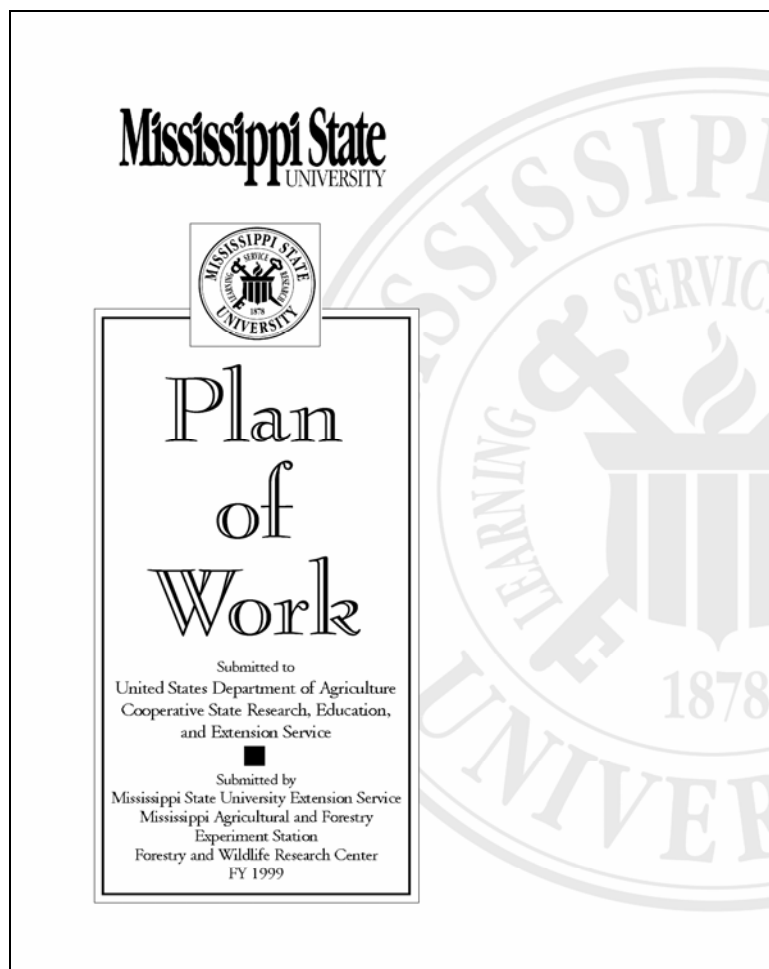


FY 2003 Annual Report of Accomplishments and Results

Submitted to

**United States Department of Agriculture
Cooperative States Research, Education, and Extension Service**



**Joint Report
Mississippi State University Extension Service
Mississippi Agricultural and Forestry Experiment Station**

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A. Planned Programs

Mississippi State University, including the Mississippi State University Extension Service (MSU-ES), the Mississippi Agricultural and Forestry Experiment Station (MAFES), and the Forest and Wildlife Research Center (FWRC), responded to the AREERA Plan of Work requirements by restructuring its program planning process. Based on clientele and reporting needs at the state and local levels, 26 priority program areas (PPA) were established. Based on this new system, outputs and outcomes were determined. The outcomes were primarily intermediate and long-term outcomes, with the first year devoted to establishing the research and extension programs and establishing baselines for future measurement of outcomes. Short-, intermediate-, and long-term outcomes, outputs, and impacts from programs established before AREERA are summarized under each goal below.

Goal 1: An agricultural system that is highly competitive in the global economy.

Overview

The following programs are included under goal 1. Each PPA is given with the specific programs in parentheses after the PPA.

- PPA: Beef & Forage (Alternative Marketing; Forage Improvement; Genetic Improvement; Herd Health; and Nutrition)
- PPA: Catfish (Processing Technology; Fish Behavior; Fish Health; Harvest Technology; Nutrition; and Water Quality)
- PPA: Corn (New Technologies; Planting and Establishment Systems; and Profitability of Cropping Systems)
- PPA: Cotton (Best Management Practices; Conservation Tillage; Disease and Nematode Management; Harvesting, Handling and Ginning; Variety Evaluation and Selection; Weed Control; Crop Price Rations and Risk Management; Irrigation; and Utilizing GIS/GPS in Production)
- PPA: Dairy (Cost of Production; Facility Management; Mastitis Control; Nutrition; and Reproductive Management)
- PPA: Forestry (Forest Resources Management and Use)
- PPA: Horticulture (Horticultural Crops)
- PPA: Poultry and Products (Reducing Malodor and Pathogens; Lipoproteins and Egg Mycoplasma; Fertility in Broiler Breeders; Access to Technical Information; Cocci Vaccine Development; and Poultry Waste Management)
- PPA: Rice (Insect Control; Management and Control of Diseases; Genetics, Breeding and Variety Development; Soil Fertility; and Weed Control)
- PPA: Soybeans (Best Management Practices; Irrigation and Drainage Practices; Planting Dates and Variety Selection; Site Specific Soybean Management; Weed Control)
- PPA: Swine (Technologies and Management)
- PPA: Wildlife & Fisheries (National Catfish Information Database)

Outputs--research and extension activities--under this goal are provided in the table below.

Priority Program Area (PPA)	Refereed Articles	MAFES Pubs.	Extension Pubs.	Extension Contacts	Other
Beef and Forage	9	3	1	120,126	
Catfish	24	2	1	7,451	
Corn	2	5	1	34,514	
Cotton	20	5	1	110,273	
Dairy	1		1	26,846	
Forestry	7		2	131,330	<i>Forest Inventory Software</i>
Horticulture	44	1	1	197,966	
Poultry and Products	24	1	1	4,297	
Rice	6	2	1	6,024	
Soybeans	8	2	1	66,572	
Swine				1,720	
Wildlife and Fisheries				184,645	

Overall Expenditures for Goal 1

Function	FTE	Expenditures*
Experiment Station	65.26	\$22,553,436
Extension Service	88.86	\$2,692,988

* Expenditures reflect federal and matching funds.

Progress toward intermediate- and long-term outcomes and impacts/outcomes for ongoing programs are documented under the key themes in the next section.

Key Themes

Key Theme – Plant Production Efficiency

a. Soybean producers can increase yields and decrease expenses by using intensive management practices. The SMART program has emphasized a holistic approach to crop management. Increased utilization of best management practices has allowed the Mississippi crop to set new highs compared to other areas of the south. These practices include basic inputs such as planting dates, earlier maturity groups, crop rotation, the use of proper seed treatments optimum seeding rates, in field scouting and late season management.

b. The soybean yields in Mississippi averaged 39 bushels per acre in 2003, an all-time high. Irrigated fields averaged 60.9 bushels per acre.

c. Hatch and Smith-Lever funds (amounts and FTE not available)

d. Integrated Research and Extension

Key Theme – Plant Production Efficiency

a. Rice producers in Mississippi have historically planted the Lemont variety. Based on research conducted by the Experiment Station, Extension agents have been working with producers to change to higher-yielding cultivars, such as Cocodrie.

b. In 2003, 88% of the rice acreage was planted in these new cultivars. For the first time in history, rice yields averaged over 150 bushels per acre in Mississippi. Just 10 years ago, the average rice yield was 85 bushels per acre.

c. Hatch and Smith-Lever funds (amounts and FTE not available)

d. Integrated Research and Extension

Key Theme – Agricultural Profitability

a. Beef producers have expressed a need to explore alternative methods of marketing cattle. In 2003 Area Extension Agents around the state worked with different groups to market cattle differently.

b. Over 40 producers working with Extension agents sold over 1400 head of cattle through special feeder calf sales. Calves were required to be dehorned, castrated, dewormed and vaccinated for respiratory virus, blackleg, and Pasteurella. Calves sold either pre-conditioned or weaned. Weaned calves received a \$3-6/cwt premium and pre-conditioned received a \$7-15/cwt premium over similar weight calves sold through regular auction markets. The results of the special feeder calf sales demonstrated that calf uniformity added value and that premiums existed for truckload lots.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Aquaculture

a. Feed cost represents about 50% of the variable operating costs associated with farming catfish. Animal proteins, especially fish meal, are generally of higher quality and more palatable to catfish than most plant proteins. However, because animal proteins are usually more expensive than plant proteins, reducing or eliminating animal proteins in the diet without compromising fish production is one way to reduce feed cost. Development of least cost feeds and optimization of nutrient utilization are essential to the continued growth of the industry. Developing optimum feeding strategies to suit different management and culture conditions may improve feed efficiency and profitability. Three studies were conducted in 2003 to evaluate effects of fishmeal level and stocking density, dietary phytase supplementation, and fish size and feeding frequency on catfish production.

b. Using all-plant protein ingredients and supplemental phytase enzymes in catfish feeds could save about \$3.00 per ton of feed and \$2.4 M for the catfish industry annually. Development of optimum feeding strategy will improve feed utilization and production efficiency and result in further savings for the industry.

c. Hatch funds (amounts and FTE not available)

d. State-specific

Key Theme – Animal Production Efficiency

a. The Mississippi State University Extension Service is in the process of developing a group of Extension Service Specialists, Area Agents, County Directors, Natural Resources Conservation Service District Conservationists, Veterinarians and Bankers to serve as Integrated Resource Management Teams. The teams work with and consult with producers on the local level providing technical assistance to improve resource utilization, efficiency and profitability. The desired result is to assist producers in developing management plans that work on the farm, meet the producer's goals, improve the viability of beef production in Mississippi and enhance the quality and safety of beef products.

b. Several IRM herds have been able to reduce production expenses \$50/cow/year and increased revenue \$50/cow/year with a net improvement of \$100/cow. Most IRM herds have demonstrated significant improvements in pregnancy rates and weaning weights. As producers participate continuously over a period of years, and add value to their beef calves, it is realistic to achieve enhanced profitability in the \$200/cow/year range.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Aquaculture

a. The focus of the catfish health management program is diagnostics, field services, and applied and basic research addressing fish health issues. The predominate fish health issues facing the catfish industry are trematode infections, visceral toxicosis of catfish (VTC), anemia, enteric septicemia of catfish (ESC), and proliferative gill disease.

b. Efforts in fish health management research and diagnostic services have lead to the development of diagnostic tools for the identification of new emerging diseases, risk assessment models to predict the occurrence of disease related losses, and fish health management practices that have increased production efficiency. Integrating vaccination into current disease management programs was shown to increase net profits by \$400 to \$1000 per acre. The results of the Florfenicol trials have been submitted to FDA as part of the drug approval application.

c. Hatch funds (amounts and FTE not available)

d. State-specific

Key Theme – Agricultural Profitability

a. Producers entered 2003 following three poor years caused by a combination of low yields and/or low prices. At the beginning of the year prospects for a significant improvement in prices for most commodities appeared slim. Producers were looking at the only option available to them to impact their bottom line in this situation and that was to cut cost. Budgets provide economic and technical information for major commodities produced by Mississippi farmers. The enterprise budgets represent a type of information that can be used by a wide variety of individuals in making decisions in the food and fiber industry. Committees made up of appropriate disciplines from the Mississippi Agricultural and Forestry Experiment Station, the Mississippi State University Extension Service, and the U.S. Department of Agriculture review and update the practices in the budgets every year. The updates are based on the collective judgment of the committee members. Quantities of materials listed in each budget are based on survey data from producers and/or generally accepted recommendations. Prices are collected each year by surveying agribusinesses. Extension personnel are responsible for helping producers develop personalized budgets to fit their operation. In addition, they also provide information about the costs of custom operations and related topics. During 2003, MSU distributed over 10,000 hard copies of individual budgets in addition to those downloaded from the web; developed new budgets for finishing feeder cattle on forage based diets; developed a comparison for contract grazing versus ownership; assisted over 300 people with questions about the budgets; and assisted over 200 people with questions about custom operations and related topics.

