home horticulture information and programming to meet this demand. County Extension offices continue to report that most questions asked pertain to home horticulture. With a reduced Extension workforce to supply information and conduct programming, the Master Gardener volunteer is vital for Extension's outreach to home gardeners.

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

The Mississippi Master Gardener program is growing, with more trained volunteers being recruited and trained than ever before. Mississippi now has 52 counties with the Master Gardener program. Each year approximately 200 new Master Gardeners are trained and added to the program for a total in Mississippi of approximately 1,500 active Master Gardeners.

###### **Results**

Master Gardener volunteers devoted 47,303 hours to deliver home horticulture programming and

information to MS citizens. This equates to 23 FTEs and represents a donation of time valued at \$1,047,289. They made 87,882 contacts while traveling 150,336 miles. Volunteers devoted 20,858 hours to develop and maintain educational projects; 2,768 hours to deliver presentations; 926 hours to write and publish newspaper columns, magazine articles, factsheets, etc.; 893 hours to youth programming; and numerous other hours that increased home gardeners' knowledge and awareness of good gardening practices and techniques. The volunteers extend and amplify the impact of a decreased Extension workforce and provide clientele with access to an abundance of home horticulture expertise and face-to-face contact at the county level.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems

#### Outcome #4

##### 1. Outcome Measures

Number of attendees at field days and events reporting knowledge gains in post event surveys.

Not Reporting on this Outcome Measure

#### 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

{No Data Entered}

#### 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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

MAFES scientists operate research programs under an approved Hatch or Hatch-Multistate CRIS project plan of work. Outputs, outcomes, target audiences, and impacts are reported annually through the CRIS (REReport) system. Annual and project termination reports are developed by scientists and reviewed by Department Heads and the Director's office before submission to USDA-NIFA through REReport.

### **Key Items of Evaluation**

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

**Program # 13**

**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
135	Aquatic and Terrestrial Wildlife	30%		50%	
136	Conservation of Biological Diversity	15%		0%	
214	Vertebrates, Mollusks, and Other Pests Affecting Plants	5%		0%	
304	Animal Genome	0%		26%	
305	Animal Physiological Processes	0%		1%	
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals	5%		0%	
605	Natural Resource and Environmental Economics	30%		20%	
722	Zoonotic Diseases and Parasites Affecting Humans	5%		2%	
723	Hazards to Human Health and Safety	0%		1%	
903	Communication, Education, and Information Delivery	10%		0%	
	<b>Total</b>	100%		100%	

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

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	7.0	0.0	0.5	0.0
Actual Paid Professional	7.1	0.0	3.4	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
192116	0	455434	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
192116	0	44554	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	864820	0

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

### 1. Brief description of the Activity

In Mississippi, fishing, hunting, and wildlife -associated recreation represent an industry with a \$2.7 billion total output, supporting 66,171 jobs with \$1.1 billion in wages. Conservation of these wildlife populations and the wetland, grassland, and forest ecosystems that support them is central to sound environmental stewardship of our agricultural and forested landscapes. In-state and multistate research and extension activities will be 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 consists 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, those who educate our youth (K-12), and non-industrial private forest and agricultural landowners.

### 3. How was eXtension used?

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, 212 MSU employees are eXtension users, with 15 new registrations during this reporting period. Further, MSU Extension has 64 employees that serve on one or more of the 72 Communities of Practice (COPs); MSU Extension employees are member of 33 COPs. Twelve MSU Extension employees serve as a leader for a COP, leading 9 COPs. MSU Extension personnel are members of the Feral Hogs COP (one is a leader of the COP) and the Wildlife Damage Management COP.

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

### 1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	28778	16543	0	0

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

**Patent Applications Submitted**

Year: 2012

Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
Actual	4	56	0

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

**Output Target**

**Output #1**

**Output Measure**

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

Year	Actual
2012	7554

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

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

O. No.	OUTCOME NAME
1	Number of clientele adopting recommended wildlife habitat improvement practices.
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 clientele reporting increased income levels due to wildlife enterprises.
6	Number of youth trained in summer camps and workshops on natural resources management.
7	Number of K-12 educators trained in workshops on fundamentals of natural resources management in accordance with the National Council for the Accrediting of Teacher Education.

## **Outcome #1**

### **1. Outcome Measures**

Number of clientele adopting recommended wildlife habitat improvement practices.

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

- 1862 Extension
- 1862 Research

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

Change in Action Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	1511

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

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

The Mississippi Choctaw FRTEP office has changed the attitude of using a non-Indian educational resource by remaining on tribal land for 13 years and gaining trust of the tribal department directors, elected officials, community members, and Choctaw schools.

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

Due to this attitude change by the tribe as a whole, more than 30 educational programs are implemented annually specifically for the Choctaw people and many impacts are the result.

#### **Results**

Impacts related to wildlife and fisheries include: 1) Soil testing resulting in an estimated \$3,000 saving for Choctaw Wildlife Department; 2) approximately 1,500 acres managed for wild hog control and 40% increase in animal harvest; 3) approximately 30% more whitetail doe deer harvested; 4) a chronic wasting disease program implemented impacting approximately 30,000 acres; and 5) more than 40 tribal gardeners implementing beneficial herbicides to home gardens and approximately 20 additional soil analyses annually.

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

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

<b>Year</b>	<b>Actual</b>
2012	1209

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

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

In the U.S., wild pigs (*Sus scrofa*) are non-native, invasive pests that pose a significant threat to agriculture, forestry, ecosystems, watersheds, native plant and animal communities, and human health. Pig rooting and trampling damage agricultural crops, and impact native plant regeneration, soil properties, nutrient cycling, and water infiltration. In Mississippi, approximately 40% of the land area is now occupied by wild pigs. The only long-term solution for many of these problems is reduction of both size and range of pig populations.

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

MSU Extension Specialists and Associates are conducting hands-on educational workshops throughout Mississippi and the southeastern U.S. to educate landowners, natural resource professionals, and policy makers on the negative impact of wild pigs and how to minimize their effects and control their population expansion.

#### **Results**

MSU Extension personnel developed the following products and organized the following events related to wild pig management: 1) Publication - A Landowner's Guide for Wild Pig Management: Practical Methods of Wild Pig Control; 2) Video - A Pickup Load of Pigs: The Feral Swine Pandemic Website - [www.WildPigInfo.com](http://www.WildPigInfo.com); 3) Directed special sessions at the International Association of Fish and Wildlife Agencies annual conference, The Wildlife Society annual conference, and the National Invasive Species Conference; 4) Conducted 9 workshops in 4 states with 1,015 attendees; 5) Conducted 6 professional trainings in 3 states with 323 attendees;

and 6) Had over 25 presentations at various public events.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife
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
2012	604

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

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

Research conducted at MSU has shown that private landowners and producers can diversify incomes and increase conservation on their lands by developing fee-access outdoor recreational enterprises (i.e., hunting, angling, wildlife watching, and other nature-based activities). The Natural Resource Enterprises Program (NRE) at MSU and collaborators designed educational workshops to train landowners and producers in developing outdoor recreational businesses on working lands leading to an increase in conservation practices on these lands.

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

NRE staff devised curricula and selected rural properties that demonstrated conservation and enterprise activities for hosting educational workshops in AR, IN, LA, MS, and SC. Six general and three more advanced workshops were offered. General workshops included topics such as business management and marketing, legal and liability concerns, wildlife habitat management, and land conservation. Advanced workshops focused on business plan development including an activity where attendees developed a business plan for a mock property.

## Results

Surveys of workshop attendees (both current and past) revealed the following: 1) conservation practices were implemented by farmers and landowners on nearly 2,400 farms and ownerships affecting an estimated 1.6 million acres; 2) 1,000 new NRE businesses were initiated nationwide that affected & conserved an estimated 800,000 acres; 3) annual revenues collected from new NRE businesses averaged \$12,000 per farm (\$15 per acre) accounting for nearly \$4.5 million in aggregate cash flow; 4) landowners reported that NRE incomes met or exceeded their expectations; 5) 3 primary land management goals were reported by farmers and owners (i.e., to increase wildlife on land, to become more knowledgeable about conservation and NRE opportunities on their farms, and to reduce liability concerns in operating NRE businesses).

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
136	Conservation of Biological Diversity
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.

Not Reporting on this Outcome Measure

### Outcome #5

#### 1. Outcome Measures

Number of clientele reporting increased income levels due to wildlife enterprises.

