

2013 Mississippi State University Combined Research and Extension Plan of Work

Status: Accepted

Date Accepted: 08/20/2012

I. Plan Overview

1. Brief Summary about Plan Of Work

This plan of work is a joint plan of work (POW) between the Mississippi State University Extension Service (MSU-ES) and the Mississippi Agricultural and Forestry Experiment Station (MAFES). The plan therefore includes extension and research from the 1862 land-grant institution in Mississippi.

Mississippi is a diverse state, with a variety of agricultural systems, a large population of ethnic minorities, and families and communities with unique needs. The land-grant universities meet this challenge with a broad spectrum of programming designed to reach these diverse audiences. Creation and transfer of knowledge to solve problems is at the core of these efforts.

MSU-ES provides research-based educational programs and information in agriculture and natural resources, 4-H youth development, family and consumer education and community resource development to improve the economic, social, and cultural well-being of all Mississippians.

The foundation mission of MAFES is the creation of knowledge through fundamental and applied research in the fields of science related to agriculture, food, natural resources, the natural environment, people, and communities. The focus of these research programs is on enhancing and/or developing economically efficient and environmentally acceptable agricultural production and processing systems. The goals are to provide safe, nutritious, desirable food and fiber products and processes for consumers as well as to assure that the businesses which comprise Mississippi's agricultural industry have the information required to remain competitive in a global marketplace.

MSU-ES receives a Smith-Lever formula allocation of approximately \$6.8 million or an estimated 17% of its total allocated budget. MAFES receives a Hatch formula allocation (including multistate research funds) of \$4.9 million or 17% of its total allocated budget.

This 2013 POW reflects our first major effort to reduce the number of priority program area (a recurring recommendation of our past reviewers). Our 2012 POW included 22 planned programs. Our 2013 POW includes ten programs. These ten programs reflect the integration of the agricultural sector in Mississippi and provide needed programming for the youth, families, and communities of the state. The programs include:

- Global Food Security and Hunger - Animal Production Systems
- Global Food Security and Hunger - Plant Production Systems
- Global Food Security and Hunger - Agricultural, Biological, and Natural Resources

Engineering

- Global Food Security and Hunger - Enterprise Economics
- Environmental Systems and Sustainability
- Forestry
- Wildlife and Fisheries
- Community Resource and Economic Development
- 4-H/Youth Development
- Family and Consumer Sciences

Simultaneous with the reorganization of planned programs, MSU-ES administrators reassigned the percent of effort county agents would be required to dedicate to community development and 4-H activities. Administrators are increasingly expecting all county agents to dedicate a percentage of their time to community development and 4-H activities. Due to the reduction in planned programs and reassignment of county agents' time, the estimated number of FTEs in each respective planned program increased or decreased in the 2013 POW. In addition, several grant-funded projects enabled MSU-ES to increase actual professional FTEs over previously projected number as reported in the 2011 Joint Report of Accomplishments.

Estimated Number of Professional FTEs/SYs total in the State.

Year	Extension		Research	
	1862	1890	1862	1890
2013	243.0	0.0	54.0	0.0
2014	243.0	0.0	54.0	0.0
2015	243.0	0.0	54.0	0.0
2016	243.0	0.0	54.0	0.0
2017	243.0	0.0	54.0	0.0

II. Merit Review Process

1. The Merit Review Process that will be Employed during the 5-Year POW Cycle

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

2. Brief Explanation

Research projects utilize both an internal university panel and an expert peer review as part of the regional research networks. These reviews cover all aspects of research project proposals, including scientific merit, budgets, and suitability of the research mission for the unit, experiment station, and regional consortium.

Extension programs undergo an internal university panel review. This review takes into consideration the need for the program (including stakeholder input), the methods utilized, the audience identified, and the methods for outcome/impact evaluation.

The 5-Year Plan of Work combined plan is reviewed by a combined internal and external university and external non-university panel. Panels are set up as appropriate for specific program plans with a focus on a broader review of the need, resources allocated, and expected outcomes of the programs.

III. Evaluation of Multis & Joint Activities

1. How will the planned programs address the critical issues of strategic importance, including those identified by the stakeholders?

Once the draft guidelines for AREERA were published in 1998, MSU initiated its new planning process. Each program plan in this Plan of Work reflects a group planning effort, including both research and extension where both are involved in the program.

To provide guidance for the program planning process, the planning groups not only used their professional expertise, but also had information at their disposal from the following sources:

- The stakeholder input process described in this document, including county and program advisory councils, state-level program advisory councils, research and extension center advisory meetings, key partners, and other sources;
- Outreach council meetings for research and extension;
- The county-level program delivery agreements developed by each local extension agent; and
- Professional peer review of the draft plans of work.

2. How will the planned programs address the needs of under-served and under-represented populations of the State(s)?

Through the stakeholder input process described elsewhere in this Plan, needs of all clientele groups, including under-served and under-represented groups, were determined. (Most of the advisory groups mentioned in the stakeholder input process are required to be representative of all potential clientele.) MSU-ES also has specific procedures in place, such as "grassroots mailing lists," to reach all potential clientele, especially those in under-served and under-represented populations.

In addition to the stakeholder groups mentioned above, the outreach council conducts a series of meetings around the state. These meetings are designed specifically to obtain input from under-served and under-represented populations.

3. How will the planned programs describe the expected outcomes and impacts?

Each planning group has developed one or more program plans using the logic model. In each program plan, expected outputs and outcome/impacts were developed. Most of the outcomes identified were intermediate- or long-term outcomes.

4. How will the planned programs result in improved program effectiveness and/or

The creation of program planning groups has provided a mechanism for researchers and extension professionals to interact in the planning and implementation process. A required part of the joint plan of work is the sharing of information between the two "camps." The result has been the creation of numerous joint programs and enhanced interaction in all programming areas. Joint efforts ranged from one-day events to programs that have spanned over a decade. Below are examples of short-term and long-term collaborative efforts.

MAFES station offers a beef cattle field day

The White Sand Branch Unit of the Mississippi Agricultural and Forestry Experiment Station hosted a beef cattle field day in Pearl River County (Poplarville) in September 2011. At the event, open and free to the public, MSU researchers and Extension Service personnel

presented on an array of topics. Research highlights included value-added gin trash and distiller's solubles from ethanol production used as cattle feed. Speakers also addressed using soybeans as a summer crop prior to ryegrass establishment and using nitrogen on summer pastures. Additional topics included implant management of beef calves, protein supplements for calves fed ryegrass and metabolic and physiological changes in abruptly-weaned beef cattle. Visitors also examined the branch station's clover demonstration plots.

Delta Agricultural Weather Center continues serving state producers and researchers

The Delta Agricultural Weather Center (AWC) is located at the Delta Research and Extension Center (DREC) in Stoneville, MS. The Center--operating since 1998-- is a joint effort between the MAFES and the MSU-ES. The purpose of this Center is to provide historical and up-to-date weather data and products to aid farmers in making agricultural decisions. More recently, the DREC-AWC has relied increasingly on mobile weather stations. DREC-AWC continues to provide information from mobile weather stations to producers and researchers throughout the state of Mississippi. Data from the DREC helps researchers with soybean rust, Italian ryegrass, sweet potatoes, catfish disease, and irrigation scheduling, as well as variety trial tests for cotton, soybean, rice, wheat and corn.

IV. Stakeholder Input

1. Actions taken to seek stakeholder input that encourages 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

Brief explanation.

Efforts to determine economic, social, and environmental issues begin with County Extension Advisory Councils. Further needs assessment is 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 meet 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 comes from three different groups: the Overall Extension Advisory Council, Program Advisory Councils, and other stakeholders.

Overall Extension Advisory Councils

MSU-ES 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-ES county 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-ES 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.

Research and Extension Center Advisory Councils

MSU has four area Research and Extension Centers (Delta, Northeast, Central, and Coastal) jointly administered by MSU-ES and MAFES. These centers each have an overall advisory council where stakeholders lead discussions about programming and research efforts and assess needs at a yearly meeting. Subgroups of the advisory councils may meet several times during the year to discuss specific needs in research and extension programming.

Key Partners

MSU-ES and MAFES meet 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, and numerous state and regional commodity groups.

2(A). A brief statement of the process that will be 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-ES and MAFES. This was described in the previous section. Advisory committees are required to be reflective of the population of potential clientele. Listening sessions are sometimes held for the general public; others are specifically designed to reach under-served populations.