b. Mississippi producers were able to make sound decisions based on these budgets, which led to a record year for profits in cotton, rice, soybeans, corn, and beef production.

c. Hatch and Smith-Lever funds (amounts and FTE not available)

d. Integrated Research and Extension

Key Theme – Plant Production Efficiency

a. Nursery producers want information to improve their efficiency in growing a quality product and improve means of marketing what they produce. Extension and research professionals have developed information relating to production budgets, risk management, marketing, and yield/price sensitivity for horticulture crops to aid producers, government agencies and lending institutions in making sound business decisions.

b. Certified nurseries experienced an 11% increase in the number of new firms from 2002 to 2003. Mississippi certified nurseries totaled 456 firms in 2003. This number includes both wholesale and retail nurseries and garden centers. The number of licensed landscape maintenance/contractors in Mississippi increased by 7% from 2002 to 2003. Licensed landscape maintenance/contractors in Mississippi totaled 669 firms in 2003

c. Hatch and Smith-Lever funds (amounts and FTE not available)

d. Integrated Research and Extension

Key Theme – Animal Production Efficiency

a. Poultry houses can develop problems with ammonia very easily. It has been demonstrated that ammonia can reduce body weight by broilers by as much as 0.5 lbs. Extension efforts have emphasized the importance in maintaining a good ventilation system in houses and promoting the use of litter amendments to help keep the ammonia levels down.

b. With Mississippi producing approximately 750,000,000 broilers a year, a conservative estimate of the effect of improved ventilation and litter amendments is an increase in weight gain of 0.01 lbs per bird. This would result in increased profit of over \$2,000,000 annually.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme - Small Farm Viability

- a. The mechanization and computerization of agriculture is moving farming away from small plots of land to large tracts and large equipment. Landowners with small tracts are finding less demand on these pieces of property. Some producers struggle to find new income-producing enterprises for these pieces of land. In Pontotoc County, Extension agents worked with a producer who had land in a conservation reserve program and another who farmed soybeans. One started a sod farm and the other developed a field-grown landscape business.
- b. The sod farm quickly grew from 40 to 120 acres, and the landscape business uses 125 acres and employs two full-time managers and as many as 12 seasonal workers.
- c. Smith-Lever funds (amounts and FTE not available)
- d. State-specific

Key Theme – Animal Health

- a. Certain septic bacterial diseases in livestock cause intense inflammation that lead to life-threatening physiological abnormalities. These infections are the result of primary or secondary bacterial pathogens that follow an initial viral infection. Researchers at Mississippi State University’s College of Veterinary Medicine discovered the biochemical mechanisms for this inflammation. They also identified the enzymes that cause certain cell-associated receptors to shed and lose their anti-inflammatory response during intense septic inflammatory reactions.
- b. These findings can help reduce costs associated with disease and death in livestock production industries caused by bacterial infections. This research has the potential to make improvements in human medicine for related conditions.
- c. Hatch funds (amounts and FTE not available)
- d. State-specific

Key Theme – Agricultural Profitability

- a. The Mississippi State Tax Commission requires a mass appraisal of agricultural real estate properties, but does not have the expertise to perform this appraisal. The Mississippi Agricultural and Forestry Experiment Station stepped in to calculate the figures. Cost-of-production data, yields, revenues and mass appraisal techniques were used to estimate the per-acre value for various agricultural land classes in Mississippi.
- b. County Tax Assessors use these estimates to calculate ad valorem taxes for each parcel of eligible agricultural land in their county.

- c. Hatch funds (amounts and FTE not available)
- d. State-specific

Key Theme - Plant Production Efficiency

- a. Corn borers are a major pest to Mississippi's corn crop. They can devastate a crop if left untreated, yet insecticide treatments drive up the cost of production. In several Mississippi counties, Extension agents educated growers on management of this important corn pest. Southwestern corn borer trapping programs were started, traps were monitored and producers were taught how to make pesticide application decisions based on these findings.
- b. In one seven-county area, results of the trapping helped many producers confidently decide not to apply pesticide to corn. Moth numbers were reduced naturally by such things as weather conditions, field rotation and management, and with trap results, these growers realized they did not need to apply insecticides. An estimated 10,000 acres would likely have been treated at a cost of \$80,000 had it not been for the information from the trapping program.

- c. Smith-Lever funds (amounts and FTE not available)
- d. State-specific

Key Theme - Risk Management

- a. Producers struggle each year with decisions on land use, what crops to plant and what varieties should be used. Farmers need to know financial implications of their decisions. Poor decisions can mean financial ruin. Researchers at the Mississippi Agricultural and Forestry Experiment Station gather and update information each year that helps farmers with these decisions. Information is presented annually in the form of planning budgets for major agricultural enterprises in Mississippi.
- b. This crop budget information is the major source of planning information for many farmers in Mississippi and surrounding states. Producers, bankers, Extension agents, researchers and others use this information to analyze agricultural enterprises and make production plans.

- c. Hatch funds (amounts and FTE not available)
- d. State-specific

Key Theme – Plant Production Efficiency

- a. How well cotton defoliation is timed can impact fiber quality, harvest efficiency and total cotton lint yield. Late maturing cotton can challenge producers in determining the correct timing to apply products for cotton defoliation and harvest aid. In Pontotoc County, an Extension agent worked

with local growers to monitor crop maturity, day length, temperature and other environmental conditions. This information was processed to try to determine the optimal time to apply cotton defoliation and harvest aids.

b. When the time was determined to be right, advice was given to proceed. The cotton defoliation and harvest aids were applied at one time and the crops were ready to harvest in 16 days. Only one harvest was needed, and the elimination of a second harvest saved producers \$14 per acre. For the 900 acres involved, that was a savings of \$12,600.

c. Smith-Lever (amounts and FTE not available)

d. Multi-state

Key Theme – Animal Production Efficiency

a. Hay is the most commonly stored feed on livestock farms nationwide. Much of it is stored outside, but nutritional losses can be quite high when round bales are kept in the elements. The outer 6 inches of a 5-foot diameter bale equals 36 percent of the bale's volume, and nutritive losses can equal 65 percent of the total value. In Prentiss County where more than 80 percent of the hay is stored outdoors, Extension agents held a contest designed to show producers how much nutritive value was being lost in hay stored outside. Seventy-three producers participated with widely ranging guesses on the weight and quality of the outdoor-stored bales.

b. Since the meeting, three producers made plans to construct hay storage facilities for their round bales. Construction costs will average \$3.13/bale/year for 10 years, but nutrient value savings for the stored bales will result in a new gain of \$5,283 a year.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Animal Health

a. Livestock producers fight an unending battle to protect their animals from parasites. Diseases caused by these parasites can damage the health of the animals and cause economic losses to producers. Researchers at Mississippi State University's College of Veterinary Medicine developed vaccines capable of providing long-term protection against pathogenic parasites. These molecular strategies led to the development of methods for propagating parasite-derived cell populations in a tissue culture.

b. MSU received a patent on this process, and the livestock industry has seen reduced losses caused by pathogenic parasites. This process has potential human medical applications, primarily in third-world countries.

c. Hatch funds (amounts and FTE not available)

d. State-specific

Key Theme – Agricultural Profitability

a. George County experienced a 300 percent increase in peanut production, with most of the new acreage coming from producers new to the business. One of the difficulties in growing peanuts is determining when to harvest this underground crop. A grower donated a hydro blast machine to the Extension Service for area growers to use in determining when to dig their crop. The donated machine cost \$1,250 and was given for as long as growers needed it. A workshop taught area growers how to use the equipment, and it was used to sample fields to determine when to harvest.

b. Harvesting at the proper time is crucial for reaping the best yields, and timing as little as a few days off makes a big difference. Improperly timed harvests can reduce yields as much as 200 pounds per acre. At a price of \$.19 per pound, this results in a loss of as much as \$38 an acre. Of the samples tested, most were on schedule, but some were two to four days early and others as late as two weeks.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – New Uses for Agricultural Products

a. Mississippi grows hundreds of thousands of acres of pine trees, all of which drop straw which can be used as mulch in the landscape industry. Growers in Tippah County became interested in selling this pine straw to the landscape industry, creating a second income from their land. The Extension agent gathered market information and learned what was involved in managing pine forests for straw baling. An educational meeting was held to present this information to area landowners.

b. It was determined that using a baler and producing an average of 20 bales per acre for wholesale at \$1.50 per bale could provide a gain of about \$30 per acre. A landowner with 100 acres of pine forests could generate an additional \$3,000 income each time pine straw was baled.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Innovative Farming Techniques

a. New provisions of the latest Farm Bill have made peanuts a more attractive crop option as the traditional quota has changed. George County producers had been growing cotton for about 10

years and peanuts for five years. Cotton had the majority of the acreage and was rotated primarily with corn, but peanuts began to gain in popularity. Mississippi Extension personnel met with their counterparts in Alabama to learn from them more about successful peanut production.

b. Cotton acreage has been reduced from 6,800 to 3,000 acres, and peanut acreage increased from 1,000 to about 3,500. In George County, cotton yields averaged 750 pounds per acre for a value of about \$375 an acre. Peanuts yield an average 4,000 pounds an acre and bring \$400 a ton, or \$800 an acre. Producers could realize an approximate \$425 per acre increase in profit with a shift to peanuts.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Animal Genomics

a. Researchers are sequencing the genomes of livestock; the chicken is the first, the cow is next. Genes in genomes encode instructions for making proteins, the building blocks of life. Proteomics is the study of the protein compliment of an organism, and can be done when the entire genome sequence is known. With support from Mississippi State University’s Life Sciences and Biotechnology Institute, researchers at the College of Veterinary Medicine have established the platform technologies needed to do proteomics of farm animals.

b. The platform technologies being used can be applied to any biological problem. At MSU, proteomics is being used to study physiology and diseases in farm animals. Those trained in these technologies will be an invaluable resource to the world agricultural research community.

c. Hatch funds (amounts and FTE not available)

d. State-specific

Key Theme – Plant Production Efficiency

a. The research and technology fees associated with much of today’s engineered seeds make planting one of the most expensive production costs. MAFES Research has determined optimum seeding rates for optimum yield and highest efficiency, but many farmers do not follow these recommendations. In Quitman County, Extension agents convinced two soybean farmers to reduce their seeding rates to four to five seed per foot rather than the eight or nine seed per foot they had been planting. These farmers reduced the seed planted by about 15 pounds per acre. In Monroe County, a Roundup-Ready demonstration plot was planted in 40 pounds of soybeans per acre rather than the typical 60 pounds per acre.

b. Quitman County farmers harvested yields above 40 bushels an acre on a combined 2,000 acres, a harvest comparable to previous years’ higher seeding rates. At a savings of about \$7.80 per acre, the two farmers saved more than \$15,000 on seed for the 2,000 acres. The Monroe County

demonstration plot yield matched the previous high of 50 bushels an acre. The lower seed rate resulted in a \$300 savings on this 30-acre plot.