Not Reporting on this Outcome Measure

### Outcome #6

#### 1. Outcome Measures

Number of youth trained in summer camps and workshops on natural resources management.

#### 2. Associated Institution Types

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	1105

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

**Issue (Who cares and Why)**

Wildlife and forestry are two of the most valuable and cherished natural resources within the state of MS, yet today's youth spend less time exploring, enjoying, and understanding the importance of these resources. Opportunities for elementary students to engage in science-related activities inside and outside the classroom are often inadequate, particularly among underrepresented populations. As a result, MS students at all academic levels fall behind national and international achievement in science and math related disciplines.

**What has been done**

MSU Extension partnered with the MS University for Women's Science Enrichment Program (SEP) to deliver the Wild Kids program. Wild Kids is a full-day program offered free of charge to 3-8th grade students across MS as a supplement or complement to their classroom science lessons. Wild Kids covers ornithology, entomology, mammals, and endangered species. The program is aligned to the MS state standards for Environmental Science, Biology, and Ecology. In addition, the Wild Kids program offers an annual summer day camp for 3-8th grade students.

**Results**

Over 400 students have participated in the Wild Kids program. Evaluation of students and teachers indicated greater knowledge and appreciation of natural resources following the program. Students participating in the summer portion of Wild Kids express greater interest in pursuing careers in natural resources, greater enthusiasm for science, and a deeper concern for threatened and endangered species.

**4. Associated Knowledge Areas**

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

**Outcome #7**

**1. Outcome Measures**

Number of K-12 educators trained in workshops on fundamentals of natural resources management in accordance with the National Council for the Accrediting of Teacher Education.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	105

**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, yet future voters and landowners will not appreciate that need if current trends continue. Therefore, it is critical that young people and youth-serving adults are educated about the role of conservation and wise use of the land to ensure the sustainability of agriculture and natural systems in Mississippi.

**What has been done**

MSU's Department of Wildlife, Fisheries and Aquaculture (WFA) Extension Service, in collaboration with other entities such as including Mississippi University for Women, Natural Resources Conservation Service, U.S. Fish and Wildlife Service, Mississippi Department of Wildlife, Fisheries, and Parks, Quail Forever, and Wild Turkey Federation offers adult professional development workshops and youth outreach events on conservation topics.

**Results**

In 2012: 1) 24 volunteer leaders/teachers attended a workshop on teaching natural science through natural arts; 2) 19 teachers attended two workshops hosted by NRCS and learned how to use birds or mammals as an integrating context from which to teach multiple disciplinary topics at all grade levels; 3) 25 teachers learned about mammal ecology as part of the Advancing Teachers of Middle School Science (ATOMS2); 4) 8 Boy Scouts of America leaders learned about wildlife and fisheries management in two half-day workshops that provided Scouts with training on select merit badges; and 5) 120 pre-service teachers in the College of Education observed and assisted with environmental science education through the mentoring programs in the Youth Environmental Science Program.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
903	Communication, Education, and Information Delivery

### **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**

{No Data Entered}

### **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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

#### **Key Items of Evaluation**

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

**Program # 14**

**1. Name of the Planned Program**

Enterprise and Community Development

Reporting on this Program

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

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
403	Waste Disposal, Recycling, and Reuse	0%		25%	
511	New and Improved Non-Food Products and Processes	0%		25%	
608	Community Resource Planning and Development	25%		0%	
609	Economic Theory and Methods	25%		0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	25%		30%	
805	Community Institutions, Health, and Social Services	25%		20%	
	<b>Total</b>	100%		100%	

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

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	8.0	0.0	0.3	0.0
Actual Paid Professional	19.3	0.0	1.4	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
518288	0	2156	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
518288	0	79185	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	173558	0

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

### 1. Brief description of the Activity

Extension will assist local communities in conducting the following activities:

- Development of demographic, economic, and fiscal profiles
- Development of 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
- 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 consists of local communities and their leaders.

### 3. How was eXtension used?

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, 212 MSU employees are eXtension users, with 15 new registrations during this reporting period. Further, MSU Extension has 64 employees that serve on one or more of the 72 Communities of Practice (COPs); MSU Extension employees are member of 33

COPs. Twelve MSU Extension employees serve as a leader for a COP, leading 9 COPs. Several MSU faculty members serve on the Entrepreneurs and Their Communities COP.

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

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	74011	130548	0	0

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

**Patent Applications Submitted**

Year: 2012  
 Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	0	1	0

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

**Output Target**

**Output #1**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2012	34093

**Output #2**

**Output Measure**

- Number of communities requesting economic analyses.

<b>Year</b>	<b>Actual</b>
2012	8

**Output #3**

**Output Measure**

- Number of communities participating in community health improvement activities.

<b>Year</b>	<b>Actual</b>
2012	56

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

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

O. No.	OUTCOME NAME
1	Number of community leaders improving knowledge and skills.
2	Number of participants implementing strategies to improve public decision-making and/or increase civic engagement.
3	Number of local government officials obtaining required certifications.
4	Number of local communities adopting recommended strategies to improve their local economy.
5	Number of local communities adopting recommended strategies to improve health services.
6	Number of communities implementing strategies for improvement, development, and/or marketing of tourist attractions.
7	Number of local communities improving their health services.
8	Number of communities reporting increased levels of tourist activity.
9	Number of communities reporting an increase in local broadband adoption and use.

## **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**

<b>Year</b>	<b>Actual</b>
2012	6819

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

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

The Geospatial Education and Outreach (GEO) Project has delivered hundreds of professional workshops on geographic information systems (GIS) to Mississippians since 2006. GIS has been implemented in local and state government agencies, such as tax assessors, law enforcement, transportation, planning, forestry, agriculture and emergency management. The GIS workshops have also been instrumental in the retention and expansion of geospatial industries in MS, especially at NASA's John C. Stennis Space Center.

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

The 2 and 3 day workshops were written by the world's largest developer of GIS software, ESRI Inc. The workshops are typically offered only by ESRI personnel. However, the members of the GEO Project team were certified by ESRI to teach several of their workshops only after proven extensive experience and examinations. Over the past several years the GEO Project has received regional and national recognition for advancing the use and adoption of GIS by the people of MS.

#### **Results**

The cost of the workshops, if taken from ESRI personnel, is \$1,010 for 2-day workshops and \$1,515 for 3-day workshops. Add travel, lodging and per diem to attend the ESRI workshops in cities such as San Antonio, Charlotte and Redlands (California) and the total cost for a workshop participant can easily reach \$3,000 to \$3,500. The GEO Project offers the courses to employees of MS's local and state government agencies at no-cost to the participants. All other attendees pay only for the workshop materials. The GEO Project receives funding from various external sources to be able to deliver the workshops throughout the state, eliminating travel expenses for workshop participants.

#### 4. Associated Knowledge Areas

<b>KA Code</b>	<b>Knowledge Area</b>
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

<b>Year</b>	<b>Actual</b>
2012	5455

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

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

In preparation for deployment to Afghanistan, the MS National Guard contacted MSU Extension about providing education and technical assistance training to soldiers on agriculture, community development, and food preparation. The training was to help the soldiers help the Afghan Government to grow and feed its people by building capacity within and among regions in the country.

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

Extension specialists and researchers delivered a six-day Agricultural Development program that was educational, hands-on, technical, and applied to help the soldiers promote the long-term viability of regions across the Afghan landscape. The training explored strategies that added value to the important agricultural base of the country. Beyond in-class work were practical examples and field trips to MSU labs and demonstration facilities that introduced the soldiers to information and skills to support their outreach education activities.

###### **Results**

Results: 1) Provided insight on economic and agricultural development strategies that may boost the long-term economic vitality of Afghanistan; 2) Taught educational programs/training activities, information, technical assistance that respond to high priority agricultural development needs; 3) Delivered science-based information on agriculture and rural development; 4) Delivered agricultural training programs that enhance public policy activities; 5) Improved evaluation and decision making on benefits and costs associated with development projects to help improve the use of international financial resources; and 6) Strengthened/expanded pool of local leaders willing to take an active part in guiding the blueprint of their country.

**4. Associated Knowledge Areas**

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

<b>Year</b>	<b>Actual</b>
2012	2231

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

**Issue (Who cares and Why)**

To ensure citizens of Mississippi receive effective services from their state and local governments, MSU Extension's Center for Government and Community Development (GCD) offers certification programs for board attorneys, chancery clerks, county supervisors, drinking water programs, emergency management/homeland security, municipal clerks, and tax assessors/collectors.