Specific needs assessments are conducted when warranted, such as the development of a new program or when an issue emerges. These needs assessments may include focus groups, written or telephone surveys, or face-to-face interviews with selected clientele.

As an example, a statewide telephone survey compared Internet usage in Mississippi households versus the United States average; examined the significance of demographic factors, such as age, income and education in Internet usage; and described the availability of Internet services throughout the state. The survey was conducted by the MSU-ES and

Social Science Research Center at MSU, in partnership with the Office of the Governor and the Mississippi Broadband Connection Coalition. Briefs from the survey were designed for community leaders, legislators, and educators in hopes that they can better understand where critical investments in broadband access may be most needed across the state.

2(B). A brief statement of the process that will be 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 non-traditional groups are an on-going part of the needs assessment process conducted by MSU-ES and MAFES. These are described in page one of this section.

As an example, advocates for agriculture met at the North Mississippi Research and Extension Center in Verona, Mississippi to identify priorities for research and Extension Service education programs at MSU. Scientists from MAFES, specialists with the MSU-ES and almost 250 members of the North Mississippi Advisory Council spent the day discussing current research and education needs, as well as the challenges growers face on the farm. Fourteen agricultural commodity groups--including beef, cotton, dairy, equine, forestry, fruits and nuts, goats, grain crops, ornamentals, peanuts, sweet potatoes, swine, turf and vegetables--met separately. Meetings such as this one have been held annually since the mid-1950s and will continue.

A similar meeting with the Coastal Research and Extension Center Advisory Council was held. The topic of feral hogs was a noteworthy point of discussion at the meeting. As a result of such discussions, MSU-ES launched a website addressing state-specific recommendations. The state website links with a national website. Information can also be found at a feral hog Community of Practice facebook page.

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 influences most aspects of this POW. Issues are identified through the needs assessment process discussed earlier. The issues help extension agents and specialists determine their plans of action, including redirecting programs to meet clientele needs. Administration must provide 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.

V. Planned Program Table of Content

S. No.	PROGRAM NAME
1	Global Food Security and Hunger - Animal Production Systems
2	Global Food Security and Hunger - Plant Production Systems
3	Global Food Security and Hunger-Agricultural, Biological, and Natural Resources Engineering
4	Global Food Security and Hunger - Enterprise Economics
5	Environmental Systems and Sustainability
6	Forestry
7	Wildlife and Fisheries
8	Community Resource and Economic Development
9	4-H Youth Development
10	Family and Consumer Sciences

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Global Food Security and Hunger - Animal Production Systems

2. Brief summary about Planned Program

This program addresses research and extension programming designed to enhance the animal production process, with a focus on helping beef, dairy, equine, swine, aquaculture, and poultry producers and respective industry personnel. Several previous planned programs that related to animal production are now included in the Animal Production Systems planned program.

3. Program existence : Mature (More than five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

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	0%		5%	
301	Reproductive Performance of Animals	10%		15%	
302	Nutrient Utilization in Animals	10%		10%	
303	Genetic Improvement of Animals	5%		5%	
304	Animal Genome	5%		20%	
305	Animal Physiological Processes	5%		10%	
306	Environmental Stress in Animals	5%		5%	
307	Animal Management Systems	15%		15%	
308	Improved Animal Products (Before Harvest)	5%		0%	
311	Animal Diseases	10%		5%	
312	External Parasites and Pests of Animals	5%		0%	
313	Internal Parasites in Animals	5%		0%	
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals	5%		0%	
315	Animal Welfare/Well-Being and Protection	10%		0%	
402	Engineering Systems and Equipment	5%		0%	
502	New and Improved Food Products	0%		5%	
511	New and Improved Non-Food Products and Processes	0%		5%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

The animal production system in Mississippi is diverse, as are the needs of animal producers. There are 42,400 farms on approximately 11,150,000 acres in Mississippi. Over 20,000 of these farms are involved in livestock production. Livestock and forage are produced in all 82 Mississippi counties. Beef production is a significant component of Mississippi agriculture. The total value of cattle and calves production in Mississippi ranked 7th among the state's agricultural commodities in 2011. Total cattle inventory in Mississippi on January 1, 2012 was 950,000 head including 486,000 head of beef cows and 82,000 head of beef cow replacements. Stocker cattle production is also very prominent with 400,000 head of stocker cattle residing in the state annually. Beef cattle operations in Mississippi currently total

approximately 18,000 operations. As of 2010, there were 130 licensed dairy farms scattered across the state, especially in southwest Mississippi. In 2007, Mississippi's dairy industry generated an estimated \$277.6 million in economic revenue.

Mississippi's inventory of hogs and pigs was estimated at 355,000 head on December 1, 2011 down 8 percent. (USDA Ag Report, 2012). The total pig crop amounted to 747,000 head and was estimated to be a \$104M industry in 2011.

Aquaculture production in Mississippi primarily consists of commercial pond-raised catfish (\$222M industry in 2011) with some limited production of freshwater prawns and crawfish. The catfish industry has generally been a profitable and rapidly expanding in the southeastern U.S. However, yield has not increased in recent years and profits have decreased. Moreover, in the last decade losses from infectious and environmental diseases have been amplified. Solutions to these problems are complex and multi-faceted. Some improvements in efficiency may be attained by improving management and culture techniques used in conventional earthen ponds. Without substantial improvements in fish health management and production efficiency, the future of commercial catfish farming will remain in jeopardy.

Poultry production is important to economies in many rural areas of the state. In 2011, approximately 765 million broilers were produced. As a \$2.4B industry, poultry/eggs is the leading agricultural crop in the state. Air emission from poultry production facilities is currently and will continue to be an important issue for poultry producers. Moreover, measures to prevent disease, reduce animal stress and improve animal welfare require constant improvement.

Animal producers and industry continues to expand as consumers increasingly demand high quality, affordable products. They rely heavily on Extension and research personnel to aid them in increasing production and ensuring the health of their respective animals. This program will address industry needs through basic and applied research, technology transfer through the Extension system, as well as provide clinical diagnostic service and field investigation (aquaculture). For several of the animal production areas, a multidisciplinary approach will be needed.

2. Scope of the Program

- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Livestock producers in general must be provided with economic incentives to change management or production practices. Producers have many demands on their time. Educational programs must be designed to interest the producers to participate and convince them the information delivered is sound and economically viable. The use of multi-media technology in delivering programs can be useful in attracting producer participation. The producer must depart from the program with a sense their participation was worthwhile.

In regard to aquaculture, the channel catfish is the most important aquaculture species in the U.S. Over 95% of channel catfish aquaculture occurs in four states (Mississippi, Alabama, Arkansas, and Louisiana) located in the southeastern U.S. Mississippi is by far the leading channel catfish producing state and accounts for over 70% of the total production. Without substantial improvements in fish health management and production efficiency, the future of commercial catfish will remain in jeopardy.

In regard to poultry production, it is expected that new practices will be slow. As with any industry, the benefits and economic feasibility of new technologies must be proven before widespread adoption can occur.

2. Ultimate goal(s) of this Program

This program should result in increased production efficiency in animal operations, improved economic return for animal producers, and overall development, growth, and improvement of the animal production systems in Mississippi.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2013	14.2	0.0	10.0	0.0
2014	14.2	0.0	10.0	0.0
2015	14.2	0.0	10.0	0.0
2016	14.2	0.0	10.0	0.0
2017	14.2	0.0	10.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Extension personnel will communicate with animal 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 may also be published in peer-reviewed scientific journals.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
• Education Class • Workshop • One-on-One Intervention • Demonstrations	• Public Service Announcement • Newsletters • Web sites other than eXtension

3. Description of targeted audience

The target audience for this program includes animal producers and related industry personnel. Specifically, the target audience includes producers of beef, dairy, swine, equine, forage,

catfish, crayfish, freshwater prawns, and commercial poultry.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

☒ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

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

☒ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of producers adopting new technologies, strategies, or systems.
2	Number of producers increasing production levels.
3	Number of producers optimizing production inputs/expenses.
4	Number of producers improving their environmental stewardship.
5	Number of producers improving production efficiency.
6	Number of producers improving overall animal health and/or protection.