c. Hatch and Smith-Lever funds (amounts and FTE not available)

d. Integrated Research and Extension

Key Theme – Plant Health

a. Early season corn insects are a major pest in Mississippi fields. Their control is necessary to prevent severe damage from these insects. Three Extension on-farm seed treatment demonstrations were conducted statewide to compare the effectiveness of a new seed treatment product, Poncho 250, with the standard treatment, Lorsban. Poncho 250 comes already applied to the seed, and eliminates the time-consuming steps of mixing, loading and applying liquid insecticides. Lorsban is applied at planting and requires the operator to ensure the treatment is applied uniformly.

b. Both treatments effectively control the early season corn insects. Lorsban costs \$9.80-\$10.72 per acre and Poncho 250 costs between \$5 and \$9.33 an acre. Results showed a cost advantage of using Poncho 250 over Lorsban and untreated seed. When Poncho 250 was compared to untreated seed, demonstration fields experienced a net profit of nearly \$43 an acre.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Agricultural Profitability

a. Taking soil samples is the only way to know the nutrient content on a field. Money and fertilizer can be wasted and the environment can suffer when amendments are made without knowing what the soil has and what it lacks. Many producers don't know how to take correct soil samples or don't understand the need to do it. Extension agents in many parts of the state have worked to educate producers on the need for soil sampling and the benefits of grid sampling. In Tallahatchie County, a cotton farmer was getting just 444 pounds of cotton per acre on a 120-acre field. The rest of his cotton was yielding 900 to 1,200 pounds per acre. A regular soil sample showed he needed lime on about 90 acres. A subsequent grid sample showed just 32 acres needed attention.

b. Had all 90 acres been limed uniformly, it would have cost the producer \$2,340. Grid sampling cost \$8 per acre for a cost of \$1,380, but resulted in lime application on just 32 acres costing \$960. This gave the producer a net savings of \$420.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Adding Value to New and Old Agricultural Products

- a. The small-diameter pines thinned from stands have historically been sold for pulpwood. Recent demand for pulpwood has decreased dramatically, and few markets are left for small trees thinned from the state's nearly 6 million acres of plantation pine. Through a partnership with TimTek Australia, Mississippi State University is researching a process that forms high-strength engineered lumber using these small trees crushed into strands. The strands are formed into desired shapes and bonded with an exterior adhesive in a steam-injection hot press. Initial testing of the product indicates it can compete well with traditional lumber on both price and properties.
- b. The demonstration plant at MSU should help stimulate competitive markets for landowners and the forest industry in the southeast and help create new value-added products for manufacturers.
- c. Hatch funds (amounts and FTE not available)
- d. Multi-state

Key Theme – Plant Production Efficiency

- a. Choosing the right seed variety to plant can mean the difference in a successful crop and one that requires extensive inputs and produces poor yields. Different varieties offer disease resistance, varying maturity dates and early planting opportunities. Extension agents across Mississippi work to help producers determine what seed varieties work best under their growing conditions. MAFES Variety trial data and demonstration fields help farmers learn what varieties work well in their growing conditions. Educational programs are offered giving producers the chance to learn what varieties are available and to ask questions.
- b. In Noxubee County, producers planted about 26,000 acres of soybeans. A demonstration field helped these growers select the best varieties for their growing conditions. In the demonstration, yields varied by 15 bushels an acre from the highest to the lowest performing varieties. Those producers who use this information to select a soybean variety should increase their yield potential.
- c. Hatch and Smith-Lever funds (amounts and FTE not available)
- d. Integrated Research and Extension

Key Theme – Plant Health

- a. Ground-level ultraviolet radiation from the sun impacts all living things in different ways. Cotton is a major Mississippi crop, and research at Mississippi State University set out to determine what effect increasing UV radiation has on this plant. Fifteen plants were grown in enclosed, climate-controlled chambers. Plexiglas allowed natural sunlight to provide energy for photosynthesis while keeping UV radiation out. Tanning bed bulbs provided specific levels of UV-B radiation, and plants were exposed to current and higher levels of UV radiation that are expected to occur in the future.

b. Research showed physiological and morphological changes in the plants such as lower photosynthesis, smaller, misshapen flowers, reduced numbers of pollen-producing anthers, and leaves that are discolored and damaged. The next step is to correlate this damage to changes in yield. One goal of the research is to identify cotton varieties that are more tolerant to UV-B radiation, so biotechnology can produce a better variety of cotton that performs well in areas where UV-B radiation is already higher.

c. Hatch funds (amounts and FTE not available)

d. State-specific

Key Theme – Agricultural Profitability

a. Deciding what variety of a particular crop to plant is a difficult decision that requires knowledge about the performance of a variety and the growing challenges of an area. Research is providing many new varieties each year for producers to choose from, and the decision can be overwhelming. In several Mississippi counties, Extension agents and MAFES researchers planted demonstration fields to show the performance of various varieties. They also held meetings and workshops to show producers the official variety trial information Mississippi State University provides.

b. Numerous growers were introduced to the information provided in variety trials. Since producers try to grow the highest yielding varieties with the lowest costs, this information can take some guessing out of their decisions.

c. Hatch and Smith-Lever funds (amounts and FTE not available)

d. Integrated Research and Extension

Key Theme – Small Farm Viability

a. The price of wool has been so low in recent years that many growers have either disposed of it or stockpiled it, hoping for a better price one day. After three years of poor prices, storage space began to run out and producers were looking for something to do with their wool. In Pearl River and Stone counties, Extension agents helped sheep producers band together to form growers associations to better market their wool. The South Mississippi Wool Growers Association was formed after being assured by the Mid-States Wool Growers Cooperative that they would purchase their wool if 20,000 pounds or more were available.

b. More than 22,000 pounds of wool was collected and sold for an average of 20.7 cents a pound. The association netted \$4,583 for the wool that had been stored. Producers made plans for next year's sale and intend to recruit more growers from neighboring states.

- c. Smith-Lever funds (amounts and FTE not available)
- d. State-specific

Key Theme – Animal Health

- a. Failure to maintain the health of cattle results in economic losses and few marketing opportunities. Mississippi State University's Extension Service agents in several counties provided educational programs to teach proper herd health management techniques to cattle producers, which will allow them to better market these value-added herds.
- b. Implementing appropriate health management practices will increase the overall health and vigor of cattle herds and increase the producers' net profit margin. This will result in fewer deaths, fewer sick cattle and calves, reduced veterinary expenses, improved conception rates, improved weaning weights, better forage utilization, higher body condition scores and ultimately, more profits.
- c. Hatch and Smith-Lever funds (amounts and FTE not available)
- d. Integrated Research and Extension

Key Theme – Risk Management

- a. Beef producers often sell their product for less than they should because of poor marketing practices. Mississippi State University's Extension Service agents worked with local beef cattle producers to form producer advisory groups and marketing alliances. These groups agreed to follow the same marketing practices including herd health, weaning dates, medication use, castration and time to sell.
- b. In Oktibbeha County, producers earned nearly \$5,500 more than Mississippi prices on 86 head of cattle. Producers in Kemper County earned an average of 11 cents per pound more than similar animals sold on the same day in other parts of the country. In Clarke County, producers earned an extra \$25 per head.
- c. Hatch and Smith-Lever funds (amounts and FTE not available)
- d. Integrated Research and Extension

Key Theme – New Uses for Agricultural Products

- a. Mississippi has an estimated 4.75 million acres in crop and hay production with the potential to produce almost 13 million tons of biomass from dedicated acreage and salvaged agricultural residues, cotton gin and forest byproducts, and chicken litter. Mississippi State University researchers are converting grasses and agricultural waste into energy, hoping to lower ethanol's cost

enough to compete with gasoline as a fuel.

b. This research has the potential to dramatically reduce the cost of producing ethanol from plant material using a gasifier and bioreactor.

c. Hatch funds (amounts and FTE not available)

d. State-specific

Key Theme – Plant Production Efficiency

a. In 2003, Mississippi cotton farmers planted about half of their crop in DPL 555 BG/RR variety. Because even more cotton acres are expected to be planted in this variety in 2004, producers need to know how to best manage this particular variety to control its rapid vegetative growth and maximize its yield potential while enhancing its early harvest. A Mississippi State University Extension Service agent conducted an on-farm demonstration to study this cotton variety and its response to various growth regulators, including products, rates and application timings. An untreated control plot allowed growers to see the effects of not treating this variety.

b. Evaluations of the demonstration indicate the maturity of this variety can be enhanced by as many as 17 days, which will increase its yield potential and quality discounts. A field tour of the demonstration has the potential to transfer this knowledge to enough producers to increase cotton lint production by 20 million pounds and increase income by about \$12.8 million.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Risk Management

a. A cotton producer was advised by his banker to seek assistance from the local Extension office in crop rotation techniques and variety selection. The Mississippi State University Extension Service agent in Washington County advised the producer to rotate 2,300 acres to soybeans and 1,600 acres to cotton. The agent also assisted with variety selection for the particular producer's needs.

b. Following Extension advice, the producer saved about \$30,000 in labor costs and \$120,000 in herbicide/insecticide costs. After expenses, the producer profited over \$200,000.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Agricultural Profitability

- a. Small timber landowners -- particularly minorities and women -- often are not aware of the value of their tracts of land and frequently sell those tracts for much less money than they are worth. Mississippi State University Extension Service agents across the state conducted educational workshops for small timber landowners, informing them of legal and ownership issues, timber marketing and environmental issues, forest economics, landowners' perspectives and assistantship funding.
- b. Underserved landowners in 17 counties learned the importance of hiring professional assistance in pricing timber, as well as for developing written business and management plans. The 1,596 landowners attending represented more than 141 thousand acres of land, which can increase in value with proper management by about \$8 million.
- c. Smith-Lever funds (amounts and FTE not available)
- d. State-specific

Key Theme – Animal Production Efficiency

- a. Horse owners in the state need answers to frequently asked questions dealing with acreage needed for horses, expense issues, fescue concerns, age considerations and others. Mississippi State University's Extension Service livestock specialists joined with other southern region Extension specialists to develop www.HorseQuest.info, an interactive Web site designed to answer frequently asked questions with scientific, research-based information.
- b. Horse enthusiasts have free access to unbiased information, as well as a direct connection to university equine experts throughout the region.
- c. Smith-Lever funds (amounts and FTE not available)
- d. Multi-state

Key Theme – Risk Management

- a. To properly market their crops, producers need to be aware of the changing markets on a continuing basis. A monthly teleconference produced by the Ag-Marketing network enables producers to keep up with the changing markets. The Mississippi State University Extension Service office in Issaquena County provides producers with a place to gather to listen to the remarks of leading market analysts and get their views on the results of USDA Supply and Demand reports and opinions on market direction. The producers also discuss market trends among themselves.

b. Considering the value of market moves -- in 2002, every time a market moved one cent, it meant a change in value of \$42,400 for corn, \$8,740 for soybeans and \$135,000 for cotton -- it is imperative that growers follow the markets. Offering producers a place to gather for the teleconference and the discussions that follow help them make wise decisions.