**What has been done**

GCD staff design and deliver educational programs, training activities, information, and technical

assistance in response to high priority economic and community development needs of MS communities and citizens. Participants are local government leaders, community-based organizations, state and local agencies, and business enterprises. GCD also provides high quality, science-based information on economic and community development topics through newsletters, web sites, trade magazines, and special reports.

**Results**

GCD activities help the university build strong partnerships with agencies, institutions, organizations, and foundations that have a shared commitment to strengthening the well-being of Mississippi communities and the work of local government officials. The purpose of all the certification programs offered through the GCD is to allow locally elected and appointed officials to gain greater expertise and professionalism. In the 2012 reporting period, 2,231 local government officials obtained required certifications that will enhance the services provided to Mississippi citizens.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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**

<b>Year</b>	<b>Actual</b>
2012	10

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

**Issue (Who cares and Why)**

Economic development depends in part on cooperation and leadership at the local level among leaders who allocate scarce resources. Therefore, knowledge of economic development and leadership training play a critical role in preparing local leaders to manage resources at the local level to make wise decisions about resource usage and investment decisions.

**What has been done**

The Department of Agricultural Economics community development faculty have partnered with the MSU Center for Government and Community Development to build a leadership/economic development educational program for county supervisors. Lead Mississippi teaches such principles of leadership as trust development and business ethics combined with economic development principles including understanding a local economy, the economics of recruiting industry, and how to build regional alliances with similar counties to promote job opportunities.

**Results**

Lead Mississippi has been favorably received by the pilot group of county supervisors thus far. They have repeatedly called for greater assistance from Extension in the area of economic development and are encouraged by the steps taken to create Lead Mississippi. Improving the functioning of local governments and improving local economies will be the most significant impacts of this program. Lead Mississippi will be made available to all 82 counties in the state.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
608	Community Resource Planning and Development
609	Economic Theory and Methods

**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**

<b>Year</b>	<b>Actual</b>
2012	17

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

**Issue (Who cares and Why)**

Public water system boards were not managing systems in a sustainable manner. MS legislature mandated that boards of all association boards and small municipalities undergo 8 hours of management training.

**What has been done**

MSU Extension developed specialized curricula and training materials for trainers and participants designed to satisfy the course requirement. MSU Extension also tracks all persons who have undergone certification training.

**Results**

Average capacity assessment score of water systems has increased significantly (from 3.19/5.00 in 2002 to 4.01/5.00 in 2011). Furthermore, the number of systems scoring 3.00/5.00 or below (the primary indicator of high capacity) has declined from 512 in 2002 to 224 in 2011.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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**

<b>Year</b>	<b>Actual</b>
2012	25

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

**Issue (Who cares and Why)**

The number of families able to stay on farms has decreased significantly. New models of increasing profits for farmers include opening farms to the public. Agritourism is a potential solution for farmers who desire to keep the agricultural heritage of a place within the family, increase profitability of the farm, and to provide the public an educational opportunity to learn about the food supply.

**What has been done**

MSU Extension led the (re)formation of the Mississippi Agritourism Steering Committee which was made up of representatives from public service agencies engaged in some aspect of agritourism to assess the needs of operators and visitors and marketing organizations.

**Results**

Through the efforts of the Mississippi Agritourism Steering Committee, the registration process for coverage under the new Limited Liability Law was decided and a plan was devised for alerting operators of the new law and the benefits of registering their operation. Agritourism is the fastest growing sector in the tourism industry, valued at \$150 million in the US and \$3.5 million in MS. While the number of farms decreased 17% between 2002 and 2007, agritourism revenues increased almost 130%. Increasingly, urbanites are looking for ways to experience the outdoors. Agricultural producers continue to adapt to changing economic realities and many find that devoting a small portion of acreage to agritourism efforts is a relatively profitable way to use their land.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

#### Outcome #7

##### 1. Outcome Measures

Number of local communities improving their health services.

##### 2. Associated Institution Types

- 1862 Extension
- 1862 Research

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	20

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

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

Mississippi has the second to lowest number of physicians per capita in the nation. Clearly, this limits access to care for the state's citizens and contributes to many of the negative health status indicators plaguing the state. Mississippi is within the top three in the nation in rates of heart disease mortality, cancer mortality, and incidence of adult diabetes. The bottom line in Mississippi is easy to read -- more people, per capita, develop potentially fatal diseases than elsewhere in the country and when they do it is more difficult for them to secure the care they need. We need to begin a pipeline of future medical providers.

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

In response to this concern, MSU Extension developed and directs the Rural Medical Scholars (RMS) program. The objective of the program is to "grow local docs" for the state by identifying talented and interested high school students and exposing them to academics and experiences relevant to the life of a family medicine physician. During the program, the Scholars enroll in two pre-medicine courses, "shadow" local physicians, and participate in a variety of activities related to rural physicians.

**Results**

Previous Scholars have started to arrive at the point in their academic careers when medical school is becoming a reality. To date, 275 students have completed the program. Students have come from 59 of 82 counties and included 63% females, 37% males, and 22% minorities. Approximately 72% pursued a health-related career, 32 went to medical school, and 18 have graduated and are practicing physicians today. Of the 18 practicing physicians, 12 are practicing within MS and 12 are in primary care private practice or residency programs. Others are in nursing, pharmacy, counseling, dentistry, physical or occupational therapy, and medical research. A recent study has shown that the addition of one physician to a typical MS county results in an increased economic output of \$2 million.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
805	Community Institutions, Health, and Social Services

**Outcome #8**

**1. Outcome Measures**

Number of communities reporting increased levels of tourist activity.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	2

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

**Issue (Who cares and Why)**

The October-fest Festival has been held annually in Cleveland, Mississippi since 1977 and is one of the most recognized attractions in Bolivar County. For the first time in its 25-year history, the October-fest Festival Planning Committee, Delta State University, and MSU collected data via a survey on visitor spending and vendor sales during the one and half-day event in 2012. The

survey broke down spending and sales into lodging, food and beverages, general merchandise, gasoline, and miscellaneous retail spending.

**What has been done**

The one and half-day event drew an estimated 18,000 visitors according to some observers. MSU Extension used selected results from the survey to estimate the total spending by festival participants and conduct an economic impact analysis of October-fest in Bolivar County. The IMPLAN Input-Output model of economic impact was used to estimate secondary impacts of spending by visitors on households, industries, and governmental organizations in Bolivar County.

**Results**

The results suggested that October-fest contributed positively to the economy of Bolivar County. The primary economic benefit arose from spending by visitors with October-fest vendors and local retailers in the county. With non-local visitor expenditures and vendor sales serving as the primary economic drivers, the analysts estimated that: 1) October-fest created approximately \$131,000 in new spending for businesses in the Bolivar County economy in 2012; 2) the impact of October-fest on labor income was estimated to be approximately \$38,615; 3) fiscal effects of October-fest on the various levels of government totaled almost \$29,462 in 2012; and 4) October-fest generated more than \$68,000 in value added activity.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
608	Community Resource Planning and Development
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

**Outcome #9**

**1. Outcome Measures**

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

Not Reporting on this Outcome Measure

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

**External factors which affected outcomes**

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Government Regulations

**Brief Explanation**

{No Data Entered}

**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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

## **Key Items of Evaluation**

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

**Program # 15**

**1. Name of the Planned Program**

Food Safety

Reporting on this Program

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

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
133	Pollution Prevention and Mitigation	0%		3%	
205	Plant Management Systems	0%		2%	
501	New and Improved Food Processing Technologies	0%		6%	
502	New and Improved Food Products	0%		7%	
503	Quality Maintenance in Storing and Marketing Food Products	0%		10%	
608	Community Resource Planning and Development	0%		2%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	10%		2%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	90%		67%	
723	Hazards to Human Health and Safety	0%		1%	
	<b>Total</b>	100%		100%	

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

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	2.0	0.0
Actual Paid Professional	3.7	0.0	4.4	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
99644	0	84309	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
99644	0	338692	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	1257147	0

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

### 1. Brief description of the Activity

MSU Extension, in partnership with the Mississippi Restaurant and Hospitality Association, the National Restaurant Association, and the Mississippi State Department of Health, provides the primary food safety management certification course used in Mississippi. The ServSafe program is an 8 to 16 hour face-to-face training with a national certification offered by the National Restaurant Association Educational Foundation. Certification lasts for a five-year period. MSU Extension offers both an 8-hour training module, for those individuals who are recertifying or have a background in food safety, and a 16-hour training module for those who are new to food safety management or need additional time for training and instruction. It is the 16-hour training that is unique to MSU Extension and this extended training format continues to benefit many individuals who request a more in-depth training.