Outcome # 1

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 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)

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

Number of producers increasing production levels.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 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

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

Number of producers optimizing production inputs/expenses.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 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)

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

Number of producers improving their environmental stewardship.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 302 - Nutrient Utilization in Animals
- 306 - Environmental Stress in Animals
- 307 - Animal Management Systems

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 5

1. Outcome Target

Number of producers improving production efficiency.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 302 - Nutrient Utilization in Animals
- 307 - Animal Management Systems
- 308 - Improved Animal Products (Before Harvest)
- 402 - Engineering Systems and Equipment

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 6

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 303 - Genetic Improvement of Animals
- 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

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Prices for animal products are somewhat dependent on the local, state, and national economies. Natural disasters can affect production, particularly drought. Government regulations, particularly environmental regulations, may affect producers' ability to make a profit on these enterprises.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

Evaluation of this program will include retrospective producer surveys and case studies of selected producers. The time series analysis will include production data for selected animal production metrics in Mississippi.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Global Food Security and Hunger - Plant Production Systems

2. Brief summary about Planned Program

This program includes research and Extension efforts related to the 3.7 million acres of row-crops produced in Mississippi each year. Primary crops grown include cotton, soybeans, corn, rice, wheat, grain sorghum, and peanuts. This program also includes activities focused on helping producers, manufacturers, suppliers, managers, homeowners, and consumers involved in the \$94M horticulture industry in Mississippi (MS Dept of Ag estimate), including vegetables and fruit production, turf, floriculture, and the ornamental nursery industries. Additionally, this program area will dedicate attention to sustainable energy and climate change, as related to plant production systems.

This newly defined planned program combines planned programs in previous POW, including Agronomic Crops and Horticulture. It also includes components of Sustainable Energy and Climate Change previous planned programs .

3. Program existence : Mature (More than five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%		5%	
111	Conservation and Efficient Use of Water	10%		5%	
132	Weather and Climate	10%		5%	
201	Plant Genome, Genetics, and Genetic Mechanisms	0%		5%	
202	Plant Genetic Resources	5%		5%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	10%		10%	
204	Plant Product Quality and Utility (Preharvest)	0%		10%	
205	Plant Management Systems	20%		15%	
206	Basic Plant Biology	0%		5%	
211	Insects, Mites, and Other Arthropods Affecting Plants	5%		5%	
212	Pathogens and Nematodes Affecting Plants	5%		10%	
213	Weeds Affecting Plants	10%		10%	
403	Waste Disposal, Recycling, and Reuse	5%		0%	
601	Economics of Agricultural Production and Farm Management	5%		5%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	0%		5%	
903	Communication, Education, and Information Delivery	5%		0%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

Agronomic crops comprise a substantial portion of agriculture. Mississippi farmers normally grow a complement of several crops, including soybeans, corn, cotton, rice, wheat, grain sorghum and peanuts. These crops are grown on approximately 3.7 million acres and their produce is estimated at over \$2.2 billion annually. The economic impact of crops to Mississippi's economy accounts for several times the actual commodity values, when considering the inputs utilized to grow, harvest, store, transport, process, market and utilize them. Soybeans are currently the leading crop, planted on 2.0 million acres and produce a raw value of about \$850 million. Mississippi growers produce about \$550 million of corn on 750,000 acres, \$363 million of cotton on 420,000 acres, \$226 million of rice on 250,000 acres, \$116 million of hay

on 700,000 acres, \$75 million of sweet potatoes on 21,000 acres, \$23 million of wheat on 125,000 acres, \$12 million of peanuts on and \$3 million on grain sorghum on 12,000 acres.

The horticulture industry in Mississippi, composed of producers, manufacturers, suppliers, managers, and consumers, encompasses vegetable and fruit production, turf, floriculture, and the ornamental nursery industries. As one indicator of the economic impact of the horticulture industry, Mississippi spends over \$2.2 billion annually on installation and management of turf (W. Wells).

The majority of these farms are small family farms or family owned businesses, employing a total of over 25,000 people. Several factors must be employed in research and extension. These include the development of applicable and environmentally sound production and maintenance practices; selection and development of cultivars suitable under Mississippi's environmental conditions; research, development, and distribution of cultural recommendations; and, at the state level, the encouragement of economic development in this area.

Producers, manufacturers, suppliers, and managers of horticultural products require a comprehensive research program, including the reduction of pesticide use via integrated pest management, nutrient management, cold hardiness, heat stress management, plant evaluations, plant growth regulation, propagation, water/irrigation management, and marketing. Information on cost analysis and financial management are critical to management decisions.

Recent climate data indicate that higher variability and greater incidence of catastrophic weather must be seen as part of the situation.

As this program area relates to sustainable energy, it is assumed that energy demand will continue to increase and that price will continue to fluctuate and rise.

2. Scope of the Program

- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

University Experiment Station and Extension Service programs conduct open, unbiased, scientific research and provide expertise to our clientele. Information on any subject is readily available in the business world today. However, most of the information available from industry is directed towards those entities making a profit. Thus, this information is naturally going to be biased in their favor. Thus, this information has limited value to the public. The Extension Service can provide unbiased information by assimilating sound scientific research conducted at the University which is based upon sound science, methodology and is subject to peer-review. Thus, universities provide timely, uniquely impartial data and ideas from which clientele can use to make sound decisions to improve their profitability and reduce risk.

As related to horticulture, we can assume that the growth in farmers' markets and opportunities for local and regional sales of horticultural specialty crops will continue to increase for Mississippi. The decentralization of fresh product purchases by large retailers offers opportunities for new and existing horticultural enterprises in the state. Traditional production systems will remain the center of most production while non-traditional crops and production systems continue to serve niches and provide valuable opportunities for some enterprises. Home horticulture and recreational activities will continue to be an important part of horticulture in the state.

Markets and information needs for turf and landscape horticulture are steady or growing, with continued population and income growth, especially in the north and coastal areas of the state, driving much of this.

Producers will continue working smarter to increase profitability. Increased interest in marketing will continue to build a more market wise industry. Energy and labor efficiency will continue to be pressing issues. Changes in availability and labeling, along with continued interest in what is new, will lead to continued increases in the use of proprietary cultivars, crop production products, and equipment.

This program will assume that research must recognize that while plants and animals can be more closely adapted to a changing climate, most production systems must be changed in parallel to recognize both climate change and organism change.

2. Ultimate goal(s) of this Program

Increase or improve production stability, minimize input expenses, and enhance environmental stewardship. These goals will improve profitability and sustainability for agronomic crop producers.

Increasing the profitability, efficiency, and sustainability of horticultural activities, while strengthening horticulture's contributions and ties to our communities and our state.

To develop an agricultural production system that is able to adapt to changing environments, sustain economic vitality, and take advantage of opportunities offered by climate change mitigation technologies.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2013	32.5	0.0	18.0	0.0
2014	32.5	0.0	18.0	0.0
2015	32.5	0.0	18.0	0.0
2016	32.5	0.0	18.0	0.0
2017	32.5	0.0	18.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

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

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
• Education Class • Workshop • One-on-One Intervention • Demonstrations	• Public Service Announcement • Newsletters • Web sites other than eXtension

3. Description of targeted audience

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

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
 - Number of patents submitted
 - Number of peer reviewed publications
- ☐ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of producers and/or clientele attending seminars, workshops, short courses, and demonstrations.
- ☐ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Documentation and effect of producers adopting recommended practices, technologies, strategies, or systems.
2	Documentation of producers 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.
5	Number of producers adopting new practices based on research/extension recommendations.
6	Number of producers reporting increased income/decreased expenses based on practice change
7	Number of producers reporting increasing profitability levels.

Outcome # 1

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 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

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

Documentation of producers increasing production levels.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 111 - Conservation and Efficient Use of Water
- 202 - Plant Genetic Resources
- 205 - Plant Management Systems

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

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

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 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

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

Documentation of efforts and activities which have improved environmental stewardship.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 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

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 5

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 132 - Weather and Climate
- 403 - Waste Disposal, Recycling, and Reuse

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 6

1. Outcome Target

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

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 132 - Weather and Climate

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 7

1. Outcome Target

Number of producers reporting increasing profitability levels.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 204 - Plant Product Quality and Utility (Preharvest)
- 205 - Plant Management Systems

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

As the agronomic crops program is tied directly to agricultural production, weather extremes is the most likely external factor to affect outcomes. The next most likely factors to affect outcomes are government regulations, especially environmental regulations, and public policy changes, primarily government set-asides and production programs. In regard to horticulture, total staffing and fiscal support for horticulture has declined over the past five years. Budget restraints have altered the delivery methods for extension dissemination of information. Increased use of Internet, email, distance education, and other technologies has broadened communication avenues at the cost of interpersonal relationships between clientele and extension personnel. Demographic shifts and population growth, hurricane damage, and increased disposable income have increased the demand for consumer information.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

Evaluation of this program will include retrospective producer surveys and case studies of selected producers. The time series analysis will include production data for selected row-crops in Mississippi.