c. Smith-Lever funds (amounts and FTE not available)

d. Multi-state

Key Theme – Agricultural Profitability

a. Corn producers need assistance in determining if a Southwestern Corn borer egg-lay requires in-season insecticide application. Mississippi State University's Extension Service agent in Chickasaw County monitored a producer's 135-acre field and, despite high SWCB pheromone trap counts, advised against spraying the field because weather conditions should cause the egg-lay to be largely unsuccessful.

b. A re-scout of the field several days later showed no outbreak of SWCB larvae, meaning the producer saved about \$1,940 in insecticide cost.

c. Hatch and Smith-Lever funds (amounts and FTE not available)

d. Integrated Research and Extension

Key Theme – Animal Production Efficiency

a. Meat goats are a new industry in Mississippi, and their unique mouths presented a feeding problem. Traditional mixed ration did not provide the goats a balanced diet because they could use their split upper lip to pick through the ration to find the most desirable pieces, leaving nutritionally important pieces behind. A Mississippi State University Extension Service agent worked with the sheep and goat specialist at Texas A&M to develop a pelleted ration using products available in Mississippi that meet the nutritional requirements of meat goats. Working with a nutritionist and the owner of Ware Milling Co. in Houston, a modern pelleting mill was built to manufacture the improved ration.

b. The new ration can be pelleted, bagged and sold in Mississippi, saving producers the cost of transporting a more expensive product into the state while providing a balanced diet for the more than 20,000 head of goats in the state. The new Mississippi-produced ration costs approximately \$2 less than traditional rations, and the money producers pay for this product stays in the local economy.

c. Smith-Lever funds (amounts and FTE not available)

d. Multi-state

Key Theme – Plant Production Efficiency

a. Excess rainfall in Alcorn County caused multiple problems with the production of pumpkins in 2003. One producer had severe problems with bacterial rot and powdery mildew in his approximately four acres of pumpkins. The local Mississippi State University Extension Service county director visited the producer's farm to make a recommendation for the treatment of the problems. He suggested the producer apply Quadris over the entire patch with a motorized hand sprayer.

b. Two weeks later, the producer reported the mildew problem had ceased and he was able to save about \$5,000 worth of pumpkins.

c. Hatch and Smith-Lever funds (amounts and FTE not available)

d. Integrated Research and Extension

Goal 2: A safe and secure food and fiber system.

Overview

The following programs are included under goal 2. Each PPA is given with the specific programs in parentheses after the PPA.

- PPA: Catfish (Food Quality and Safety)
- PPA: Food Safety (Food Safety)

Outputs--research and extension activities--under this goal are provided in the table below.

Priority Program Area (PPA)	Refereed Articles	MAFES Pubs.	Extension Pubs.	Extension Contacts	Other
Catfish	3			7,451	
Food Safety	9			24,019	

Overall Expenditures for Goal 2

Function	FTE	Expenditures*
Experiment Station	3.34	\$945,900
Extension Service	4.40	\$135,582

* Expenditures reflect federal and matching funds.

Progress toward intermediate- and long-term outcomes and impacts/outcomes for ongoing programs are documented under the key themes in the next section.

Key Themes

Key Theme – Food Safety

a. Mississippi continues to be under regulations requiring one person in each permitted food service facility to complete a food safety certification course. The MSU-ES is in its sixth year of partnership with the Mississippi State Department of Health and the Mississippi Restaurant Association and is continuing to offer the 16 hour food safety certification ServSafe, developed by the National Restaurant Association (NRA). Nutrition and Food Safety Area Agents and County Directors offer the course statewide. In order to continue teaching, instructors are required to be recertified every five years.

b. To date, 9164 individuals have enrolled in the 459 ServSafe classes offered by MSU-ES with 7194 successfully completing the course with a score of 75 or greater. The average score was 84.1.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Food Safety

a. Producers of fresh produce in the state need training in food safety and food security procedures. Mississippi Agricultural and Forestry Experiment Station researchers conduct programs and workshops throughout the state for fresh produce growers and packers, addressing issues of food safety and security, produce sanitation, record keeping and others.

b. More than 600 people have been directly contacted and made aware of food safety and security guidelines, enhancing farmers' market competitiveness and the safety of fresh produce.

c. Hatch funds (amounts and FTE not available)

d. State-specific

Key Theme – Food Safety

a. Food service establishments are required to have at least one person who is certified in food safety. In financially depressed areas, obtaining the food safety certification can mean the difference in getting a job or remaining unemployed. Mississippi State University's Extension Service offered ServSafe classes in counties across the state. In Carroll County, agents focused on the benefits to high school students of being certified in food safety. The Extension county director presented 16 hours of training and administered the certification test to seven students. A Panola County Extension agent recommended obtaining the ServSafe certification to improve the chances of securing employment in the food processing and food service fields.

b. In Carroll County, all seven participants passed the national certification course with an average score of 85.3. This five-year certificate will increase the chances of job placement anywhere in Mississippi, allowing the participants to afford college or other living costs. In Panola County, one class participant secured the quality assurance director position at a new meat processing plant in the area.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Food Resource Management

a. Shoppers and diners are being asked more frequently to consume foods made with genetically modified ingredients. These foods and this process have not always received positive receptions, so research was done to determine general perceptions and acceptance of these foods. Since a large portion of the U.S. agricultural output is exported, American producers need to know international consumers' perceptions of genetically modified foods. Researchers at Mississippi State University and the University of Reading, England used the value Americans and Europeans placed on a chocolate chip cookie to determine consumer attitudes towards genetically modified foods. Subjects' knowledge of and attitudes about the use of genetic modification in foods were determined, and then they participated in an auction to determine preferences for a genetically modified chocolate chip cookie.

b. The research found that Americans are less concerned about consuming genetically modified foods than Europeans. French and English consumers view genetically modified foods as a greater risk to the environment than do U.S. consumers and they were much less optimistic about the ability of technology to improve society and civilization. These findings should help agricultural producers understand consumer demand for genetically modified foods and help predict future changes in market opportunities.

c. Hatch funds (amounts and FTE not available)

d. State-specific

Key Theme – Food Quality

a. The most reliable and scientific approach to food product evaluation is using a selected panel in a laboratory setting. Mississippi State University's Department of Food Science and Technology dedicated the James E. Garrison Sensory Evaluation Laboratory, an almost 3,000 square-foot facility that contains offices, fully equipped kitchens and areas to conduct a variety of sensory evaluations on food products.

b. This lab expands the scope of the work MSU scientists have been doing in this area for more than a decade, offering new possibilities for research by faculty and graduate students, as well as support for the food industry in Mississippi and the surrounding region.

c. Hatch funds (amounts and FTE not available)

d. State-specific

Goal 3: A healthy, well-nourished population.

Overview

The following programs are included under goal 3. Each PPA is given with the specific programs in parentheses after the PPA.

- PPA: Human Health (Family Health Needs; Improved Access to Health Care Services; Life Skills and Healthy Habits in Young People; Utilization of Available Medical Care)
- PPA: Human Nutrition (Health and Nutrition)

Outputs--research and extension activities--under this goal are provided in the table below.

Priority Program Area (PPA)	Refereed Articles	MAFES Pubs.	Extension Pubs.	Extension Contacts	Other
Human Health	3			102,380	
Human Nutrition	3		1	262,676	

Overall Expenditures for Goal 3

Function	FTE	Expenditures*
Experiment Station	1.57	\$337,743
Extension Service	53.60	\$981,964

* Expenditures reflect federal and matching funds.

Progress toward intermediate- and long-term outcomes and impacts/outcomes for ongoing programs are documented under the key themes in the next section.

Key Themes

Key Theme – Human Nutrition

a. Childhood obesity is a growing problem in Mississippi, and overweight children have a staggering 70 percent likelihood of becoming overweight adults. Mississippi State University Extension Service agents worked through a W.K. Kellogg Foundation grant to incorporate “The OrganWise Guys Take 10! Project” curriculum into Mississippi Delta-area elementary schools.

b. Students learn to include physical activities into their everyday lives through three 10-minute daily sessions during the school day. The program is expected to grow, with as many as 30 or 40 schools participating in 2004.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Human Health

a. Early childhood caries, a severe form of decay in baby teeth, is one of the nation's biggest childhood-health problems. Researchers with the Mississippi Agricultural and Forestry Experiment Station are studying students at 16 Delta child care and Early Headstart Centers, along with their parents and teachers, in a two-year oral health care initiative.

b. The results of the research will help parents and other care providers avoid practices that cause caries.

c. Hatch funds (amounts and FTE not available)

d. State-specific

Key Theme – Human Nutrition

a. Young people who prepare their own snacks after school and even their meals during the summer need to understand basic cooking principles, nutrition and food safety. Mississippi State University Extension Service agents in several Mississippi counties offered youth cooking classes that focus on these important skills.

b. The youth involved in these cooking classes gained invaluable information they can use to make healthy food choices throughout their lives. Many students shared their knowledge with parents and friends.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Human Health

a. Local government agents, community leaders and businesspeople need access to information regarding significant changes in the local economic base. Mississippi State University's Extension Service representatives attend major health and leadership conferences throughout the state to foster productive relationships with individuals who hold this pertinent information.

b. This interaction with key individuals and decision makers in the state and local health care sector led to important relationships and alliances. Performance of economic impact analyses of existing health sectors at the county level was considered the best use of Extension resources for this purpose.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Human Nutrition

a. A healthy diet of fresh fruits and vegetables is important for all people, especially the elderly. Farmers' markets are a great source of these products, but members of some communities must travel hundreds of miles to buy fresh produce. Mississippi State University's Extension Service worked with the Mississippi Band of Choctaw Indians at the Pearl River Reservation to develop a mobile farmers' market that travels to the six other MBCI communities located 25 to 100 miles away. An MSU-ES nutrition and food safety agent cooperated with the director of the Department of Agriculture and Rural Development and WIC staff to organize a schedule for the mobile farmers' market. The Extension agent offered to use his personal vehicle to transport the produce and other needed items.

b. In 2003, the mobile farmers market visited each of the six communities twice, giving the residents of these communities the opportunity to buy fresh fruits and vegetables, as well as allowing the market to move produce before it spoils. The mobile farmers market has served hundreds of people who might not have been able to travel to Pearl River. It also saved approximately \$1,000 in produce that otherwise would have been composted. Extension educational publications were also distributed during the mobile farmers market visits.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Human Nutrition

a. Nutrition has a major impact on four of the leading chronic diseases in Mississippi: coronary heart disease, stroke, cancer, and diabetes. Chronic diseases are costly in terms of lives and dollars. They account for more than 70% of all deaths in Mississippi and more than 60% of all medical expenditures. In 1996, Mississippi ranked second nationwide in the number of overweight adults. It is estimated that 41% of African Americans and 30% of whites in Mississippi suffer from hypertension. The Expanded Food and Nutrition Education Program (EFNEP) and the Family Nutrition Program (FNP) seek to provide nutrition education to low income target populations focusing in the areas of food security, food preparation, diet quality, nutritional adequacy, food

safety and buying behavior. The goal is to increase the overall nutritional health of these at-risk populations.

b. For adults, positive behavior changes were noted (increased frequency) for following Food Guide Pyramid recommendations on food group servings and increased consumption of fruits and vegetables. For youth, positive knowledge changes were noted for understanding the Food Guide Pyramid; the need for physical activity; proper snacking; knowing why, when, how, and how long to wash their hands; and, knowing the importance of eating breakfast. Positive *behavior changes* were noted for having the ability to classify foods and place them into the context of the Food Guide Pyramid and for demonstrating ability to explain the importance of the different food groups with regard to the nutritional value for their body.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Goal 4: An agricultural system which protects natural resources and the environment.