Key Training Areas Include:

#### **The Food Safety Challenge**

Providing Safe Food  
The Microworld  
Contamination and Food Allergies  
The Safe Food Handler

#### **The Flow of Food Through the Operation**

Purchasing, Receiving, and Storage  
Preparation  
Service

#### **Food Safety Management Systems, Facilities, and Pest Management**

Food Safety Management Systems  
Sanitary Facilities and Equipment  
Cleaning and Sanitizing  
Integrated Pest Management

#### **Food Safety Regulations and Employee Training**

Food Safety Regulations and Standards  
Employee Food Safety Training

### 2. Brief description of the target audience

MSU Extension employees provide the course to managers, owners, and foodservice employees from a variety of foodservice settings, including commercial restaurants, hospitals, school foodservice, childcare centers, and other locations where food safety policies and procedures are required and necessary to protect public health.

**3. How was eXtension used?**

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, 212 MSU employees are eXtension users, with 15 new registrations during this reporting period. Further, MSU Extension has 64 employees that serve on one or more of the 72 Communities of Practice (COPs); MSU Extension employees are member of 33 COPs. Twelve MSU Extension employees serve as a leader for a COP, leading 9 COPs. The Food Safety resources provided through eXtension were used to supplement and enhance our public learning experiences provided by MSU Extension agents and specialists.

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

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	9864	6651	0	0

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

**Patent Applications Submitted**

Year: 2012  
 Actual: 1

**Patents listed**

Provisional Patent: A one tube Salmonella Detection Kit - 61/626,694

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
Actual	2	29	0

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

**Output Target**

**Output #1**

**Output Measure**

- Number of people attending certification courses.

<b>Year</b>	<b>Actual</b>
2012	2753

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

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

O. No.	OUTCOME NAME
1	Number of foodservice professionals achieving required certification in food handling techniques.

**Outcome #1**

**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**

<b>Year</b>	<b>Actual</b>
2012	2395

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

**Issue (Who cares and Why)**

In a recent survey, provided by the CDC it was stated that 1 in 6 persons in the U. S. become sick through foodborne transmission each year. In an effort to prevent foodborne illnesses through licensed commercial, institutional, and catering facilities, the MS Food Code requires any licensed operation to provide documentation that key members of their operation have received approved food safety training.

**What has been done**

MSU Extension, in partnership with the MS Restaurant and Hospitality Association, the National Restaurant Association, and the MS Department of Health provide the primary food safety management certification course in MS. ServSafe provides face-to-face training, and upon successful completion of the course and examination, a national certification provided by the National Restaurant Association Educational Foundation. There are currently 11 instructors providing courses throughout the state in both 8-hour and 16-hour course formats.

**Results**

From 10/1/2011 through 9/30/2012, there were 29 classes were taught by 8 ServSafe certified instructors. These courses provided instruction to 470 individuals seeking certification. Of the 470 participants, 398 students passed with a score of 75% or higher, while 72 students failed to meet the required passing score of 75%. Passage rate for all attendees taking the certification exam was 84.6% which is a 6% increase over the previous 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 office receives calls daily from individuals and businesses seeking not only information regarding upcoming classes, but also to receive information regarding food safety issues as well.

#### 4. Associated Knowledge Areas

<b>KA Code</b>	<b>Knowledge Area</b>
503	Quality Maintenance in Storing and Marketing Food Products
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

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

##### External factors which affected outcomes

- Public Policy changes
- Competing Programmatic Challenges

##### Brief Explanation

{No Data Entered}

#### 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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

##### Key Items of Evaluation

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

**Program # 16**

**1. Name of the Planned Program**

Human Nutrition

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	100%		0%	
	<b>Total</b>	100%		0%	

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

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	14.0	0.0	0.0	0.0
Actual Paid Professional	20.4	0.0	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
547363	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
547363	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

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

1. Brief description of the Activity

Research and Extension activities will be carried out, including:

- Partner with community groups and organizations to set up educational opportunities,

- Train/Update professional and paraprofessionals on new USDA Food Pyramid and other related materials,
- Conduct educational programs as needed,
- Partner with local school systems to conduct nutrition-based research and provided nutrition education.

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

The audience for this program consists of all Mississippians. Special emphasis is placed on those who historically have demonstrated poor nutrition behaviors, which includes low-income populations--both parents and children in these families are targeted.

**3. How was eXtension used?**

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, 212 MSU employees are eXtension users, with 15 new registrations during this reporting period. Further, MSU Extension has 64 employees that serve on one or more of the 72 Communities of Practice (COPs); MSU Extension employees are member of 33 COPs. Twelve MSU Extension employees serve as a leader for a COP, leading 9 COPs. MSU Extension was heavily engaged in the Families, Food and Fitness COP with 4 faculty members serving as leaders of the COP and 10 additional employees as members. Extension personnel are also members of the Community Nutrition Education COP and the Community, Local and Regional Food Systems COP.

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

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	164247	259203	250870	388805

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

**Patent Applications Submitted**

Year: 2012  
 Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	3	0	0

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

**Output Target**

**Output #1**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2012	177688

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

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

O. No.	OUTCOME NAME
1	Number of clientele who learn how to use the food pyramid and nutritional guidelines to make food decisions.
2	Number of clientele who adopt practices to fit their diets within the dietary guidelines.
3	Number of clientele reporting improved health and/or well-being due to changes in diet.

## **Outcome #1**

### **1. Outcome Measures**

Number of clientele who learn how to use the food pyramid and 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**

<b>Year</b>	<b>Actual</b>
2012	35538

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

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

Mississippi has the highest childhood obesity rate in the U.S. at 22%. The number of low-income children that are overweight/obese is disproportionate to higher-income children. This is also true for very young children. According to the Pediatric Nutrition Surveillance System, approximately 15% of MS low-income children ages 2 to 5 years in federally funded programs are obese.

Research indicates that introducing very young children to healthier food choices may impact decisions later life to consume healthier foods.

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

The Snack Pack Project, funded by ConAgra Food Foundation, is a 19-week comprehensive, interactive nutrition education program designed to promote food and nutrition literacy and low-cost healthy snack food selection among 3 to 5 year olds from low-income families and resource-constrained environments. To reach this audience, the program was developed for Head Start preschoolers. Since 2010-2012 MSU Extension has collaborated with 4 Head Start centers in 4 counties: Attala, Holmes, Montgomery and Webster to pilot the program.

#### **Results**

Since 2010, 550 preschoolers have participated. Results from 370 pre- and post-tests of preschoolers indicate: 85% recognized different foods from the fruit group; 89% recognized different foods from the grain group; 91% 4 to 5 year-olds and 71% 3 to 4 year-olds understood farm to table concepts; 87% were able to identify the person that grows food for them to eat. Seventy percent of 4 to 5 year-olds could identify that fruit is in the ingredients, and 77% could identify healthier food items that we should eat more of to help the body to be strong.

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

**KA Code**    **Knowledge Area**  
703            Nutrition Education and Behavior

**Outcome #2**

**1. Outcome Measures**

Number of clientele who adopt practices to fit their diets within the dietary guidelines.

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	28430

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

**Issue (Who cares and Why)**

In MS, there are many nutritional concerns among the SNAP eligible population. According to the results of the Behavioral Risk Factor Surveillance System (2007), 87.5% of Mississippians with incomes below \$15,000/yr reported consuming less than five fruits and vegetables a day, compared to 81.9% of all Mississippians. Associated dietary issues that impact nutrition behavior include portion control, high fat and sugar intake, food purchasing habits, and food safety.

**What has been done**

In cooperation with the MS Department of Human Services and the USDA, Extension provides nutrition education to individuals that are SNAP eligible. During FY12, the Family Nutrition Program (FNP) had 138,280 participants. The Body Walk exhibit was also set up at 69 public schools in MS, allowing 15,913 students in kindergarten through 5th grade to participate. Students received short lessons in each area of the exhibit to learn how to take care of their bodies such as choosing to participate in physical activity and to make healthy food choices.