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

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

2. Brief summary about Planned Program

The Agricultural, Biological, and Natural Resources Engineering planned program is dedicated to the application of technical, business and management skills to problems in agricultural production, commodity-related and natural resource management. This newly defined planned program includes components of previous and existing program areas, such as Animal Production and Sustainable Energy. The previous Nutrient Management and Water Quality is now included in the Agricultural, Biological, and Natural Resources Engineering planned program.

3. Program existence : New (One year or less)**4. Program duration :** Long-Term (More than five years)**5. Expending formula funds or state-matching funds :** Yes**6. Expending other than formula funds or state-matching funds :** No**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%	
112	Watershed Protection and Management	0%		5%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	10%		0%	
204	Plant Product Quality and Utility (Preharvest)	0%		15%	
306	Environmental Stress in Animals	5%		0%	
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals	5%		0%	
401	Structures, Facilities, and General Purpose Farm Supplies	0%		10%	
402	Engineering Systems and Equipment	50%		8%	
403	Waste Disposal, Recycling, and Reuse	10%		2%	
511	New and Improved Non-Food Products and Processes	0%		50%	
601	Economics of Agricultural Production and Farm Management	0%		10%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

This program area includes specialists from diverse disciplines at MSU, including Computer Science and Engineering, Geosciences, and Agriculture and Biological Engineering. The priorities of this program area follows: Engineering Systems for Crop Production, Engineering Systems for Animal Production, Waste Management, Irrigation and Water Resources Technologies, Renewable Fuels Conversion Technology, and Biotechnology.

2. Scope of the Program

- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)**1. Assumptions made for the Program**

Improvements in resources engineering can result in safer, high-quality foods; more efficient and environmentally sound agricultural practices; and better educated and more economically capable communities.

2. Ultimate goal(s) of this Program

To develop an agriculture production system that is able to adapt based on agricultural, biological, and natural resource engineering improvements.

V(E). Planned Program (Inputs)**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2013	5.5	0.0	5.0	0.0
2014	5.5	0.0	5.0	0.0
2015	5.5	0.0	5.0	0.0
2016	5.5	0.0	5.0	0.0
2017	5.5	0.0	5.0	0.0

V(F). Planned Program (Activity)**1. Activity for the Program**

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

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
• Education Class • Workshop • Demonstrations	• Newsletters • Web sites other than eXtension

3. Description of targeted audience

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

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

☒ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

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

☒ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of producers adopting new practices due to research/extension recommendations.
2	Number of producers adopting new technologies, strategies, or systems.
3	Number of producers increasing production levels.
4	Number of producers decreasing production inputs/expenses.
5	Number of producers improving production efficiency.
6	Number of producers improving their environmental stewardship.

Outcome # 1

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 402 - Engineering Systems and Equipment
- 403 - Waste Disposal, Recycling, and Reuse

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 112 - Watershed Protection and Management
- 306 - Environmental Stress in Animals
- 402 - Engineering Systems and Equipment
- 403 - Waste Disposal, Recycling, and Reuse

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

Number of producers increasing production levels.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 402 - Engineering Systems and Equipment
- 511 - New and Improved Non-Food Products and Processes
- 601 - Economics of Agricultural Production and Farm Management

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

Number of producers decreasing production inputs/expenses.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 204 - Plant Product Quality and Utility (Preharvest)
- 401 - Structures, Facilities, and General Purpose Farm Supplies
- 402 - Engineering Systems and Equipment
- 601 - Economics of Agricultural Production and Farm Management

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 5

1. Outcome Target

Number of producers improving production efficiency.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 6

1. Outcome Target

Number of producers improving their environmental stewardship.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 112 - Watershed Protection and Management
- 402 - Engineering Systems and Equipment
- 403 - Waste Disposal, Recycling, and Reuse

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Many potential factors may affect the implementation and success of this plan. Among these are changing political climates and priorities, changing internal policies and priorities, and potentially

conflicting interests of stakeholders and consumers.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

Evaluation of this program will include retrospective producer surveys and case studies of selected producers.

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

Global Food Security and Hunger - Enterprise Economics

2. Brief summary about Planned Program

This program helps agricultural producers improve the profitability of their enterprise through management, marketing, and influencing farm policy. This newly defined planned program includes the previous Risk/Farm Management planned program.

3. Program existence : Mature (More than five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
601	Economics of Agricultural Production and Farm Management	30%		20%	
602	Business Management, Finance, and Taxation	10%		0%	
604	Marketing and Distribution Practices	40%		40%	
610	Domestic Policy Analysis	20%		40%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

Mississippi's farmers and agribusiness professionals operate in a competitive and rapidly changing environment. To thrive in this environment, they need access to timely information, tools to effectively evaluate that information, and the skills to recognize the need for and implement changes in the management of their operations.

Mississippi's agricultural producers and agribusiness professionals need timely and accurate information on developments in markets for their commodities. In addition, they need a better understanding of the marketing tools and opportunities that are available to them.

Changes in agricultural policy related to commodity production and natural resource conservation have a tremendous impact on the economic well-being of Mississippi's agricultural producers, agribusinesses, and landowners. These stakeholders need access to the most current information and analysis related to proposed policy changes.

2. Scope of the Program

- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Producers that are proficient at production techniques are not necessarily proficient at the business aspects of farming. While production levels are important to farm viability, marketing, management, and knowledge of policy are also important components of successful enterprises.

2. Ultimate goal(s) of this Program

The program seeks to increase the profitability of farm enterprises so that operations are sustainable.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2013	5.2	0.0	4.0	0.0
2014	5.2	0.0	4.0	0.0
2015	5.2	0.0	4.0	0.0
2016	5.2	0.0	4.0	0.0
2017	5.2	0.0	4.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

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. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
• Workshop • Group Discussion • One-on-One Intervention • Demonstrations	• Public Service Announcement • Newsletters • Web sites other than eXtension

3. Description of targeted audience

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

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

☒ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

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

☒ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

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 Target

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

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 604 - Marketing and Distribution Practices
- 610 - Domestic Policy Analysis

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

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

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Description

As with most production-related programs, the success of this program can be influenced by many factors. The program is designed to help producers maintain their viability in spite of external factors, however.

Retirements and resignations have left this program shorthanded. New hires for the program are not imminent.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

Retrospective studies will be used to determine adoption strategies and related impacts. Time series and case study analyses will be used to determine trends in marketing effectiveness.

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Environmental Systems and Sustainability

2. Brief summary about Planned Program

This program focuses on water (quality, use, and conservation) as it relates to production agriculture, with an emphasis on irrigation efficiency, nutrient management, and proper disposal of agricultural wastes, including pesticides, solid wastes, and other waste products. Additionally, this program area will focus on the control and prevention of pests, including such concepts as pest identification, pest biology, inspection and monitoring, pest thresholds, habitats and habitat management as it relates to pest control, exclusion, and pesticide chemistry and formulations. The previously stated areas of focus, must be considered within the context of climate change. Changes in climate, including global warming, have lead to a need to develop an agriculture system that maintains high productivity in the face of climate changes and reduce greenhouse gas emissions.