Overview

The following programs are included under goal 4. Each PPA is given with the specific programs in parentheses after the PPA.

- PPA: Cotton (Insect Management - IPM)
- PPA: Soybeans (Integrated Pest Management)
- PPA: Swine (Waste/Odor Management)
- PPA: Wildlife and Fisheries (Ecology and Management of Sustainable Resources; Ecosystem Management and Restoration)

Outputs--research and extension activities--under this goal are provided in the table below.

Priority Program Area (PPA)	Refereed Articles	MAFES Pubs.	Extension Pubs.	Extension Contacts	Other
Cotton	7		1	110,273	
Soybeans	2		1	66,572	
Swine	4			1,720	
Wildlife and Fisheries	1		3	184,645	

Overall Expenditures for Goal 4

Function	FTE	Expenditures*
Experiment Station	11.60	\$3,868,732
Extension Service	17.61	\$667,210

* Expenditures reflect federal and matching funds.

Progress toward intermediate- and long-term outcomes and impacts/outcomes for ongoing programs are documented under the key themes in the next section.

Key Themes

Key Theme – Forest Resource Management

- a. Forest fires are devastating natural occurrences that destroy millions of acres of timber nationally each year. While these fires may seem unpredictable, certain data can help predict which areas have higher risks of these fires. Mississippi State University's Department of Forestry developed a geographic information system that combined forest inventory analysis data from the U.S. Forest Service and demographic data from the U.S. census. The analysis covered more than 100 million acres in Alabama, Arkansas, Louisiana, Mississippi, Oklahoma Tennessee and Texas. The impact of variables such as vegetation, topography, forest management, and distance to roads, urban areas and other development are taken into account to develop an equation that predicts fire probability.
- b. The analysis shows that highest-risk areas in the South are public forests, urban-forest interface locations, and young pine and mixed stands. Maps have been developed showing the level of fire potential for these areas. This information helps identify where efforts are most needed to limit the impact of wildfires.
- c. Hatch funds (amounts and FTE not available)
- d. State-specific

Key Theme – Natural Resource Management

- a. Mississippi has a wealth of marine-related natural resources, but little is known about how their recreational and tourist use impacts the economy. Placing an economic value on activities aids the decision-making process when funds are being spent for enhancements or the addition of events and sites. Mississippi State University's Department of Forestry and the Department of Wildlife and Fisheries conducted a study of the economic impact of marine resources for the Mississippi Gulf Coast and the entire state. The survey of anglers and those participating in marine-related activities found that the total economic impact was \$31.8 million for the Gulf Coast and \$35.9 million statewide. Coastal marine resources supported 585 regional and 654 statewide full- and part-time jobs.
- b. The study recommended that more and better public outdoor recreation sites and events on the Gulf Coast would promote the use and conservation of marine resources and increase their economic values. Results of the study can also be used in decision-making related to the conservation of coastal ecosystems.
- c. Hatch and Smith-Lever funds (amounts and FTE not available)
- d. Integrated Research and Extension

Key Theme – Pesticide Application

- a. Research indicates that the equipment in one in four chemical applications is calibrated improperly, costing the producer in wasted chemical or lack of control if too little is applied. The environment can suffer as well if too much chemical is applied. Extension agents regularly conduct pesticide applicators training, and proper calibration is emphasized. After one such training meeting, a large-scale producer asked for help in calibrating his equipment.
- b. It was found that the producer was applying 20 percent more chemical than needed on his fields. When the calibration problem was corrected, he began saving 20 percent of the chemical costs on his 13,000-acre cotton farm. This resulted in a one-year chemical savings of \$250,000 plus the environmental benefit of fewer chemicals used.
- c. Smith-Lever and Hatch funds (amounts and FTE not available)
- d. Integrated Research and Extension

Key Theme – Wildlife Management

- a. Populations of bluebills, the most abundant diving duck in North America, have continued to decline despite the dramatic increases in the 1990s in other North American waterfowl species. Mississippi State University College of Forest Resources researchers studied food and habitat conditions of bluebills to determine what might be contributing to the decline.
- b. The study aids researchers in determining where to direct future research to sustain this important diving duck species. This is important to the 20,000 Mississippi waterfowl hunters who annually harvest more than 400,000 ducks, and is a compelling economic issue in a state where duck hunters spend over \$30 million annually.
- c. McIntire-Stennis funds (amounts and FTE not available)
- d. State-specific

Key Theme – Water Quality

- a. Forestry is a major component of Mississippi's economy. Increasing public concern about the sustainability of natural resources has led many forest products manufacturing companies to require that wood fiber only be purchased from logging contractors who have participated in state approved training programs. The Mississippi Logger Education Council and the Mississippi State University Extension Service developed a comprehensive continuing education program for loggers. Classes deal with best management practices for water quality, the sustainable forestry initiative, timber harvesting and transportation safety and business management for logging contractors. The workshops are designed for logging contractors, their key employees and others in the wood supply system.

b. By the end of 2003, more than 2,516 individuals and 1,881 businesses had completed the four, core classes. Another 4,459 individuals and 1,354 business establishments sent representatives to at least one workshop. Direct impacts are difficult to measure. Loggers' timber harvests generate more than \$1 billion a year for forest landowners in Mississippi, 25,000 jobs and the raw materials needed to support Mississippi's \$14 billion dollar a year forest products industry.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Wildlife Management

a. Declining populations of the northern bobwhite quail threatens a socially and economically significant sport in Mississippi and other southeastern states. Mississippi State University College of Forest Resources researchers are helping direct a large-scale evaluation of the Northern Bobwhite Conservation Initiative implementation.

b. Implementing these conservation practices on about 7 percent of 81.1 million acres of farm, forest and rangeland will develop quantitative, habitat-oriented restoration of bobwhite quail populations.

c. McIntire-Stennis funds (amounts and FTE not available)

d. State-specific

Key Theme – Nutrient Management

a. Swine producers need accurate information regarding the swine industry to make informed decisions regarding the development and management of a swine enterprise. Mississippi State University's Extension Service's Wiley L. Bean Swine Demonstration Unit was developed to give producers a firsthand view of various swine production, management, equipment and housing options.

b. Producers benefited from several programs at the swine demonstration unit, including a genetic improvement program, training in swine artificial insemination, assistance with alternative marketing decisions, and information on environmental issues related to the swine industry.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Natural Resources Management

- a. Landowners need an understanding of the benefits of fee-based recreational activities on non-industrial, private lands. Mississippi State University College of Forest Resources researchers are studying landowner understanding of fee-based operations to determine the level of understanding with regard to developing business plans, landowner liability issues, land cooperatives among adjacent landowners, proper fish and wildlife management procedures, and integrating fee-based recreation with agriculture, forestry and other land uses.
- b. Information gathered from this study will assist in developing an educational outreach program that will benefit Mississippi forest landowners.
- c. McIntire-Stennis funds (amounts and FTE not available)
- d. State-specific

Key Theme – Wildlife Management

- a. Research shows that stocking rivers with hatchery-produced fish can reverse the decline in population of a highly sought and valued sport fish. Mississippi State University College of Forest Resources researchers are developing hatchery techniques to efficiently produce young walleye and identify methods to enhance the survival of stocked fish. Once the best method of production is determined, researchers will focus on developing the most effective method to enhance survival of stocked fish.
- b. Restoring the native walleye will reverse the fate of this virtually extinct fish, which in turn is important to the Mississippi economy: Sport fishing generates more than \$1.3 billion annually for the state and supports more than 16,000 jobs.
- c. Hatch and Smith-Lever funds (amounts and FTE not available)
- d. Integrated Research and Extension

**Goal 5: Enhanced economic opportunity and quality of life
for Americans.**

Overview

The following programs are included under goal 5. Each PPA is given with the specific programs in parentheses after the PPA.

- PPA: Agribusiness (Agribusiness Development)
- PPA: Child/Youth/Families at Risk--CYFAR (Reducing At-Risk Behaviors; Nurturing Families)
- PPA: Consumer Education (Clothing; Housing; Kenaf in Textiles/Textile Products)
- PPA: Economic/Comm Development (Community Leadership Development; Diversifying Rural Economies; Entrepreneurial & Business Development; Strategic Planning by Local Communities; Local Government Officials Education)
- PPA: Financial Management (Family Financial Management; Farm Business Financial Management)
- PPA: Food and Food Products (Business Feasibility; Specialty Foods Business Development)
- PPA: Forest Products (Forest Products)
- PPA: Leadership Development (Volunteers)
- PPA: Safety (AgrAbility; Farm Safety; Youth Safety)
- PPA: Wildlife & Fisheries (Youth Development; Socio-Economic Investigations of Fish and Wildlife)
- PPA: Youth Development (4-H)
- PPA: Youth Livestock (4-H)

Outputs--research and extension activities--under this goal are provided in the table below.

Priority Program Area (PPA)	Refereed Articles	MAFES Pubs.	Extension Pubs.	Extension Contacts	Other
Agribusiness	4		2	81,256	
Children, Youth and Families at Risk	4		3	237,516	
Consumer Education	3		1	40,274	
Economic/ Community Development			1	191,801	
Financial Management			1	44,399	
Food and Food Products				7,550	
Forest Products				3,459	

Leadership Development			2	307,124	
Safety	3		2	43,253	
Wildlife and Fisheries				184,645	
Youth Development				352,061	
Youth Livestock				129,969	

Overall Expenditures for Goal 5

Function	FTE	Expenditures*
Experiment Station	4.17	\$1,216,563
Extension Service	115.84	\$2,909,582

* Expenditures reflect federal and matching funds.

Progress toward intermediate- and long-term outcomes and impacts/outcomes for ongoing programs are documented under the key themes in the next section.