**Results**

Approximately 300 teachers of pre-K thru 1st grade observed positive changes in their students' nutrition behaviors such as choosing healthier meals and/or snacks, eating breakfast more often, willingness to try new foods. After participating in nutrition education, adults (n=73) reported they would plan meals ahead of time often (41%) or and always (18%) to help improve the overall nutrition of meals. After completion of the Body Walk exhibit, third graders were asked, "To keep all of your OrganWise Guys in tiptop shape, you can (circle all the correct answers): A. eat a low-fat diet B. eat a high-fiber diet C. drink plenty of water D. eat a candy bar with every meal E. get

1 hour of physical activity a day." Of 3339 third graders, 22% selected all 4 correct answers, and 34% selected 3 correct answers.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

#### Outcome #3

##### 1. Outcome Measures

Number of clientele reporting improved health and/or well-being due to changes in diet.

##### 2. Associated Institution Types

- 1862 Extension
- 1862 Research

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	14215

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

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

Mississippi ranks among the highest states in terms of prevalence of diet-related diseases. Cardiovascular disease, cancer, diabetes, and being overweight/obese are leading chronic diseases and conditions that are contributing significantly to higher mortality and morbidity rates. These chronic diseases are particularly concerning due to MS's elevated poverty rate in comparison to the U.S. MS's poverty rate is 21.2%\*, while the U.S. poverty rate is 14.3%\*\* (2012\*, 2007-2011\*\*).

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

Paraprofessionals work in approximately 61 MS counties with poverty rates at or above the state average. EFNEP nutrition education concentrates on Diet Quality/Physical Activity, Food Safety, Shopping Behavior/Food Resource Management, and Food Security. The target audience is low-income families with young children and low-income children and youth. Schools and Head Start Centers welcome nutrition education. Programs are also conducted with adults to promote dietary changes in the home. This approach supports changes at multiple levels.

###### **Results**

During FY12, EFNEP paraprofessionals worked with 801 families in MS, indirectly reaching 2,780 family members. 91% of program participants graduated, meaning they successfully completed 8

nutrition lessons. Of the adults participating (n=683), the following impact data were reported: Food Resource Management Practices - 87% showed improvement in one or more food resource management practices; Nutrition Practices - 91% showed improvement in one or more nutrition practices; Food Safety Practices - 66% showed improvement in one or more of the food safety practices. Paraprofessionals also worked with 39,096 low-income children and youth through school, after-school, summer, and 4-H programs.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

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

##### External factors which affected outcomes

- Economy
- Competing Public priorities
- Competing Programmatic Challenges

##### Brief Explanation

{No Data Entered}

#### 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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

##### Key Items of Evaluation

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

**Program # 17**

**1. Name of the Planned Program**

Childhood Obesity

Reporting on this Program

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

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
703	Nutrition Education and Behavior	30%		0%	
724	Healthy Lifestyle	70%		0%	
	<b>Total</b>	100%		0%	

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

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	0.0	0.0
Actual Paid Professional	0.2	0.0	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
5944	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
5944	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

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

1. Brief description of the Activity

Activities will include almost all types of media and educational activities. Courses on nutrition labeling, preparing healthy meals by reducing fat and calories, exercise, and many other topics will be

provided for adults. Classes and other activities both in and out of school on diet and exercise will be provided for children/youth. These programs will complement programs offered by schools and other organizations.

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

The primary audience for this program includes almost one million obese Mississippians.

**3. How was eXtension used?**

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, 212 MSU employees are eXtension users, with 15 new registrations during this reporting period. Further, MSU Extension has 64 employees that serve on one or more of the 72 Communities of Practice (COPs); MSU Extension employees are member of 33 COPs. Twelve MSU Extension employees serve as a leader for a COP, leading 9 COPs. The Childhood Obesity resources provided through eXtension were used to supplement and enhance our public learning experiences provided by MSU Extension agents and specialists.

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

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	1290	2626	0	0

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

**Patent Applications Submitted**

Year: 2012  
 Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
Actual	2	0	0

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

**Output Target**

**Output #1**

**Output Measure**

- Number of people attending workshops, short courses, etc.

<b>Year</b>	<b>Actual</b>
2012	653

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

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

O. No.	OUTCOME NAME
1	Number of people reporting a positive change in at least one behavior related to obesity (increase level of regular exercise, decrease in caloric intake, increase in percentage of fruits and vegetables in diet).
2	Number of people reporting lowered body mass index.

## **Outcome #1**

### **1. Outcome Measures**

Number of people reporting a positive change in at least one behavior related to obesity (increase level of regular exercise, decrease in caloric intake, increase in percentage of fruits and vegetables in diet).

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

- 1862 Extension

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	131

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

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

Parents are the gatekeepers of food choices as it pertains to very young children (ages 2 to 5 years). In low-income homes making healthier food choices may be a challenge due to financial restraints. Research indicates that parents from low-income households' food choices for their children tend to be low in fruits and vegetables and high in fats, sugar and sodium. This places children in these homes at risk of becoming overweight/obese which may lead to adult obesity and associated chronic disease.

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

Parents that had children participating in the Snack Pack Project were provided a survey to determine their preschooler (s) food intake as it pertains to MyPyramid/MyPlate -- pre and post program. A total of 550 surveys were distributed in 2010-2012. A total of 143 pre and post surveys (26%) were returned to be analyzed.

#### **Results**

Results indicated that 96% of preschoolers chose fruit as a snack (an increase of 4%) and 91% enjoyed vegetables more often (increase by 4.5%). Fruit and vegetable consumption was still not provided by parents daily. Only 25% of preschoolers consumed fruits daily, and 9% consumed vegetables daily. MS currently has one of the lowest fruit and vegetable consumption among children and adults in the U.S. Additionally, most parents provided whole milk versus low-fat (2% or lower) milk to their 3 to 5 year olds.

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

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior

724 Healthy Lifestyle

## **Outcome #2**

### **1. Outcome Measures**

Number of people reporting lowered body mass index.

Not Reporting on this Outcome Measure

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

#### **External factors which affected outcomes**

- Economy
- Competing Public priorities
- 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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

#### **Key Items of Evaluation**

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

**Program # 18**

**1. Name of the Planned Program**

Human Health

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
604	Marketing and Distribution Practices	0%		50%	
704	Nutrition and Hunger in the Population	0%		50%	
724	Healthy Lifestyle	100%		0%	
	<b>Total</b>	100%		100%	

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

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	4.5	0.0	0.0	0.0
Actual Paid Professional	5.4	0.0	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
143838	0	904	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
143838	0	86	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

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

1. Brief description of the Activity

Research in healthy lifestyles education will be complemented by Extension programming, including the following methods:

- Training programs
- Video conferences
- Health fairs
- Workshops
- Partnership development
- Needs assessment
- Leadership training
- Strategic planning

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

The audience for this program includes all Mississippians, with a specific focus on those who are overweight and/or have hypertension, and high blood cholesterol.

**3. How was eXtension used?**

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, 212 MSU employees are eXtension users, with 15 new registrations during this reporting period. Further, MSU Extension has 64 employees that serve on one or more of the 72 Communities of Practice (COPs); MSU Extension employees are member of 33 COPs. Twelve MSU Extension employees serve as a leader for a COP, leading 9 COPs. An MSU Extension faculty member is a leader of the Creating Healthy Communities COP.

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

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	63651	200904	0	0

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

**Patent Applications Submitted**

Year: 2012  
 Actual: 1

**Patents listed**

Provisional Patent: In Vivo Vaginal Biomechanics Device Insertable Probe, serial number 61/579,483

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
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<b>Actual</b>	2	14	0
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**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2012	44093

**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 clientele reporting decreases in at least one indicator (blood pressure, blood cholesterol, body mass index).

## **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**

<b>Year</b>	<b>Actual</b>
2012	8819

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

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

In Mississippi, there are many nutritional concerns among the SNAP eligible population. According to the results of the Behavioral Risk Factor Surveillance System (2007), 46.8% of Mississippians reporting incomes below \$15,000/year reported not being physically active within the past month, compared to 31.8% for all Mississippians. Mississippi's SNAP recipients/eligibles issue of physical inactivity needs strategies and interventions to be implemented to handle this concern.

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

In cooperation with the MS Department of Human Services and USDA, MSU Extension provides nutrition education to SNAP-eligible individuals. The programs are designed to assist participants to become more effective managers of available food sources and to make healthier food choices. During FY 2012, the Family Nutrition Program (FNP) had 138,280 participants from community centers, SNAP offices, public schools, job training sites and other venues in a variety of classes for various age groups that taught participants to make healthy food choices.