3. Program existence : Mature (More than five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

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%		10%	
102	Soil, Plant, Water, Nutrient Relationships	5%		5%	
111	Conservation and Efficient Use of Water	10%		10%	
112	Watershed Protection and Management	5%		10%	
132	Weather and Climate	5%		5%	
133	Pollution Prevention and Mitigation	5%		10%	
205	Plant Management Systems	10%		5%	
206	Basic Plant Biology	5%		5%	
211	Insects, Mites, and Other Arthropods Affecting Plants	10%		10%	
212	Pathogens and Nematodes Affecting Plants	5%		0%	
213	Weeds Affecting Plants	5%		5%	
214	Vertebrates, Mollusks, and Other Pests Affecting Plants	5%		0%	
215	Biological Control of Pests Affecting Plants	5%		0%	
216	Integrated Pest Management Systems	5%		5%	
403	Waste Disposal, Recycling, and Reuse	5%		5%	
405	Drainage and Irrigation Systems and Facilities	5%		5%	
512	Quality Maintenance in Storing and Marketing Non-Food Products	0%		10%	
721	Insects and Other Pests Affecting Humans	5%		0%	
903	Communication, Education, and Information Delivery	5%		0%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

Issues associated with environmental systems and sustainability- including water quality, water use and water conservation--continue to be important focus areas of research and Extension education programs. Water conservation practices for agricultural crop production systems and the general public are needed to promote conservation of water resources in Mississippi. Proper disposal of agricultural wastes such as waste pesticides, solid wastes and other waste products are other important issues among

agricultural producers. Research and education programs are targeted toward agricultural producers to address potential water quality and environmental impacts associated with nutrient management, animal and row crop production, as well as reach other rural audiences potentially impacted by agricultural production.

Integrated pest management is related to environmental systems and sustainability. Extension entomologists and research scientists have begun an increased effort to provide reliable and sustainable information to producers and consultants on scouting techniques, thresholds, identification, and pest biology. With the "new" high management soybean and corn plantings, producers have adopted some of the high spray practices from cotton. There are numerous producers that will make "convenience" sprays with insecticides if they are going across the field with an herbicide or fungicide to save on application cost. These convenience sprays are often not justified.

Mississippi consistently ranks in the top 5 states of WNV cases per 100,000 population (Lindsey et al. 2008, Vector-borne and Zoonotic Diseases 8: 35-39), so effective (even chemical-based) mosquito control is definitely needed. Unfortunately, no public health IPM efforts have been promoted in Mississippi and only rarely have such practices ever been conducted. Mosquito control often only consists of routine spraying with a truck-mounted ULV machine. Rocky Mountain spotted fever and other tick-borne diseases are present in Mississippi and tick control efforts are sometimes implemented at city and state parks. Education on prevention and control of tick-borne diseases is also needed in this state. This aspect of the IPM plan of work will help ensure safe and effective public health pest control in towns and cities throughout Mississippi and will promote adoption of IPM principles such as education, source reduction, and least use of the least toxic products.

Mississippi has over 2.9 million citizens, representing just over a million individual households. Each of these households is in need of information and education on how to best avoid, manage, and/or control insect pests and plant diseases that adversely affect household members and their property. This aspect of the IPM plan of work is to provide training and assistance to clients that will help them to prevent or solve insect pest and plant disease problems they encounter in their home, garden or landscape.

Recent climate data indicate that higher variability and greater incidence of catastrophic weather must be considered when seeking to address environmental systems and sustainability.

2. Scope of the Program

- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

The participating entities (Extension and research) are equipped to conduct the research pertinent to the planned program area and effectively deliver its components to the targeted audiences; and the targeted audiences are in a position to and are willing to implement strategies related to environmental systems and sustainability.

2. Ultimate goal(s) of this Program

To change the practices of the general public and agricultural production practices for the sustainability of environmental systems.

V(E). Planned Program (Inputs)**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2013	8.4	0.0	10.0	0.0
2014	8.4	0.0	10.0	0.0
2015	8.4	0.0	10.0	0.0
2016	8.4	0.0	10.0	0.0
2017	8.4	0.0	10.0	0.0

V(F). Planned Program (Activity)**1. Activity for the Program**

Varied activities, services and products are anticipated. These include formation of state and regional advisory groups, assignment of work groups to address specific issues and tasks associated with environmental systems and sustainability, participation of targeted audiences such as agricultural producers in environmental education programs, development of publications, fact sheets, web pages and other educational materials as program support, and reporting documents. Specific programs targeted toward agricultural producers 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.

As related to environmental systems, research and extension programming will be conducted in many IPM areas, including the following:

1. urban entomology and plant pathology
2. plant disease and nematode diagnostics
3. cotton and corn pest management
4. greenhouse tomato pest management
5. soybean management by application of research and technology
6. public health issues related to vector control

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
• Workshop • One-on-One Intervention • Demonstrations	• Public Service Announcement • Newsletters • Web sites other than eXtension

3. Description of targeted 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, public health agencies and consumers.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

☐ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

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

☐ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of producers adopting new technologies, strategies, or systems.
2	Number of producers reporting increased income or profits/decreased expenses based on practice changes.
3	Number of producers reducing environmental impacts of pesticide use.
4	Number of producers adopting new practices based on research/extension recommendations
5	Number of producers improving their environmental stewardships

Outcome # 1

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 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

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

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

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 132 - Weather and Climate

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

Number of producers reducing environmental impacts of pesticide use.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 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

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

Number of producers adopting new practices based on research/extension recommendations

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 132 - Weather and Climate

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 5

1. Outcome Target

Number of producers improving their environmental stewardships

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 111 - Conservation and Efficient Use of Water
- 403 - Waste Disposal, Recycling, and Reuse
- 405 - Drainage and Irrigation Systems and Facilities

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Many potential factors may affect the implementation and success of this plan. Among these are changing political climates and priorities, changing internal policies and priorities, potentially conflicting interests of stakeholders, the impact of natural disasters such as hurricanes, floods and tornadoes, and funding limitations.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

Evaluation of this program will include retrospective producer surveys and case studies of selected producers.

V(A). Planned Program (Summary)**Program # 6****1. Name of the Planned Program**

Forestry

2. Brief summary about Planned Program

This program includes research and extension efforts in forestry, including forest production and management, forest recovery, timber harvesting, environmental stewardship. This program is increasingly giving attention to sustainable energy and climate change.

3. Program existence : Mature (More than five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

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%		10%	
123	Management and Sustainability of Forest Resources	40%		25%	
124	Urban Forestry	10%		10%	
125	Agroforestry	15%		5%	
132	Weather and Climate	5%		5%	
133	Pollution Prevention and Mitigation	5%		10%	
201	Plant Genome, Genetics, and Genetic Mechanisms	0%		15%	
211	Insects, Mites, and Other Arthropods Affecting Plants	0%		10%	
403	Waste Disposal, Recycling, and Reuse	5%		0%	
511	New and Improved Non-Food Products and Processes	0%		10%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

Mississippi's forest industry (including private landowners, independent harvesters and forest industry) harvests and delivers over \$2 billion worth of forest products to mills and other processors each year. Timber generally ranks as the first or second most valuable agricultural commodity in the state, usually second behind only poultry and eggs production. Mississippi is a heavily forested state with 18.6 million acres of forestland (62% of the state's land area). The total economic impact of forestry and the forest products industry is \$14.8 billion. Almost 66 percent of the state's forestland is owned by private, nonindustrial forest landowners.

2. Scope of the Program

- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Changes in markets and the overall economy have resulted in prices falling for pine saw timber and chip-n-saw material. In addition, various mill closings around Mississippi have reduced the demand for pulpwood and timber markets. The return of past markets, as well as the development of new processes and materials will play a large significant role in the long term health of forestry and the forest products industry in Mississippi.

2. Ultimate goal(s) of this Program

To increase the profitability of forest production and improve the environmental stewardship of forest landowners.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2013	9.9	0.0	0.0	0.0
2014	9.9	0.0	0.0	0.0
2015	9.9	0.0	0.0	0.0
2016	9.9	0.0	0.0	0.0
2017	9.9	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

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. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
• Education Class • Workshop • One-on-One Intervention • Demonstrations • Other 1 (Interactive Video)	• Newsletters • Web sites other than eXtension

3. Description of targeted audience

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

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

☒ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

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

☒ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of timber producers adopting new technologies and practices.
2	Number of timber producers increasing profitability of their forest operations.
3	Number of producers improving their environmental stewardship.
4	Number of producers adopting new practices based on research/extension recommendations
5	Number of producers reporting increased income/decreased expenses based on practice changes.