Key Themes

Key Theme – Youth Development/4-H

- a. 4-H community beautification projects improve the aesthetics of an area while instilling in its residents a sense of pride in that community. Youth benefit from hands-on learning in horticulture. Mississippi State University’s Extension Service 4-H agent in Wayne County assisted 4-H’ers in receiving grants that they used to start a 4-H mural.
- b. The mural project includes six panels that display some of the 4-H projects. It is the town of Waynesboro’s first-ever mural. Enthusiasm for the mural project has inspired other 4-H Afterschool clubs to apply for community pride grants.
- c. Smith-Lever funds (amounts and FTE not available)
- d. State-specific

Key Theme - Parenting

- a. Parents who are incarcerated don’t have many chances to make a positive impact on their children’s lives. Many who find themselves in prison do not have good parenting skills and do not know how to change their lifestyle to stay out of prison. The Mississippi Department of Corrections

facility in Greene County contacted the Mississippi State University Extension Service to fill the educational need many of the inmates had. On two occasions, Extension agents offered a parenting class and one of health and good habits, teaching choices and consequences in each.

b. A total of 180 men were reached with this first round of Extension programming in prison. Many were interested in getting their children involved in 4-H, and others increased knowledge on how to discipline their children and help them lead good lives.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Character/Ethics Education

a. Good manners indicate the respect and professionalism of the one practicing them. Many youth today are not given the opportunity to learn good manners, and this can hinder them throughout life. Separate Extension programs in Tishomingo and Claiborne counties gathered resources to educate young people on such things as proper telephone etiquette, setting an informal table and eating a meal in this setting.

b. In one session, 22 young people learned better manners and a 4-H club was formed from the initial camp. In the other session, 10 young people were trained to be better summer office workers.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Child Care/Dependent Care

a. Research has shown that quality childcare at an early age translates into later success in school and life by improving the child's brain development. In rural areas, there tends to be fewer professional development opportunities for childcare providers, more poverty, and less oversight and regulation of facilities. Mississippi State University's Early Childhood Institute developed a primer on childcare basics that covered such topics as proper hand-washing and classroom hazards. The Institute is working with nearly 250 Mississippi childcare centers as part of the Partners for Quality Child Care Project offered through the state Department of Human Services. Participating centers receive up to five days of on-site staff development and are offered specific plans for center improvements. Each center also receives up to \$500 to help fund needed improvements, and books are supplied from a national donation.

b. Institute staff have seen significant improvements in sanitation, health and safety among participating childcare centers. They have also seen improvements in childcare providers reading with children and developing learning centers. A waiting list has formed of other childcare centers seeking similar assistance in improving the quality of service they provide to children.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Youth Development/4-H

a. Mississippi State University's 4-H Therapeutic Equine Activity Members (TEAM) offers a riding program for people with disabilities. TEAM wanted to offer the best possible service to clients, so it sought national accreditation. In addition to serving clients, the center exists as a model educational and promotional therapeutic riding program. National accreditation requires mandatory compliance in 11 areas, then 80 percent compliance in the remaining 77 areas.

b. MSU's 4-H TEAM went for 100 percent compliance and reached that goal. The center is now a fully accredited, Premier Accredited Center Program offering the best possible therapeutic riding. This accreditation assures that quality service is provided to clients, provides a safe and suitable work environment and satisfies clients and outside agencies of consistent operational quality.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Family Resource Management

a. American teens spend an average of \$104 a week and qualify for credit cards, but often they don't know how to handle financial opportunity. Mississippi State University's Extension Service agents offered Mall Mania, a shopping education program that combines fun with lessons in financial education. Extension agents also teamed with the Jump\$tart Coalition of Mississippi to offer a personal financial literacy teacher conference and Money Matters seminars for high school juniors and seniors.

b. The Mall Mania participants learned to make their money go as far as possible by purchasing quality items for the least amount of money. During the teacher conference, more than 150 Mississippi teachers of grades 6 through 12 learned to teach students financial management skills. Twelve Money Matters seminars were held in nine cities across Mississippi with more than 2,300 juniors and seniors and 150 teachers participating.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Youth Development/4-H

- a. 4-H community beautification projects improve the aesthetics of an area while instilling in its residents a sense of pride in that community. Mississippi State University’s Extension Service organized several community beautification projects in counties across the state. In Greene County, the 4-H Afterschool Garden Club was awarded a community pride grant and began a backyard classroom where a community garden was planted.
- b. The 4-H beautification projects have inspired members of these communities to come together to improve their living area. 4-H’ers in Greene County planted a garden for the elderly at Turner Duvall Retirement Home and delivered produce to elderly shut-ins.
- c. Smith-Lever funds (amounts and FTE not available)
- d. State-specific

Key Theme – Youth Development/4-H

- a. Many Mississippi communities deal with social problems such as high unemployment, school dropouts, teen pregnancies, poor race relations and other issues that make it difficult for that community to thrive. 4-H programs teach youth life skills, leadership and social awareness for those who are involved. Extension agents across the state are increasing efforts to start more clubs for youth who have not been involved in 4-H before.
- b. Several 4-H clubs were formed in the past year that focused specifically on youth leadership. Through personal projects and group community-service activities, youth are learning how to make themselves and their communities better.
- c. Smith-Lever funds (amounts and FTE not available)
- d. State-specific

Key Theme – Consumer Management

- a. Making wise consumer decisions is a life skill that should be taught from an early age. Youth as young as 8 years old have their own money to spend and often spend it foolishly. Since the mid-1980s, low rates of savings and high household debt have characterized the American family. Mississippi State University’s Extension Service agents in several counties developed and implemented consumer/finance education programs. In Forrest and Marion counties, the “Real World” gave students a hands-on, real-life opportunity to experience their futures in a fun and educational way. In Newton and Lauderdale counties, a “Mall Mania” program was implemented with the cooperation of the marketing director at the local mall. Students were taught shopping etiquette, how to select quality items and more.

b. In the “Real World,” students gained a realistic view of average monthly income and expenses, and learned the value of education and smart spending. The 22 “Mall Mania” participants learned to be smart shoppers to ensure their money is well spent.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Jobs/Employment

a. The closings of two manufacturing plants added to the numbers of Wayne County residents who were unemployed. A job fair was needed to help residents find jobs. Mississippi State University’s Extension Service teamed with the local economic development authority, chamber of commerce, county leaders and the Mississippi Governor’s Office to assess the unemployment situation and plan the Wayne County Job Fair. Only employers that were currently seeking employees or that would be hiring in the near future were invited to the fair.

b. The Wayne County Job Fair brought together 26 employers and more than 900 unemployed people. About 600 interviews were conducted and 406 jobs were offered to applicants. The Governor’s Office projects about 400 positions will be filled in 2004 as a direct result of the job fair.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Youth Development/4-H

a. In Monroe County, several young girls were considered at-risk because they were very shy, were experiencing financial hardship or had friends negatively influencing their actions. The area Mississippi State University Extension Service agent organized a Modeling Squad workshop to teach at-risk youth about modeling, beauty, self-confidence and self-presentation. A positive role model -- Miss Rodeo Mississippi 1999 Sarah Johnson -- conducted the workshop.

b. Participants gained self-confidence while learning about setting goals, peer pressure, finding a mentor and believing in themselves. Johnson also demonstrated appropriate posture, how to introduce oneself, how to act in an interview, how to behave in a group, how to draw positive reactions from people and how to model on a runway.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Promoting Housing Programs

- a. The Formosan subterranean termite is one of the most aggressive and destructive species of termite in the world and the southeastern United States. Mississippi State University scientists collaborated with U.S. Department of Agriculture scientists to evaluate various bait-toxicant combinations to reduce or eliminate termite populations on an area-wide basis.
- b. This study has both economic and environmental benefits because entire termite populations will be reduced or eliminated, and all structures within the treated area will be protected.
- c. Hatch funds (amounts and FTE not available)
- d. State-specific

Key Theme – Promoting Business Programs

- a. Furniture manufacturing has a \$4.1 billion economic impact in Mississippi and produces 70 percent of all upholstered furniture in the country, but imports in recent years have negatively impacted the industry. Mississippi State University's Department of Forest Products is assisting the industry in the implementation of lean processes, which are designed to produce superior quality products at a low cost while increasing the competitiveness of manufacturers using the concepts.
- b. In one leading furniture manufacturing facility in Mississippi where faculty implemented lean processes, the manufacturing cell increased productivity by 36 percent while reducing the number of workers from 11 to seven. The process has increased quality and real productivity, and lowered workman's compensation costs and production costs.
- c. McIntire-Stennis funds (amounts and FTE not available)
- d. State-specific

Key Theme – Community Development

- a. For many low-income families in the Mississippi Delta, welfare remains an important factor in their income-package strategy. A team of social scientists at the Unit for Community and Environmental Studies at Mississippi State University's Social Science Research Center have compiled and analyzed community-based social and economic data to understand the underlying mechanisms of persistent poverty. The long-term goal is to create an online database to help state agencies and local communities to make informed decisions on economic and social development.
- b. The project is the first of its type at the statewide level, and is expected to help individuals find employment opportunities or social services. It is also expected to provide information to assess economic and civic capacity to understand the opportunities and constraints inherent to communities in Mississippi.

c. Hatch funds (amounts and FTE not available)

d. State-specific

Key Theme – Community Development

a. Recent legislation required elected members serving on a governing board of a community water system to attend eight hours of management training. Mississippi State University's Extension Service developed a partnership with the Mississippi State Department of Health to coordinate the Public Water System Board Management Training Program, which provides the training mandated by the Legislature.

b. In 2003, 32 training sessions reached 473 water system board members. Since the program's inception in 1997, approximately 4,000 board members have been trained, making them more aware of their duties and the importance of managing a water system efficiently.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Family Resource Management

a. In today's economy, many circumstances can lead to a person's interest in developing a spending plan. Perhaps one feels that their expenses are out of control or that they are over-their-head in debt. A sudden drop in income as the result of temporary layoffs, cutbacks or downsizing in your company, a loss of child support, illness, death, unplanned pregnancy, or divorce may contribute to a person's desire to develop a spending plan. In Oktibbeha County, thirty clientele attended a Personal Financial Seminar where budget planning, investment opportunities and human resources management skills were discussed. Over thirty additional clientele who were unable to attend requested seminar information.

b. A follow-up revealed that clients saved over \$7500 by attending this seminar.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

Key Theme – Leadership Training and Development

a. It takes leaders to handle the issues and problems that arise in a community and keep it running smoothly. Many communities look at the problems around them and look outside their community for someone to come in and make things better rather than looking within to see who can play a

leadership role in their own hometown. Mississippi State University's Extension Service serves as a state partner in the program and chose the Mississippi Department of Human Services Project Homestead and the Mississippi State Department of Health as targets that could benefit from leadership development training and serve as facilitators for the LeadershipPlenty program.

b. The participants in the sessions reported gaining useful skills and knowledge in community leadership. Additional success will be measured in a six-month post-training survey to determine how many community LeadershipPlenty programs are underway across the state.

c. Smith-Lever funds (amounts and FTE not available)

d. State-specific

B. Stakeholder Input Process

Grassroots 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, state-level advisory committees, and through formal and informal interaction with other stakeholders. Issues identified include concerns to be addressed with Extension and/or research programs. MSU-ES takes the leadership role, while MAFES and FWRC are involved and benefit from the process.

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, while constantly striving to ensure diversity.

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 education, 4-H youth, and community and rural development issues. These groups meet at least two times per year to identify specific areas of program needs, and assist in planning, conducting, and evaluating programs.

Other Stakeholders

MSU-ES county agents are also required to obtain information regarding clientele needs from people outside the overall advisory council. 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. One important concern is to ensure programming efforts include a diverse clientele.

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 the Mississippi Agricultural and Forestry Experiment Station (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 (e.g., forestry, family, row crops, etc.) meet several times during the year to discuss specific needs in research and extension programming.

Forestry and Wildlife Advisory Committees

Forestry, Forest Products, and Wildlife and Fisheries have advisory committees that meet yearly to identify issues and recommend research and extension programs to address those issues. Actions on these recommendations are reported at the next yearly meeting and further recommendations are made as warranted.

Other Sources of Needs Identification

MSU-ES, MAFES, and FWRC are continually looking for ways to interface with stakeholders to ensure that their needs are being addressed. The Agriculture and Forestry Summit and meetings with key partners are two examples of ways needs are identified.