#### **Results**

Approximately 300 pre-K through 1st grade teachers observed students being more physically active, and talking about this positive change. Prior to nutrition education lessons, 49% of students in grades 2-5 reported being physically active every day for 60 minutes. After the lessons, 53% reported being physically active for 60 minutes, a positive shift of 4.32%. (Pre N = 3,942; Post N = 3,219). Additionally, there was a positive increase of 4.88% of students who "almost always" do moderate physical activities (such as using the stairs). There was a 3.44% gain in students reporting that they "almost always" are physically active until they sweat.

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

**KA Code**    **Knowledge Area**  
724            Healthy Lifestyle

**Outcome #2**

**1. Outcome Measures**

Number of clientele reporting decreases in at least one indicator (blood pressure, blood cholesterol, body mass index).

Not Reporting on this Outcome Measure

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

**External factors which affected outcomes**

- Economy
- Other (Cultural traditions)

**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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

**Key Items of Evaluation**

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

**Program # 19**

**1. Name of the Planned Program**

Early Care and Education

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
802	Human Development and Family Well-Being	80%		0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	20%		0%	
<b>Total</b>		100%		0%	

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

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	11.0	0.0	0.0	0.0
Actual Paid Professional	15.9	0.0	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
427030	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
427030	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

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

### **1. Brief description of the Activity**

Child and Family Development (CFD) Area Agents and project staff will provide additional parenting education programs to families and foster parents utilizing an evidenced based program.

CFD Area Agents and project staff will provide additional staff development training and technical assistance for the After School community.

MSCCR&R providing assistance with early care and education providers moving into the career ladder system and obtaining the Child Development Associate credential.

CFD Area Agents & project staff provides mandated staff development training to keep providers in good standing with legal requirements.

CFD Area Agents & project staff provide technical assistance to providers & businesses.

CFD Area Agents and project staff will receive/ maintain ECERS; ITERS; and FDCRS Certification.

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

In general, audience for this program is families and communities. Specifically, the following groups are target audiences:

- Early Care & Education Providers, including Directors, Center-based professionals, Family Childcare providers, and School-age providers
- Industry/Business owners
- Parents
- Grandparents
- Agencies
- Professional Organizations
- Elementary teachers
- Elected officials
- Community College and University students

### **3. How was eXtension used?**

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, 212 MSU employees are eXtension users, with 15 new registrations during this reporting period. Further, MSU Extension has 64 employees that serve on one or more of the 72 Communities of Practice (COPs); MSU Extension employees are member of 33 COPs. Twelve MSU Extension employees serve as a leader for a COP, leading 9 COPs. Our Child Development Specialist serves as a member of the eXtension Alliance for Better Child Care COP.

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

#### **1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	20441	9660	0	0

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

Year: 2012  
 Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
Actual	3	0	0

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

**Output Target**

**Output #1**

**Output Measure**

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

Year	Actual
2012	5017

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

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

O. No.	OUTCOME NAME
1	Number of licensed centers entering the Quality Rating Improvement System and improving the quality of care as measured by the ERS and technical assistance.
2	Number of early care and education providers receiving their Child Development Associate credential will increase.
3	Number of informal child care providers increasing in receiving technical assistance and registering in the system.
4	Number of parents demonstrating nurturing parenting attitudes will increase as measured by a pre/post assessment tool.
5	Number of new parents receiving educational materials and information on age appropriate child outcomes measured by a pre/post survey will increase.
6	Number of clientele increasing knowledge in child care and development content areas as measured by pre/post assessments.

## **Outcome #1**

### **1. Outcome Measures**

Number of licensed centers entering the Quality Rating Improvement System and improving the quality of care as measured by the ERS and technical assistance.

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

- 1862 Extension

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

Change in Condition Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	0

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

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

In order to improve the quality of care for Mississippi's most vulnerable population, it is critically important to maintain a rigorous training system with numerous opportunities for face-to-face training, distance training, and personal technical assistance. This ensures the two-fold gain of increased school readiness for young children and improved capacity of the early childhood workforce.

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

MSU Extension has cultivated community college and education organization partnerships to increase the number of Mississippi Child Care Resource & Referral sites to 12. Each site provides a wide array of materials, supplies, equipment, and services to parents, early care and education providers, students, child development centers, and community members. The MSCCR&R provides training and technical assistance that supports the Quality Rating Improvement System. Intensive technical assistance was provided to centers within the QRIS.

#### **Results**

The MSCCR&R Network provided 7,901 technical assistance hours to 99 centers.

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

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

**Outcome #2**

**1. Outcome Measures**

Number of early care and education providers receiving their Child Development Associate credential will increase.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	259

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

**Issue (Who cares and Why)**

Across state and national lines, education requirements for early childhood educators are increasing. More professional preparation creates providers who provide more developmentally appropriate care and better education experience for young children. A Child Development Associate credential can serve as that professional education tool that inspires and enables best practices. Early childhood professionals who have higher levels of education specific to early childhood tend to provide higher quality classrooms than those who do not.

**What has been done**

The Child Development Associate National Credentialing Program focuses on the skills of early care and education professionals. It is designed to provide performance-based training, assessment, and credentialing of early care and education teachers. The Network provides the scholarships for the CDA through funding provided by the Mississippi Department of Human Services. This credential is offered through online courses and mentoring.

**Results**

There were 259 early care and education teachers who completed the CDA with more than 7,866 online training hours successfully accomplished.

**4. Associated Knowledge Areas**

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

**Outcome #3**

**1. Outcome Measures**

Number of informal child care providers increasing in receiving technical assistance and registering in the system.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	167

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

**Issue (Who cares and Why)**

The relationship between caregiver and child is a key indicator of the quality of care. The social, emotional, cognitive, and physical development of children is dependent on the quality of interactions with caregivers and the environment established by child caregivers. Children who receive supportive, stimulating care are more likely to show normal development at 2, 6, and 10 years old. With an estimated 54% of MS's children in unlicensed settings, it is vital to provide educational information and programs to those in-home care providers.

**What has been done**

The Nurturing Homes Initiative (NHI) provides educational information, training and technical assistance to in-home care providers who offer full-day, full-year childcare services. The program uses a nationally normed assessment tool, the Family Child Care Environment Rating Scales (FCCERS) to assess the quality of childcare provided. Through a unique system of support, NHI trainers utilize printed educational materials, one-on-one technical assistance, and interaction with the children to provide training tailored to each provider's specific needs.

**Results**

There were 167 early care in-home providers who received a total of 2,950 technical assistance hours through the Mississippi Nurturing Homes Initiative (NHI).

**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 #4**

### **1. Outcome Measures**

Number of parents demonstrating nurturing parenting attitudes will increase as measured by a pre/post assessment tool.

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

- 1862 Extension

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

Change in Condition Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	132

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

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

In the U.S., 18% of children under the age of 18 live in poverty. However, Mississippi has the highest child poverty rate in America: 29% (2007). In Noxubee County, Mississippi, 44.7% of children live in poverty (KIDS COUNT, 2008). According to the National Longitudinal Study of Youth, children who are poor over a substantial amount of time demonstrate substantial developmental deficits. In addition to poverty, Mississippi has a high rate of infant mortality; for example, Choctaw County has 14.9%.

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

A home visitation/parenting program was developed using Appalachian Regional Commission funding focused on developing positive parenting skills within families. The "Nurturing Families" curriculum was used in 12 distressed MS counties. Navigators are liaisons between families, schools, and local services to support quality early education. They refer parents to programs such as GED courses, driver's license education, and other agencies, and facilitate transitions for children between child care providers, Head Start, and public schools.

#### **Results**

Navigators worked in the Appalachian Regional Commission counties with the highest incidence of infant mortality with parenting education and act as liaisons with local services. Navigators also located children who are not in a licensed facility and referred their caregiver to the Nurturing Homes Initiative program for educational training. Also, as a result of locating children, families were connected to resources needed. There are 172 families enrolled and out of 193 participating parents, 132 had significant increases in scores for all constructs of the Nurturing Parenting Program AAPI-2.

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

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

### **Outcome #5**

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

Number of new parents receiving educational materials and information on age appropriate child outcomes measured by a pre/post survey will increase.

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

- 1862 Extension

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	200

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

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

The infant mortality rate in Mississippi is 10.5% (compared with 6.8% nationally, 2003-2007 average, KIDS COUNT) with the highest rate (18%) occurring in Noxubee County. Local school districts are at risk of failing, on academic watch, or on probation, and early childhood intervention has been proven to be effective in increasing school readiness and long-term success.