Outcome # 1

1. Outcome Target

Number of timber producers adopting new technologies and practices.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 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

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

Number of timber producers increasing profitability of their forest operations.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources
- 125 - Agroforestry

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

Number of producers improving their environmental stewardship.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 122 - Management and Control of Forest and Range Fires
- 133 - Pollution Prevention and Mitigation
- 403 - Waste Disposal, Recycling, and Reuse

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

Number of producers adopting new practices based on research/extension recommendations

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 122 - Management and Control of Forest and Range Fires
- 123 - Management and Sustainability of Forest Resources
- 124 - Urban Forestry
- 403 - Waste Disposal, Recycling, and Reuse
- 511 - New and Improved Non-Food Products and Processes

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 5

1. Outcome Target

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

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources
- 125 - Agroforestry
- 511 - New and Improved Non-Food Products and Processes

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Natural disasters, particularly hurricanes and tornadoes, are particularly harsh on forest holdings. The effects of Hurricane Katrina have had, and will continue to have a significant impact on outreach efforts and directions for years to come. Policy changes, especially regarding importing of cheap timber from other countries, can have a big impact on the industry. Government regulations, especially regarding environmental issues, can increase production and harvesting costs.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

Evaluation of this program will include retrospective producer surveys and case studies of selected producers. The time series analysis will include production data for forest crops in Mississippi.

V(A). Planned Program (Summary)**Program # 7****1. Name of the Planned Program**

Wildlife and Fisheries

2. Brief summary about Planned Program

This program focuses on wildlife habitat management, wildlife enterprise development, and management of human-wildlife conflicts. Attention must increasingly be dedicated to climate changes that affect Mississippi's natural resources, including wildlife and fisheries.

3. Program existence : Mature (More than five years)**4. Program duration :** Long-Term (More than five years)**5. Expending formula funds or state-matching funds :** Yes**6. Expending other than formula funds or state-matching funds :** Yes**V(B). Program Knowledge Area(s)****1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
111	Conservation and Efficient Use of Water	5%		5%	
131	Alternative Uses of Land	10%		10%	
132	Weather and Climate	5%		5%	
135	Aquatic and Terrestrial Wildlife	15%		20%	
136	Conservation of Biological Diversity	5%		5%	
214	Vertebrates, Mollusks, and Other Pests Affecting Plants	15%		10%	
312	External Parasites and Pests of Animals	0%		5%	
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals	5%		0%	
604	Marketing and Distribution Practices	10%		10%	
605	Natural Resource and Environmental Economics	15%		20%	
722	Zoonotic Diseases and Parasites Affecting Humans	5%		5%	
903	Communication, Education, and Information Delivery	10%		5%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Mississippi is rich in wildlife and fisheries resources that are important to its heritage, culture and economic well-being. State residents and non-residents aged 16 years and older spend approximately \$2 billion in consumptive and non-consumptive wildlife-related recreation. Over 600,000 Mississippians (16 years or older) fish, hunt or watch wildlife. Most of Mississippi is either privately owned or industrial forest or agricultural land with a high potential for fish and wildlife production and management. Many landowners do not know how to manage their land properly for different species of these resources, and need current research-based information. Much of the state's 18.2 million acres of commercial and private forestland, 225,000 acres of small impoundments, 14,205 miles of streams and rivers, and 13 million acres of agricultural open lands is not managed for wildlife/fisheries. Additionally, opportunities for quality recreational experiences and/or additional revenue generation through development of wildlife/fisheries related enterprises exist on Mississippi land bases for property owners and resource stakeholders.

Sociological and demographic changes associated with increased urbanization and changing lifestyles, coupled with greater public demand for enjoyment of wildlife and fisheries resources, have led to new dilemmas in conservation issues, as well as user conflicts. These dilemmas are frequently compounded by increased public awareness and involvement in issues such as endangered/threatened species conservation, traditional hunting/fishing activities, environmental stewardship and quality of life, wildlife/fisheries population management, ecosystem restoration and habitat management, and agricultural and agroforestry intensification.

To address current and future challenges in wildlife and fisheries management, Mississippians need accurate and reliable information. This need can be met through well-designed and executed research, combined with pro-active, client-driven extension programming.

2. Scope of the Program

- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

- To ensure a sound conservation ethic among the citizenry regarding our natural resources, training of our youth at the critical ages (8-12) is essential.
- It is important to ensure that educators of children in grades K-12 understand and respect fundamental principles of natural resources conservation which aids in compliance of environmental education standards by the National Council for the Accrediting of Teacher Education.

2. Ultimate goal(s) of this Program

The ultimate goal for this program is to increase respect for and enjoyment and profitability of human and wildlife/fisheries interactions in Mississippi.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2013	9.4	0.0	2.0	0.0
2014	9.4	0.0	2.0	0.0
2015	9.4	0.0	2.0	0.0
2016	9.4	0.0	2.0	0.0
2017	9.4	0.0	2.0	0.0

V(F). Planned Program (Activity)**1. Activity for the Program**

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. Type(s) of methods to be used to reach direct and indirect contacts**Extension**

Direct Methods	Indirect Methods
• Workshop • Group Discussion • One-on-One Intervention • Demonstrations	• Public Service Announcement • Newsletters • Web sites other than eXtension

3. Description of targeted 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, and those who educate our youth (K-12).

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

☒ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

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

☒ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of producers adopting new practices based on research/extension recommendations.
2	Number of wildlife professionals improving their skills in handling wildlife damage issues.
3	Number of non-industrialized, private landowners initiating wildlife-related enterprises.
4	Number of landowners reporting improved wildlife conservation due to management practices.
5	Number of clientele reporting increased income levels due to wildlife enterprises.
6	Number of producers reporting increased income/decreased expenses based on practice changes.

Outcome # 1

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 132 - Weather and Climate
- 135 - Aquatic and Terrestrial Wildlife
- 136 - Conservation of Biological Diversity
- 314 - Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals
- 605 - Natural Resource and Environmental Economics
- 722 - Zoonotic Diseases and Parasites Affecting Humans
- 903 - Communication, Education, and Information Delivery

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 135 - Aquatic and Terrestrial Wildlife
- 605 - Natural Resource and Environmental Economics
- 903 - Communication, Education, and Information Delivery

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 136 - Conservation of Biological Diversity
- 605 - Natural Resource and Environmental Economics
- 903 - Communication, Education, and Information Delivery

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

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

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 135 - Aquatic and Terrestrial Wildlife
- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 5

1. Outcome Target

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

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 135 - Aquatic and Terrestrial Wildlife
- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 6

1. Outcome Target

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

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 131 - Alternative Uses of Land
- 132 - Weather and Climate
- 136 - Conservation of Biological Diversity
- 604 - Marketing and Distribution Practices
- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

The most likely limiting factor for the program is competing programmatic challenges that might impact funding for wildlife research and extension programming. The economy, natural disasters, and

government regulations might influence clientele interest in the program by replacing wildlife conservation with other concerns, especially short-term.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

Evaluation of this program will include retrospective producer surveys and case studies of selected clientele. The time series analysis will consist of wildlife population and harvest statistics for Mississippi.

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Community Resource and Economic Development

2. Brief summary about Planned Program

Throughout its history, Extension has partnered with citizens, local leaders, and local government to strengthen the capacity of communities to meet its most pressing needs and address public issues effectively. Through formal and what could be considered informal leaders, Extension has made and will continue to make major contributions toward the preparation of citizens and local government officials for strengthening organizations and communities. Such endeavors could focus on:

- Helping local communities evaluate their local economy and make decisions about alternatives for improving their economy
- Helping local communities improve their local health care services
- Developing local community leadership that creates a diverse environment and promotes a shared vision among residents.
- Assessing tourism potential and developing models and strategies to turn that potential into increased tourism and economic development, and
- Assisting local government officials, local units of government, and associations of local government officials in their efforts to improve governance at the grassroots and delivery of services to the citizens of Mississippi.

3. Program existence : Mature (More than five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
608	Community Resource Planning and Development	25%		10%	
609	Economic Theory and Methods	25%		0%	
802	Human Development and Family Well-Being	5%		15%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	20%		20%	
805	Community Institutions, Health, and Social Services	25%		30%	
903	Communication, Education, and Information Delivery	0%		25%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

Local economies include businesses, governments, and consumers who conduct thousands of interrelated transactions every day. The current economic climate is volatile, and concerns local and state policy makers. An understanding of the local economy improves the quality of decision-making. As community leaders evaluate their local economy and learn which specific sectors are competitive in their unique locality, they can make decisions concerning alternative strategies for diversifying their local economy. To meet the complexities of community issues, citizens and leaders from diverse agencies are increasingly being encouraged to participate in community action.

Community Resource and Economic development has a role to play in addressing needs in formal community systems, such as the local health care sector. The Mississippi population is greatly underserved by physicians. In 2003, there were 183 physicians per 100,000 people compared to the national average of 281. Health care can be an economic engine. The health services sector makes up a substantial part of many rural economies, and is often the largest single employer in many communities.