Agriculture and Forestry Summit

MSU's Division of Agriculture, Forestry, and Veterinary Medicine conducts the Agriculture and Forestry Summit annually. The summit is a statewide planning process involving a diverse group of stakeholders. Results of the summit are used to develop research and extension priorities.

Key Partners

MSU-ES, MAFES, and FWRC 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.

C. Program Review Process

There have been no significant changes in Mississippi State University's program review processes since submission of our joint 5-Year Plan of Work.

D. Evaluation of the Success of Multi and Joint Activities

This evaluation of the success of the multi and joint activities is guided by the four criteria identified in the Guidelines for the State Plans of Work. Answers to each of the four questions are provided below.

1. Did the planned program address the critical issues of strategic importance, including those identified by the stakeholders?

Yes. Once the draft guidelines for AREERA were published, MSU initiated its new planning process. The priority planning groups (PPGs) for each of the 26 PPAs developed their plans for both research and extension.

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

- The stakeholder input process described above, 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. Did the planned program address the needs of under-served and under-represented populations of the State?

Yes. Through the stakeholder input process described above, needs of all clientele groups, including underserved and underrepresented groups, were determined. (Most of the advisory groups mentioned in the stakeholder input process are required to be representative of all potential clientele.)

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

Another indicator of the extent to which programs are meeting the needs of under-served and under-represented groups is the percentage of contacts made by extension faculty. Of the 2,719,501 total contacts made by Extension, 731,903 (27%) were made to African-American, Native-American, or other under-served populations. This percentage is only slightly lower than the percentage of these under-served groups in the state population.

3. Did the planned program describe the expected outcomes and impacts?

Yes. Each priority program area developed one or more program plans. In each program plan, expected outputs and outcome/impacts were developed. Most of the outcomes identified were intermediate- or long-term outcomes.

4. Did the planned program result in improved program effectiveness and/or efficiency?

Yes. The creation of PPGs has provided a mechanism for researchers and extensionists 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.

This result has been evident in some of the key theme reports provided under each of the five goals. Below are additional examples of these joint efforts.

Southern Regional Aquaculture Center

The U.S. consumes increasingly greater amounts of fishery products than it produces. A strong domestic aquaculture industry is needed to increase production of fish and shellfish and reduce dependency on foreign suppliers. Centers provide a mechanism for assessing aquaculture industry needs, establishing research and extension priorities, and implementing regional research and extension projects designed to directly impact commercial aquaculture development.

Components of the Southern Regional Aquaculture Center include an Administrative Center, Board of Directors, Industry Advisory Council and Technical Committee. The Board of Directors establishes overall regional research and extension goals and priorities, makes selection of proposals for funding and allocates fiscal resources. An Annual Plan of Work will be submitted to USDA outlining each program element and its compatibility with the National Aquaculture Development Plan and with regional priorities. 1862 and 1890 Land Grant institutions, Sea Grant institutions, other state, territorial or federal institutions, and non-profit private research organizations with demonstrated expertise and capabilities in aquaculture are eligible to participate in the regional programs.

The Southern Regional Aquaculture Center provides for coordination and prioritization of research and extension efforts across the southern U.S. This results in more efficient use of research funds and helps ensure that technology transfer occurs in an efficient and timely manner.

Advanced Spatial Technologies for Agriculture (ASTA)

There is a need to investigate site-specific technologies as they pertain to natural resource management, precision farming, agribusiness and decision making in agriculture and to produce

new knowledge concerning applications of these technologies in Mississippi and the Nation.

MAFES instituted the Advanced Spatial Technologies for Agriculture (ASTA) program to coordinate efforts on site-specific technologies. As part of the ASTA program, MAFES and MSU-ES faculty are conducting research and educational programs on site specific, precision farming technologies with regard to soil fertility management; pest management strategies; yield monitoring; problems associated with drainage, irrigation, aquaculture and other environmentally sensitive issues; and economic costs and returns associated with site specific production.

Some developments from this program include: 1) an improved superior cotton yield sensor, 2) prescriptions for nitrogen fertilizer in cotton that will improve average yield and reduce fertilizer runoff, 3) a pest management system that reduced insecticide costs by as much as 30%, and 4) variable rate prescriptions for a herbicide application system that can reduce material application rates significantly.

Nutrient Management and Water Quality Task Force

Management of animal waste has become a major environmental issue, with serious economic consequences for poultry and livestock producers. Improper animal waste disposal can negatively affect water quality.

MAFES Scientists and MSU-ES Specialists have joined together to form a Nutrient Management and Water Quality Task Force. This task force is designed to help address both immediate and long-term problems related to nutrient management and water quality issues. The task force formulates plans of action and helps to facilitate team building to address these issues in a timely manner.

This team has helped to initiate research on the effect of nutrient management on watersheds, and have aided in the development and dissemination of best management practices to help producers deal with these issues.

E. Multistate Extension Activities

MSU-ES identified 25 programs that meet the requirements for multistate and were supported by Smith-Lever funds. Many other programs meet the requirements for multistate, but were not supported by Smith-Lever funds.

Form CSREES-REPT (2/00) is provided below to summarize the fiscal activity for those multistate programs supported by Smith-Lever funds.

**U.S. Department of Agriculture
Cooperative State Research, Education, and Extension Service
Supplement to the Annual Report of Accomplishments and Results
Multistate Extension Activities and Integrated Activities
(Attach Brief Summaries)**

Institution Mississippi State University
State Mississippi

Check one: **Multistate Extension Activities**
 Integrated Activities (Hatch Act Funds)
 Integrated Activities (Smith-Lever Act Funds)

Title of Planned Program/Activity	Actual Expenditures				
	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
<u>Southern Extension & Research Activities</u>	<u>67,195.54</u>	<u>59,363.43</u>	<u>29,906.67</u>	<u>38,056.20</u>	<u> </u>
<u>Money and You</u>	<u>5,873.56</u>	<u>5,732.24</u>	<u>15,285.16</u>	<u>5,667.54</u>	<u> </u>
<u>Mid-South Fair</u>	<u>13,221.89</u>	<u>26,909.09</u>	<u>12,415.12</u>	<u>13,075.85</u>	<u> </u>
<u>Southern Reg. Middle Managers Conference</u>	<u>5,973.00</u>	<u>3,915.97</u>	<u>2,234.15</u>	<u>2,139.07</u>	<u> </u>
<u>Southern Reg. Volunteer Leaders Forum</u>	<u>115,672.75</u>	<u>26,378.86</u>	<u>23,483.63</u>	<u>12,216.28</u>	<u> </u>
<u>Program Leadership Conference</u>	<u>40,495.01</u>	<u>41,026.67</u>	<u>40,346.28</u>	<u>23,838.18</u>	<u> </u>
<u>National 4-H Congress</u>	<u>26,725.25</u>	<u>19,398.29</u>	<u>26,163.47</u>	<u>23,383.78</u>	<u> </u>
<u>Tri-State Ministers Meeting</u>	<u>6,509.05</u>	<u>4,408.83</u>	<u>3,875.60</u>	<u>5,543.93</u>	<u> </u>
<u>MS-LA Family Matters Conference</u>	<u>51,604.09</u>	<u>10,849.15</u>	<u>14,796.88</u>	<u>3,608.09</u>	<u> </u>
<u>Franklinton Beef and Dairy Project</u>	<u>51,545.48</u>	<u>44,946.36</u>	<u>56,240.95</u>	<u>74,740.30</u>	<u> </u>
<u>Cotman Project</u>	<u>12,959.98</u>	<u>12,553.79</u>	<u>10,995.03</u>	<u>14,925.52</u>	<u> </u>
<u>Tri-State Soybean Forum</u>	<u>31,871.53</u>	<u>30,357.34</u>	<u>22,341.97</u>	<u>20,024.21</u>	<u> </u>
<u>Delta States Farm Management Group</u>	<u>1,181.62</u>	<u>10,951.45</u>	<u>7,212.01</u>	<u>6,359.09</u>	<u> </u>
<u>Beltwide Cotton Conference</u>	<u>9,426.63</u>	<u>2,737.86</u>	<u>2,885.82</u>	<u>2,575.61</u>	<u> </u>
<u>Southern Reg. Extension Animal Scientists</u>	<u>6,676.73</u>	<u>7,059.07</u>	<u>2,305.25</u>	<u>2,558.93</u>	<u> </u>
<u>Southern Forage & Pasture Improve. Conf.</u>	<u>4,925.84</u>	<u>0.00</u>	<u>1,213.80</u>	<u>1,208.38</u>	<u> </u>
<u>National Ext. Livestock Specialists Conf.</u>	<u>10,555.36</u>	<u>0.00</u>	<u>0.00</u>	<u>2,558.93</u>	<u> </u>
<u>Commercial Vegetable Recommendations</u>	<u>0.00</u>	<u>0.00</u>	<u>1,783.75</u>	<u>1,785.26</u>	<u> </u>
<u>Greenhouse Tomato Short Course</u>	<u>0.00</u>	<u>0.00</u>	<u>3,576.44</u>	<u>3,639.71</u>	<u> </u>
<u>National Catfish Database Committee</u>	<u>0.00</u>	<u>0.00</u>	<u>4,905.91</u>	<u>19,629.46</u>	<u> </u>
<u>National Extension Technology Conference</u>	<u>0.00</u>	<u>0.00</u>	<u>2,238.50</u>	<u>5,615.68</u>	<u> </u>

<u>S. Reg. Comm. on Public Affairs/Farm Mgt.</u>	<u>0.00</u>	<u>0.00</u>	<u>7,568.69</u>	<u>7,126.12</u>	<u> </u>
<u>Southern Community Development Institute</u>	<u>0.00</u>	<u>0.00</u>	<u>1,741.40</u>	<u>6,936.71</u>	<u> </u>
<u>Tri-State Fruit & Vegetable Growers</u>	<u>0.00</u>	<u>0.00</u>	<u>7,071.11</u>	<u>6,899.15</u>	<u> </u>
<u>MS-LA Blueberry Growers Conference</u>	<u>0.00</u>	<u>0.00</u>	<u>3,234.52</u>	<u>2,970.31</u>	<u> </u>
Total	<u>462,413.40</u>	<u>306,588.40</u>	<u>303,822.11</u>	<u>307,082.29</u>	<u> </u>

Form CSREES-REPT (2/00)

Summary of Multistate Extension Activities

Southern Extension and Research Activities - A total of 30 information exchange groups (IEGs) and task forces (TFs) composed of regional representation meet to identify possible solutions to problems through research and extension. The common discussion leads to regional publications and programs.

Money and You - This project consists of an eight-lesson electronic curriculum designed to help limited resource families (particularly TANF benefit recipients) learn how to more efficiently manage their resources. The curriculum is being implemented in Mississippi primarily as a master volunteer program. The curriculum is now in full implementation stage with instruction provided by six area family resource agents and six county directors with family resource management programming responsibilities.

Mid-South Fair - Seventeen competitions and attendance contests are part of the five state collaborative effort with the Mid-South Fair held in Memphis, TN. States participating include: TN, MS, MO, AR, and KY. MS involvement includes preparation and participation of county delegations and specialists preparing and running the competitions, awards ceremonies and evaluation of contests.