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

The MS Child Care Resource & Referral Network distributed 300+ "Growing Mississippi's Children" newborn literacy bags to families of newborns in hospitals. Over 40,000 "Baby First's Year Calendars" were distributed through Project Navigator Literacy Kits; labor and delivery units; health departments; WIC locations; in-home providers; parent centers; pediatric clinics; Excel By 5 communities; MS Childhood Association; early childhood professionals; Extension offices; and the 12 MSCCR&R Network sites.

##### **Results**

While response cards were included in the kits distributed, there was minimal response.

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

<b>KA Code</b>	<b>Knowledge Area</b>
802	Human Development and Family Well-Being

803 Sociological and Technological Change Affecting Individuals, Families, and Communities

**Outcome #6**

**1. Outcome Measures**

Number of clientele increasing knowledge in child care and development content areas as measured by pre/post assessments.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	3368

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

**Issue (Who cares and Why)**

Early care providers are essential to the social, emotional, cognitive, and physical development of children through interactions and the early care environment. Early care and education programs provide the educational background from which children will grow for the rest of their lives.

**What has been done**

The Mississippi Child Care Resource & Referral Network offered 1,868 trainings for a total of 24,722 contacts on various content areas. There were 603 specific workshops that focus on the Early Learning Guidelines for Infant/Toddlers and Mississippi's Early Learning Guidelines for 3-year-olds and 4-year-olds. These workshops included pre- and post-assessments. The number of contacts during these specific workshops was 12,342.

**Results**

In 2012, 1,963 participants participated in Early Learning Guidelines for Infants and Toddlers. The overall mean pre- to post-scores increased significantly. Likewise, significant pre- to post-score increases were seen among the 1,405 providers who participated in the Early Learning Guidelines for 3- and 4-Year-Old-Children trainings.

**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

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

### **External factors which affected outcomes**

- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations

### **Brief Explanation**

{No Data Entered}

## **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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

Early care and education programs use additional pre/post measures as relevant for the specific program. These measures include Adult-Adolescent Parenting Inventory (AAPI-2), the School-Age Care Environment Rating Scale (SACERS), the Infant/Toddler Environment Rating Scale-Revised (ITERS-R), and the Early Childhood Environment Rating Scale-Revised (ECERS-R).

### **Key Items of Evaluation**

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

**Program # 20**

**1. Name of the Planned Program**

Family Life

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
802	Human Development and Family Well-Being	100%		0%	
	<b>Total</b>	100%		0%	

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

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	4.5	0.0	0.0	0.0
Actual Paid Professional	3.6	0.0	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
96710	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
96710	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

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

1. Brief description of the Activity

Research and Extension programming will focus on family dynamics, parenting skills, human development, and aged care.

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

The target audience for this program includes all Mississippi families.

**3. How was eXtension used?**

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, 212 MSU employees are eXtension users, with 15 new registrations during this reporting period. Further, MSU Extension has 64 employees that serve on one or more of the 72 Communities of Practice (COPs); MSU Extension employees are member of 33 COPs. Twelve MSU Extension employees serve as a leader for a COP, leading 9 COPs. The Family Caregiving and Just in Time Parenting resources provided through eXtension were used to supplement and enhance our public learning experiences provided by MSU Extension agents and specialists.

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

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	10151	19018	0	0

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

**Patent Applications Submitted**

Year: 2012  
 Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	4	16	0

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

**Output Target**

**Output #1**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2012	4862

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

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

O. No.	OUTCOME NAME
1	Number of families adopting recommended family strategies and behaviors.
2	Number of families reporting improved strengthened family life.

**Outcome #1**

**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**

<b>Year</b>	<b>Actual</b>
2012	972

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

**Issue (Who cares and Why)**

While the 2010 poverty rate in the U.S. is 15.35%, Mississippi's poverty rate is much higher-- 22.4% for adults and 32.45 for children. Neshoba County residents have begun working together among various ethnic groups and economic levels to address poverty issues in their communities. In 2009-2010, the area participated in a project initiated by MSU Extension to "Turn the Tide on Poverty" by planning action steps together.

**What has been done**

One of the actions planned for the community was to conduct the Poverty Simulation, a half-day program designed to help community leaders, public officials, and teachers to experience some of the daily challenges faced by those they serve who live in poverty. MSU provided materials and manpower to market and sponsor the event in September 2012 at the Neshoba County Coliseum.

**Results**

Sixty four individuals participated, including 15 from the MS Band of Choctaw Indians. On evaluation forms, participants described feelings, attitudes and insights gained as a result of the simulation. Common themes included: frustration, giving up, stress, hopelessness, anger, low self-esteem, temptation to engage in illegal activities, not being able to pay bills, no time to stand in line for services available and work during office hours, confusion about where to find services and resources, transportation issues, and childcare issues. Participants were challenged to find one action to address these issues within the next month. Community agencies described opportunities to meet needs by volunteering or providing resources. Participants networked to make plans for future actions in their communities.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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802 Human Development and Family Well-Being

## **Outcome #2**

### **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**

<b>Year</b>	<b>Actual</b>
2012	778

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

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

Asthma and other serious health problems, including lead poisoning, may be reduced or prevented by taking simple actions at home or childcare settings. Over 200,000 Mississippians, almost half of them children, have been diagnosed with asthma, which causes missed school and work days, as well as doctor and hospital emergency room visits, costing our citizens millions of dollars.

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

MSU Extension created 4 two-hour healthy homes programs for childcare workers, including: Integrated Pest Management, Eco-Healthy Childcare, Seven Principles of a Healthy Home, and Help Yourself to a Healthy Home. The 4 programs were combined to create a comprehensive program for residents of Housing Authorities, emphasizing cleaning and pest-prevention. Courses teach homeowners and childcare workers to take simple actions to create a healthy indoor environment and provide simple tools for integrated pest management for participants.

#### **Results**

Public housing authority residents and childcare workers participating in healthy homes training sessions planned to take these actions as a result: prevent smoking indoors and around children; keep kitchens clean, dry, and free of clutter to prevent pests; use roach and ant baits rather than sprays or foggers; stop using a humidifier which may encourage mold growth; and tell their children and grandchildren who have asthma about what they learned. Nearly 250 participated in healthy homes programs in the last year, including 25 Youth-Build members of the MS Band of Choctaw Indians who participated in a special program featuring one day of lead-safe work practices, in addition to two days of healthy homes training.

### **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**

- Economy
- Competing Programmatic Challenges

**Brief Explanation**

{No Data Entered}

**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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

**Key Items of Evaluation**

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

**Program # 21**

**1. Name of the Planned Program**

Family Resource Management

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
801	Individual and Family Resource Management	100%		0%	
802	Human Development and Family Well-Being	0%		50%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	0%		20%	
805	Community Institutions, Health, and Social Services	0%		30%	
	<b>Total</b>	100%		100%	

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

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	6.0	0.0	1.0	0.0
Actual Paid Professional	9.8	0.0	1.7	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
262827	0	904	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
262827	0	86	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

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

**1. Brief description of the Activity**

Extension programming will be conducted using the following methods: Workshops, group training; Information fairs; One-on-one consultations; Media-news, radio, TV; Publications, printed and web-based information; and Newsletters, in-print and email.

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

The target audience for this program includes almost all of the 2.8 million Mississippians.

**3. How was eXtension used?**

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, 212 MSU employees are eXtension users, with 15 new registrations during this reporting period. Further, MSU Extension has 64 employees that serve on one or more of the 72 Communities of Practice (COPs); MSU Extension employees are member of 33 COPs. Twelve MSU Extension employees serve as a leader for a COP, leading 9 COPs. An MSU Extension specialist serves as a leader on the Financial Security for All COP.

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

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	50479	30858	0	0

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

**Patent Applications Submitted**

Year: 2012  
Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
Actual	6	0	0

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

**Output Target**

**Output #1**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2012	13556

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

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

O. No.	OUTCOME NAME
1	Number of clientele adopting new practices related to financial management.
2	Number of clientele reducing debt.
3	Number of clientele increasing wealth.

## **Outcome #1**

### **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**

<b>Year</b>	<b>Actual</b>
2012	2711

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

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

According to the U.S. Census Bureau (2008), Mississippi is the poorest state in the nation, ranking first among states for individuals living in poverty, and 50th among states for per capita income (\$30,399). Although the poverty rate has increased nationwide as the U.S. recession intensified, the South experienced the biggest jump in poverty, and Mississippians with an average household income of just \$35,693 were hit especially hard.