For communities to be successful, they must support and nurture a leadership philosophy that welcomes widespread citizen involvement. The best leadership is shared and recognized as a process by which people are empowered to make their own decisions through collaborative efforts with diverse sectors of any given community. Traditional leadership ideas were based on competitive styles that were exclusive of the many voices within a community.

According to a report by the Southern Rural Development Center, building civically minded citizens within rural community requires that (1) all segments of the community be involved in guiding the future of the community, (2) new and expanded leadership development opportunities be provided, (3) leadership responsibilities should be shared in order to build trust, and (4) support of the establishment of local-oriented small and entrepreneurial businesses must be evident.

Launching a tourism initiative is one way to diversify and improve the economic vitality of a given

community. Rural communities are searching for methods like tourism development to strengthen their traditionally agricultural-based economies. A prepared community is the foundation of a successful tourism initiative. As a community or region takes inventory of existing or potential attractions, such as festivals and events, natural resources, historical attractions, and recreation opportunities, local leaders should be mindful that tourism is a highly competitive business. Successful local tourism efforts build on existing strengths.

Within their respective election cycles, some 3,000 local elected officials are given responsibility by the electorate for the formulation, adoption, and implementation of public policy in Mississippi's 82 counties and 297 municipalities. Typically, from one-third to one-half of these officials will be newly-elected, having never held public office. In addition, some 2,000 major appointed county and municipal officials assist these elected officials in governing and providing services.

2. Scope of the Program

- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Most communities lack the resources to appropriately examine the consequences of events that can affect the economy. Communities that focus efforts on developing health care services will improve the health and livability of their communities. Talents and skills of local residents can be used to evoke positive community change; therefore, a leadership approach that targets people with diverse ethnic, social, and economic backgrounds is extremely important to the vitality of a given community. Not only should current, traditional leaders participate in leadership training, but also potential leaders with nontraditional leadership roles should be actively involved as well. Thus, an ongoing network of community leaders is formed to help shape the future direction of their respective communities. Through an asset-based community development approach, rural communities challenged with struggling economies are model communities where tourism initiatives could be successful. By inventorying, improving, and marketing existing resources and tapping into potential resources, communities that follow the tourism model for proper development learn how to revitalize their local economies and enjoy an improved quality of life for their residents. The better educated a local official, the better job he or she will do in meeting the needs of the citizens. The Mississippi legislature will continue to recognize the importance of training of public officials and will mandate this responsibility to the extension service.

If clientele participate in leadership development programs offered through extension, they are better prepared to assume positions of leadership. As participants put into action their leadership styles and theory, Mississippi communities can improve.

2. Ultimate goal(s) of this Program

The ultimate goal of this program is to develop local communities through expanding the diversity of local economies, improving access to quality health care services for local citizens, with viable local health care organizations providing that care, developing leadership abilities in local communities, increasing tourism in local communities, thereby increasing the viability of local economies, and equipping local government officials with the skills and knowledge they need to be effective in their jobs and provide better local government to the citizens of Mississippi.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2013	49.7	0.0	1.0	0.0
2014	49.7	0.0	1.0	0.0
2015	49.7	0.0	1.0	0.0
2016	49.7	0.0	1.0	0.0
2017	49.7	0.0	1.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Extension will assist local communities in conducting the following activities:

- Development of demographic, economic, and fiscal profiles
- Development of economic analyses (eg., feasibility, impact, export-base, business plans, commuting, trade, shift share, location quotients).
- Providing technical assistance and holding community forums
- Taking strategic planning surveys (eg., 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. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
• Education Class • Workshop • One-on-One Intervention • Demonstrations	• Public Service Announcement • Newsletters • Web sites other than eXtension

3. Description of targeted audience

The target audience for this program consists of local communities and their leaders, as well as

community members interested in improving their community. These individuals include master extension volunteers and 4-H volunteers.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

☒ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of clientele attending workshops, seminars, and short courses.
- Number of communities requesting economic analyses.
- Number of communities participating in community health improvement activities.

☒ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

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

Outcome # 1

1. Outcome Target

Number of community leaders improving knowledge and skills.

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 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
- 903 - Communication, Education, and Information Delivery

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

Number of local government officials obtaining required certifications.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development
- 609 - Economic Theory and Methods

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 5

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 6

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 7

1. Outcome Target

Number of local communities improving their health services.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 8

1. Outcome Target

Number of communities reporting increased levels of tourist activity.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 9

1. Outcome Target

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

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 903 - Communication, Education, and Information Delivery

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 10

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

The most important factor influencing this program is the local economy and its ability to sustain and improve local communities. Economic factors could possibly reduce the number of potential volunteers. Funding for programming could affect the ability of this program to meet goals.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

Retrospective studies will be used to measure knowledge gained by local community leaders. Case study analyses will be used to determine economic changes in local communities.

V(A). Planned Program (Summary)**Program # 9****1. Name of the Planned Program**

4-H Youth Development

2. Brief summary about Planned Program

This program contains all efforts regarding youth development by Extension, including military, volunteer development, and youth at risk.

3. Program existence : Mature (More than five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

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%	
	Total	100%		0%	

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

Parents want their children to grow into healthy, productive, successful adults. The mission of 4-H, the non-formal youth education program of the Mississippi State University Extension Service, is to help parents achieve that goal.

4-H helps youth acquire knowledge that can enable them to develop such life skills as: communication, decision-making, leadership, interpersonal relations, and community awareness. For a list of examples, see the Search Institute (<http://www.search-institute.org/assets/fifty.html>) or Iowa State University (<http://www.extension.iastate.edu/4H/lifeskills/homepage.html>).

4-H also helps youth form attitudes that will enable them to become self-directing, productive, and contributing members of society. The 4-H mission is accomplished through the involvement of parents, volunteer leaders, Extension agents, and other adults who organize and conduct educational experiences in community, school, and family settings. 4-H learning experiences are designed to help youth work with others in real-life situations. These experiences encourage family interactions by promoting individual growth in knowledge, skills, and attitudes.

Mississippi is ranked 50th by the National Kids Count analysis of the status of children. More than 33 percent of Mississippi children live in poverty and more than 39 percent live in families where no parent has full-time, year round employment. 46 percent of the children are living in single-parent households. Thirteen percent of Mississippi teens are not attending school nor working while the school dropout rate is nine percent. Mississippi youth are at risk for school failure, abuse, neglect, crime and violence. These youth are also at long-term risk of not becoming dependable family members, workers and involved

citizens. Mississippi youth need knowledge skills and behavior to lead fulfilling lives and to become engaged throughout Mississippi communities. (Kids Count, 2012)

Currently Mississippi has 4,828 active-duty National Guard and Reserve Units called to active duty in Mississippi. There are five military bases (Columbus AFB, Keesler AFB, naval Air Station Meridian, Naval Air Station Pascagoula, Naval Construction Battalion Center Gulfport) in our state. These full time soldiers and their families are dealing with multiple deployment and reunion issues for which the Extension Youth Development program can provide assistance.

Volunteers are vital to the Mississippi State University Extension Service 4-H Youth Development Program. Currently, there are over 6,100 adult volunteers and 98 youth are serving as volunteers in Mississippi 4-H. There is a need to provide Extension Agents with the skills that they need to become effective managers of volunteers. There is a need to equip 4-H volunteers with the skills that they need to become successful as 4-H club managers. There also is a need to provide learn-by-doing opportunity for youth to develop as leaders in their clubs and serve in county, district, and state leadership roles in Mississippi 4-H.

2. Scope of the Program

- Multistate Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

There is a strong commitment to youth development in the state and a dedicated volunteer core. Additionally, 4-H will continue to have strong funding support at the local and state level.

2. Ultimate goal(s) of this Program

Development of life skills in youth.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2013	70.3	0.0	0.0	0.0
2014	70.3	0.0	0.0	0.0
2015	70.3	0.0	0.0	0.0
2016	70.3	0.0	0.0	0.0
2017	70.3	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

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
- To Provide training to Extension personnel on experiential education through subject-matter

work:

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

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
• Education Class • Workshop • Group Discussion • One-on-One Intervention • Demonstrations	• Public Service Announcement • Newsletters • TV Media Programs • Web sites other than eXtension

3. Description of targeted audience

All Mississippians between the ages of 5 and 18.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

☒ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of youth enrolled in 4-H Clubs.
- Number of clubs operating on military bases.
- Number of youth-at-risk who join 4-H clubs.
- Number of volunteers attending local and/or district training.
- Number of volunteers attending state volunteer leaders conference.
- Number of volunteers attending the regional 4-H volunteer leaders forum.