Southern Region Middle Management Conference - This conference is comprised of area, district, and regional administrators from the southern states. The conference is held every other year hosted by different states. The primary purpose of the conference is professional development, idea sharing, and joint programming. The conference includes exhibits, breakout seminar sessions usually conducted by middle managers addressing personnel and program issues, and keynote speakers. Middle managers interact and develop professional relationships, and address concerns and issues that apply to the region.

Southern Region Volunteer Leader Forum - Thirteen states, Puerto Rico and the Virgin Islands cooperate in planning this volunteer training opportunity held in Rock Eagle, Georgia. Over 600 volunteers participate in workshops, super seminars and social events. Agents prepare volunteers for participation in the conference and assist them in presenting workshops upon their return. MS agents and specialists present workshops and assist with planning and coordination of the event held at Rock Eagle, GA.

Program Leadership Conference - Program leaders in Agriculture/Natural Resources, 4-H/Youth, Family and Consumer Sciences, Community Development, Program and Staff Development, and Computer Applications from around the Southern Region meet annually to identify issues and plan regional programs. A primary focus of this conference last year was the development of the Cooperative Extension Curriculum Project, which focuses on developing an electronic inservice education curriculum for the region, with interest being shown by other regions as well.

National 4-H Congress - 48 states participate in this national event. Mississippi specialists have served on the design team and provide leadership to specific committees. Over 30 youth from MS are involved in this four-day event that includes educational workshops, service learning opportunities, and keynote speakers. Agents are involved in the preparation of youth for this event.

Tri-State Minister Meeting - This meeting is a collaborative effort between the states of Arkansas, Mississippi, and Tennessee Extension Services. These systems have been providing educational programs to bi-vocational and community leaders in the region for more than 15 years. As issues have changed, Extension has changed to meet the needs of citizens in the tri-state area. A key ingredient for correcting these

issues and problems is the educational training offered through a Tri-State Conference, which has become a model for other states considering such an activity.

MS/LA Family Matters Conference - This conference focuses on critical issues facing families in today's society. Designed for three tracks—professional, adult, and youth—the conference provides workshops, exhibits, and keynote speakers. The conference attracts more than 300 participants annually

Franklinton Beef and Dairy Project - Joint program to conduct research and provide educational programs in beef and dairy between LA and MS. This project has provided most of the direction for dairy research and extension in MS. Results from several of the projects are discussed in the key theme reports under the five major goals in this report.

Cotman Project - This project provides educational information on cotton management including crop mapping, weather data use and early termination procedures used in the mid-south region.

Tri-State Soybean Forum - The purpose of this forum is to provide educational information for agents and specialists on soybean production and management from a multi-state perspective (MS, LA, AR).

Delta States Farm Management Group - This group collaborates on Extension farm management education and research programming opportunities in the MS, LA, AR multi-state area.

Beltwide Cotton Conference - This conference provides programming update information for agents and specialists on all cotton production and marketing areas on a multi-state basis, throughout the “cotton belt”. Specialists and agents interact with researchers and bring back important information to share with Mississippi cotton producers.

Southern Region Extension Animal Scientists - This meeting facilitates programming update and new program ideas to Extension specialists with a multi-state focus in the 13 state Southern Region.

Southern Forage and Pasture Crop Improvement Conference - This conference allows Extension and research professionals to identify educational programs on the latest issues regarding livestock utilization of forage and pasture.

National Extension Livestock Specialists Conference - This conference provides program updates and information on innovative programs to Extension professionals from all equine and meat animal-producing states. Retirements and budget cuts have limited MSU-ES participation in this important conference.

Commercial Vegetable Recommendations – This group meets annually to determine regional recommendation for vegetable publications and programs.

Greenhouse Tomato Short Course – For the past 10 years, MSU-ES has hosted this course for growers around the region and nation. This past year, specialists from around the region provided instruction to 105 participants from 22 states and 4 countries.

National Catfish Database Committee – Mississippi State University serves as the Lead Institution for the project, and will work cooperatively with other institutions in product development. National Catfish

Information Database (NCID) will be developed through nationwide cooperation among the colleges and universities in the land grant system, and will direct the best expertise in the nation toward the knowledge, educational and decision-support needs of the farm-raised catfish industry. NCID will develop a useful product for catfish farmers, resulting in a catfish industry that is better equipped to make informed decisions. Scientists from all appropriate catfish subject matter disciplines will be enlisted to cooperate in addressing these needs in a uniform and useable format. Through this public/private-sector partnership, the best knowledge-based, educational, and decision support tools will be provided to the nation's catfish producers. Discovery information and technology transfer will also be enhanced from the multi-million dollar public and private sector research investment to directly benefit the nation's leading aquaculture sector.

National Extension Technology Conference – NETC provides an opportunity for sharing and learning about innovative types and uses of information technology. MSU-ES personnel in computer applications and communications attend the conference and bring back information to share with Mississippians.

Southern Region Committee on Public Affairs/Farm Management – Agricultural economics Extension specialists participate on this committee yearly. Information shared at the committee meetings provided valuable input into the Farm Bill training provided by MSU-ES during the past year.

Southern Community Development Institute – This institute provides Extension specialists, regional directors, and Extension agents with an intensive, state-of-the-art training program related to community development. Participants learn the current nature of a community's economic, social, and service infrastructure; the essential elements of sound community development programming; and tools and strategies for working with communities on economic, social, and service infrastructure enhancements. Community development experts from around the region provide the instruction.

Tri-State Fruit and Vegetable Growers – MS, AR, and LA have cooperated on this conference for the past five years. The conference includes educational sessions on direct marketing and fruit and vegetable production. Trade show vendors include fruit tree nurseries, seed companies, chemical companies, equipment manufacturers, fertilizer manufacturers, drip irrigation companies, box companies and a number of other suppliers of interest to fruit and vegetable growers. The program has four concurrent tracks with sessions on fruits, vegetables, blueberries and organic production.

MS-LA Blueberry Growers Conference - Mississippi hosts this event annually for blueberry growers in cooperation with Louisiana. Growers learn production and marketing techniques at the conference, which has led to the formation of a marketing cooperative to increase sales.

F. Integrated Research and Extension Activities

As mentioned earlier, Mississippi State University chose to restructure its planning process after AREERA, both to meet federal requirements and to better serve its stakeholders within the state. This process led to the establishment of 26 priority program areas, 16 of which developed integrated research and extension plans.

Fiscal activity for these two plans is described in the two forms provided below: Form CSREES-REPT (2/00) (Hatch funds) and Form CSREES-REPT (2/00) (Smith-Lever funds). Although it may appear there are discrepancies between the two forms, some integrated activities may be supported with Smith-Lever funds but not Hatch funds, and vice versa.

Progress updates are provided for these activities in the planned program summaries above in Section A.

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Institution Mississippi State University
State Mississippi

Check one: **Multistate Extension Activities**
 Integrated Activities (Hatch Act Funds)
 Integrated Activities (Smith-Lever Act Funds)

Title of Planned Program/Activity	Actual Expenditures				
	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
<u>Agribusiness</u>	*	*	*	*	
<u>Beef and Forage</u>	278,963	371,445	108,025	92,639	
<u>Catfish</u>	*	*	*	*	
<u>Corn</u>	23,980	50,034	46,309	39,224	
<u>Cotton</u>	53,094	60,223	215,998	150,658	
<u>Dairy</u>	*	*	143,976	310,472	
<u>Food and Food Products</u>	425,342	307,201	277,235	279,633	
<u>Forest Products</u>	*	*	*	*	
<u>Forestry</u>	*	*	*	*	
<u>Horticulture</u>	170,218	133,758	117,238	15,736	
<u>Poultry and Products</u>	*	12,211	*	*	
<u>Rice</u>	10,815	16,801	47,637	64,502	
<u>Safety</u>	*	*	*	*	
<u>Soybeans</u>	1,073	9,877	4,601	*	
<u>Swine</u>	*	*	*	*	
<u>Wildlife and Fisheries</u>	*	*	*	*	
Total	963,485	961,550	961,019	952,864	

* Integrated activity exists using non-federal funding sources.

Form CSREES-REPT (2/00)

**U.S. Department of Agriculture
 Cooperative State Research, Education, and Extension Service
 Supplement to the Annual Report of Accomplishments and Results
 Multistate Extension Activities and Integrated Activities
 (Attach Brief Summaries)**

Institution Mississippi State University
State Mississippi

Check one: **Multistate Extension Activities**
 Integrated Activities (Hatch Act Funds)
 Integrated Activities (Smith-Lever Act Funds)

Title of Planned Program/Activity	Actual Expenditures				FY 2004
	FY 2000	FY 2001	FY 2002	FY 2003	
<u>Agribusiness</u>	<u>387,174.60</u>	<u>437,985.80</u>	<u>386,968.78</u>	<u>368,175.51</u>	<u> </u>
<u>Beef and Forage</u>	<u>288,624.99</u>	<u>232,441.97</u>	<u>394,553.32</u>	<u>256,637.50</u>	<u> </u>
<u>Catfish</u>	<u>71,862.72</u>	<u>100,967.05</u>	<u>77,210.11</u>	<u>113,103.68</u>	<u> </u>
<u>Corn</u>	<u>73,613.51</u>	<u>62,430.72</u>	<u>69,365.54</u>	<u>91,702.76</u>	<u> </u>
<u>Cotton</u>	<u>225,968.90</u>	<u>235,905.15</u>	<u>246,342.30</u>	<u>425,432.35</u>	<u> </u>
<u>Dairy</u>	<u>52,168.17</u>	<u>28,900.17</u>	<u>50,685.18</u>	<u>37,577.87</u>	<u> </u>
<u>Food and Food Products</u>	<u>37,140.07</u>	<u>24,296.79</u>	<u>24,951.99</u>	<u>37,827.20</u>	<u> </u>
<u>Forest Products</u>	<u>36,467.68</u>	<u>41,322.87</u>	<u>23,344.24</u>	<u>38,383.71</u>	<u> </u>
<u>Forestry</u>	<u>433,066.92</u>	<u>396,201.79</u>	<u>407,270.95</u>	<u>428,114.88</u>	<u> </u>
<u>Horticulture</u>	<u>591,804.37</u>	<u>531,946.22</u>	<u>685,789.67</u>	<u>404,495.40</u>	<u> </u>
<u>Poultry and Products</u>	<u>53,976.15</u>	<u>48,522.70</u>	<u>36,877.01</u>	<u>16,962.18</u>	<u> </u>
<u>Rice</u>	<u>20,894.55</u>	<u>42,943.41</u>	<u>50,844.19</u>	<u>40,366.68</u>	<u> </u>
<u>Safety</u>	<u>45,512.75</u>	<u>63,989.25</u>	<u>122,336.87</u>	<u>51,954.23</u>	<u> </u>
<u>Soybeans</u>	<u>173,587.21</u>	<u>144,518.95</u>	<u>146,201.11</u>	<u>135,513.02</u>	<u> </u>
<u>Swine</u>	<u>49,417.67</u>	<u>26,482.71</u>	<u>16,514.06</u>	<u>29,643.66</u>	<u> </u>
<u>Wildlife and Fisheries</u>	<u>109,008.42</u>	<u>86,469.30</u>	<u>168,966.68</u>	<u>169,281.54</u>	<u> </u>
Total	<u>2,650,288.10</u>	<u>2,505,324.87</u>	<u>2,908,222.00</u>	<u>2,645,172.17</u>	<u> </u>

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