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

Family Resource Management Agents and trained Volunteer Money Mentors used a series of 12 publications and videos in MSU's "Healthy, Wealthy, and Wise Program" to teach unemployed women participating in Christian Women's Job Corp, and financial education courses provided by the United Way, public libraries, or other programs for low-income, underemployed, or under-banked consumers in Mississippi.

#### **Results**

More than 2,100 Mississippians learned to improve financial health and make wise consumer decisions by participating in the Healthy, Wealthy, and Wise Financial Education Program. Impacts reported by participants include: unbanked consumers opening an account, reviewing personal credit reports, avoiding high cost prepaid cards and loans, starting an emergency savings account, reducing debt, paying cash for large purchases, avoiding predatory loans, and addressing consumer complaints.

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

<b>KA Code</b>	<b>Knowledge Area</b>
801	Individual and Family Resource Management

**Outcome #2**

**1. Outcome Measures**

Number of clientele reducing debt.

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	2169

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

**Issue (Who cares and Why)**

Reports of complaints about consumer fraud, especially identity theft, continue to grow. According to the Consumer Sentinel Report, Mississippians reported a losing a total of more than five million dollars (\$5,128,824) in 2011, in more than 6,167 complaints reported. On average, each victim of theft in MS lost \$1,187. In a ranking of nearly 400 U.S. metropolitan areas, Tupelo ranked 74th in reports of fraud and other complaints. In rankings for identity theft, Meridian ranked 27th, Jackson ranked 31st, and Gulfport ranked 145.

**What has been done**

Shred Day Events were held in six cities during National Consumer Protection Week by MSU Family Resource Management Extension Agents and members of a statewide consumer protection partnership founded several years ago to leverage local, state, and federal resources. State agencies and businesses participating included Offices of the Attorney General, Secretary of State, Department of Human Services, Leadership Council on Aging, BancorpSouth, Better Business Bureau, and CredAbility (Consumer Credit Counseling Services).

**Results**

A total of 1,369 consumers brought up to 5 boxes or trash bags full papers for shredding at six Shred Day sites, shredding a total of more than 50,000 pounds of sensitive documents. If each of these consumers avoided losing the average of \$1,187 paid by Mississippi victims of fraud, then the event had an impact of at least \$162,500,300 saved, as well as countless hours of stress avoided. The Shred-It Company provided services at no cost, although the value of actual services provided exceeded \$10,000 (\$240 per hour x 7 hr per day x 6 trucks for a total of \$10,080).

**4. Associated Knowledge Areas**

**KA Code**    **Knowledge Area**  
801            Individual and Family Resource Management

**Outcome #3**

**1. Outcome Measures**

Number of clientele increasing wealth.

**2. Associated Institution Types**

- 1862 Extension
- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	1084

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

**Issue (Who cares and Why)**

A review of research shows that participation of potential homeowners in pre-purchase programs is associated with positive effects on timely loan repayment. First time homebuyers who wish to obtain a home loan from the Rural Housing division of USDA are required to complete a homebuyer education course from an approved provider. MSU Extension is an approved provider for the course. Many first time homebuyers also apply for grants to reduce the cost of their purchase. Organizations issuing the grants generally require homebuyer education as well.

**What has been done**

The homebuyer education course utilizes a curriculum developed by NeighborWorks America, a congressionally-chartered nonprofit organization dedicated to improving distressed communities and one of the country's preeminent leaders in affordable housing and community development. A minimum of four hours of instruction are required. Face to face instruction is provided for all individuals listed on the loan. In addition, each participant receives a textbook. Upon successful completion of the course, certificates are issued.

**Results**

Workshops, home buyer fairs, and one-on-one counseling sessions are provided to assist Mississippians in achieving the American dream of homeownership. Homebuyer education courses and seminars were administered to 54 people, compared to 41 consumers last year, for a 24% increase in the number of citizens we assisted in their efforts to become homebuyers. At an average value of \$71,000, that represents a total impact of \$3,834,000 in the MS Delta region this year.

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

<b>KA Code</b>	<b>Knowledge Area</b>
801	Individual and Family Resource Management

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

##### **External factors which affected outcomes**

- Economy
- 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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

##### **Key Items of Evaluation**

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

**Program # 22**

**1. Name of the Planned Program**

Family Leadership 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
805	Community Institutions, Health, and Social Services	100%		0%	
	<b>Total</b>	100%		0%	

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

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	9.5	0.0	0.0	0.0
Actual Paid Professional	9.1	0.0	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
244542	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
244542	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

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

1. Brief description of the Activity

Extension programming efforts on numerous aspects of leadership and volunteerism.

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

The target audience for this program includes anyone interested in improving their community. Specific groups include master extension volunteers, 4-H volunteers, and community leaders.

**3. How was eXtension used?**

eXtension was not used in this program

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

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	44200	101389	0	0

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

**Patent Applications Submitted**

Year: 2012

Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	1	0	0

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

**Output Target**

**Output #1**

**Output Measure**

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

Year	Actual
2012	24265

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

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

O. No.	OUTCOME NAME
1	Number of clientele who improve their leadership skills.
2	Number of clientele who make use of leadership skills by volunteering for community organizations.

## **Outcome #1**

### **1. Outcome Measures**

Number of clientele who improve their leadership skills.

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

- 1862 Extension

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	6794

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

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

The "elderboom" has arrived. These older adults need to be informed about health topics relevant to their age. Often, a lack of knowledge or health literacy hinders older adults from taking preventative measures to guard against chronic diseases or morbidity.

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

The Smart Aging: Healthy Futures Volunteer program developed by MSU Extension has been used to deliver health messages to older adults by training lay volunteers. A new approach that involved developing intergenerational relationships began in 2012. A partnership was formed with the Itawamba Community College, Nursing Degree program to train student nurses to deliver health messages to older adults.

#### **Results**

This program provides student nurses with opportunities for building intergenerational relationships. These interactions lead to increased self-esteem and provide an avenue for socialization (important for the mental and spiritual well-being of older adults). The students learn valuable life skills from the older adults and increase their knowledge, collaboration, leadership, and presentation skills. Many students join the health care field after a lasting and meaningful intergenerational relationship. Knowledge is powerful and the knowledge gained from the health messages can promote healthy behaviors.

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

<b>KA Code</b>	<b>Knowledge Area</b>
805	Community Institutions, Health, and Social Services

## **Outcome #2**

### **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**

<b>Year</b>	<b>Actual</b>
2012	3882

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

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

Fifty-two percent of older Mississippians live in rural areas, and over 80% live in their own family dwellings. Since 1970, the state's 60 and older population has grown by 43%. The challenge is finding ways to maintain and improve the health of our seniors while allowing them to reside in their own homes. This is especially true for rural areas with less formal support for seniors' health and well-being. In the county where the program was delivered in FY12, 15.8% of the county's population is over 65 compared to an average of 12.8% for the state.

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

MSU Extension designed the Smart Aging: Healthy Futures program to help communities foster the healthy aging of their senior populations. In FY12, the program was conducted in Itawamba County. A series of public forums, directed by Extension, led the community to establish priorities for local action, and senior volunteer groups were formed to work on those priorities. Extension trained the groups in "Moving from Talk to Action." Approximately 70 individuals attended the forums and 43 participated in the training. The results of their actions have been disseminated in a community action report.

#### **Results**

Having the right people together at the right time created opportunities and committed volunteers who worked diligently to accomplish their objectives. This group's most significant accomplishment was the establishment of public van service throughout the county for seniors and others in need of local transport. The service will also take people to medical appointments in the adjoining county. Transportation is a key factor in the quality of life of seniors. The ease of getting to and from health care services is obvious, but it also serves as a significant stress reducer from having to be dependent on others to do necessary food shopping, maintain social contacts and interactions, etc.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services

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

##### External factors which affected outcomes

- Economy
- Competing Programmatic Challenges

##### Brief Explanation

{No Data Entered}

#### 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 will be initiated and utilized for collecting evaluation information to determine program outputs and outcomes (see impact statements for examples).

In FY 2012, 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 Priority Planning Area. In addition, two narrative Accomplishment Reports are required from each MSU Extension employee each year. Finally, a specific request for impact statements is also made. The evaluation results are a combination of this quantitative and qualitative data.

##### Key Items of Evaluation