☒ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

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 Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

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

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Number of youth who improve life skills.

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 6

1. Outcome Target

Number of 4-H projects completed.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 7

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Appropriations changes
- Populations changes (immigration, new cultural groupings, etc.)

Description

While natural disasters are always a possibility, the primary external factors would be appropriations changes and population changes.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

Evaluations will be conducted at both the state and local levels. Most local evaluations will include either after-only, retrospective, or case study methodology. Comparative studies and some retrospective studies will be conducted at the state level.

V(A). Planned Program (Summary)

Program # 10

1. Name of the Planned Program

Family and Consumer Sciences

2. Brief summary about Planned Program

This planned program focuses on human development and family well-being. A special emphasis is placed on improving the health status and quality of early care and education in Mississippi, and equipping families with skills related to financial resource management and family life.

In previous POW, Food Safety, Human Nutrition, Childhood Obesity, Human Health, Early Care and Education, Family Life, and Family Resource Management were planned programs. In this POW, all of these former planned programs are included in the Family and Consumer Sciences.

3. Program existence : Mature (More than five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
132	Weather and Climate	0%		5%	
205	Plant Management Systems	0%		2%	
303	Genetic Improvement of Animals	0%		2%	
502	New and Improved Food Products	0%		5%	
503	Quality Maintenance in Storing and Marketing Food Products	0%		5%	
602	Business Management, Finance, and Taxation	0%		2%	
605	Natural Resource and Environmental Economics	0%		2%	
608	Community Resource Planning and Development	0%		2%	
610	Domestic Policy Analysis	0%		10%	
703	Nutrition Education and Behavior	20%		10%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	5%		0%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	5%		5%	
723	Hazards to Human Health and Safety	0%		10%	
724	Healthy Lifestyle	25%		0%	
801	Individual and Family Resource Management	15%		10%	
802	Human Development and Family Well-Being	30%		15%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	0%		10%	
805	Community Institutions, Health, and Social Services	0%		5%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

Social and population trends make it difficult for families to remain strong in the 21st century. Statistics related to health status, education achievement, and poverty rate of Mississippians reveal the need for community-based programs that can help individuals, families, and communities reach their

potential.

Individuals living in the Mississippi experience significantly higher rates of morbidity and mortality due to chronic diseases directly related to human behaviors. These diseases include diabetes, hypertension, diabetes, and obesity--with a growing concern being the increasing rates of childhood obesity. Chronic conditions and illnesses reduce the quality of life for Mississippi residents, decrease the workforce productivity and cause health care costs to spiral. Because of low levels of education and the high unemployment rate, these factors contribute to a lack of insurance (Mississippi has an employment-based health insurance system) and these factors also may contribute to Mississippi's high premature death rate, as calculated through years of potential life lost, which is 2nd highest in the nation.

Childhood obesity rates present a very pressing concern for the state. Over 21% of Mississippi's children are obese. Recent studies on overweight children have revealed correlations to depression, increased likeliness to miss school, and lowered academic performance in school.

Many consumers lack the knowledge and skills that are essential for healthy living. For example, they might have trouble identifying foods that are good sources of key nutrients, do not understand the link between food choices and health, are not familiar with proper food handling techniques, and need instruction in saving money in food shopping.

Ensuring a safe food supply is of great importance. Under the Mississippi Food Code, anyone serving food for pay is required to have a permit to operate their facility. These facilities are required to show documentation of food safety knowledge. A required training in the state leads to cleaner and safer facilities and employees who have an increased knowledge of how food becomes unsafe and what groups are at an increased risk for foodborne illnesses.

Health issues in the state are often compounded by educational and family resource management needs. Early care and education providers continue to need quality programming to support their needs. The Mississippi Child Care Resource and Referral Network is housed under MSU-ES and has been given state funding and the responsibility to provide the majority of professional development for early care and education community.

The situation of families and children living in poverty continues to impact the state. One out of every four children are living in poverty. Economic challenges have a great impact on educational programs planned to meet the needs of Mississippians. National debt is at an all-time high relative to disposable income. Moreover, the personal savings rate has hit a record low.

2. Scope of the Program

- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Improving the health of Mississippians, as well as improving the quality of education and decreasing amount of residents in poverty, will improve the well-being of families in the state.

2. Ultimate goal(s) of this Program

This program will help Mississippi families improve their well-being.

V(E). Planned Program (Inputs)**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2013	37.9	0.0	4.0	0.0
2014	37.9	0.0	4.0	0.0
2015	37.9	0.0	4.0	0.0
2016	37.9	0.0	4.0	0.0
2017	37.9	0.0	4.0	0.0

V(F). Planned Program (Activity)**1. Activity for the Program**

Considering the breadth of this program, Extension and research will focus on numerous areas:
 healthy lifestyles education
 proper food handling
 family resource management
 preparing a competent early child care workforce and
 human development

2. Type(s) of methods to be used to reach direct and indirect contacts**Extension**

Direct Methods	Indirect Methods
• Workshop • One-on-One Intervention • Demonstrations	• Public Service Announcement • Newsletters • TV Media Programs • Web sites other than eXtension

3. Description of targeted audience

The audience for this program includes all Mississippians. Aspects of this program will target specific professionals or employees, such as food handlers (food safety) and early care/education providers (MSCCR&R). Other activities in this program--such as those focused on childhood obesity and human health and nutrition--will have a broader focus.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

☐ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of clientele attending workshops, seminars, and short courses.
 - Number of people attending certification courses.
- ☐ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

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).
3	Number of foodservice professionals achieving required certification in food handling techniques.
4	Number of clientele who learn how to use nutritional guidelines to make food decisions.
5	Number of clientele who adopt practices to fit their diets with dietary guidelines
6	Number of clientele reporting improved health and/or well-being due to changes in diet.
7	Number of clientele reporting a positive change in at least one behavior related to obesity (increased physical activity, decrease in caloric intake, increase in fruits and vegetables in diet).
8	Number of clientele adopting new practices related to financial management
9	Number of clientele reducing debt.
10	Number of clientele increasing wealth.
11	Number of families adopting recommended family strategies and behaviors.
12	Number of families reporting improved strengthened family life.
13	Number of childcare providers maintaining certification requirements.
14	Number of care providers increasing the quality of care provided.
15	Number of clientele increasing knowledge in child care and development content areas as measured by pre/post assessments.

Outcome # 1

1. Outcome Target

Number of clientele reporting changes in lifestyle to improve health.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 723 - Hazards to Human Health and Safety
- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

Number of clientele reporting decreases in at least one indicator (blood pressure, blood cholesterol, body mass index).

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 723 - Hazards to Human Health and Safety
- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 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

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 5

1. Outcome Target

Number of clientele who adopt practices to fit their diets with dietary guidelines

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 6

1. Outcome Target

Number of clientele reporting improved health and/or well-being due to changes in diet.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 7

1. Outcome Target

Number of clientele reporting a positive change in at least one behavior related to obesity (increased physical activity, decrease in caloric intake, increase in fruits and vegetables in diet).

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 8

1. Outcome Target

Number of clientele adopting new practices related to financial management

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 9

1. Outcome Target

Number of clientele reducing debt.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 10

1. Outcome Target

Number of clientele increasing wealth.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 11

1. Outcome Target

Number of families adopting recommended family strategies and behaviors.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 12

1. Outcome Target

Number of families reporting improved strengthened family life.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 13

1. Outcome Target

Number of childcare providers maintaining certification requirements.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 14

1. Outcome Target

Number of care providers increasing the quality of care provided.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 15

1. Outcome Target

Number of clientele increasing knowledge in child care and development content areas as measured by pre/post assessments.

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Other (Cultural traditions)

Description

Economic factors may influence the ability to change lifestyle habits. The most important factor, however, is overcoming cultural traditions related to health.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

This program will use both retrospective and before-after methods to measure changes in behaviors related to healthy lifestyle. Additionally, immediate and follow-up comparisons of financial indicators will be used. Food safety certification test will be used to assess knowledge gained by food handlers. Quality of care provided by early care and education providers will be measured using the appropriate day care rating scales (ECERS-R, ITERS-R, or FDCERS) using pre-and post-observations.