FY 2000 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, the Mississippi Agricultural and Forestry Experiment Station, and the Forest and Wildlife Research Center, 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 this first year devoted to establishing the research and extension programs and establishing baselines for future measurement of outcomes. Short 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	50	13	6	137,967	
Catfish	46	1	0	7,443	One software package for clientele use
Corn	12	19	1	54,350	
Cotton	78	17		83,267	
Dairy	4	2	1	28,100	
Forestry	1	2	5	188,774	One software package for clientele use
Horticulture	33	34	1	202,381	
Poultry and Products	17	1	6	6,371	
Rice	3	2		11,066	
Soybeans	16	3		69,156	
Swine	7	0	2	7,342	
Wildlife and Fisheries	0	0	2	92,849	

Short-term outcomes for this goal include the following:

PPA: Beef and Forage--The short-term outcome in the POW was to increase the participation of clientele in herd health programs. Over 800 people participated in the Beef Quality Assurance (BQA) program, with 70 people becoming BQA certified. This program was the only such program recognized by the National Cattlemen's Association's Brand Like Commission.

The Catfish PPA also listed short-term outcomes in the plan of work but research delays caused them to not

be ready to report at this time. These outcomes will be reported in next year's plan of work. 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 - Animal Production Efficiency

a. Producers who control when their cattle reproduce are more profitable than those who don't, but cattle have a narrow window of opportunity for breeding. Methods are in place to synchronize estrous, or heat, but not to control ovulation, or release of the egg, which typically occurs 24 to 48 hours after a cow comes into heat.

Animal and dairy scientists at Mississippi State University are developing a slow-release drug delivery system to cause a group of heifers to ovulate at the same time. Finding an effective slow release system will reduce the number of injections required for the synchronization process and ultimately save cattle producers time and money. The researchers are trying to create a nine-day protocol that will take the guesswork out of the formula. The goal is to begin hormone injections on a group of heifers at various stages of their estrous cycle, and follow a prescribed protocol for a specific length of time to identify the ideal time to artificially inseminate.

b. An effective method to synchronize ovulation will benefit dairy producers, who use artificial insemination almost exclusively, but will have even greater potential for beef producers where timing for artificial insemination is much harder. Hormone therapy and artificial insemination are economically beneficial for cattle producers as this cost is $26 to $35 per pregnancy compared to $30 to $32 per pregnancy using a bull. Artificial insemination also allows herds to make much faster genetic progress, and producers can concentrate the breeding and calving seasons.

c. Hatch funds (amounts and FTE not available)

d. State-specific

Key Theme - Animal Health

a. The trematode parasite disease in channel catfish caused significant losses on several fish farms in 2000, with the number of cases more than double that of the previous year. White pelicans are the likely cause of late season parasite problems as they infect snails that live in catfish ponds.

When summer populations of white pelicans were spotted in the Delta, Mississippi State University publicized this fact and distributed updated information on the trematode and recommended actions. Farmers immediately treated 400 to 500 acres of ponds to reduce snail populations in ponds visited by the pelicans.

b. A quick response helped producers avoid estimated losses of 10 percent of fingerlings and foodfish production on over 300 acres. With an estimated loss avoidance of $250 per acre, the value of the program was around $75,000.

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

d. State-specific

Key Theme - Animal Health

a. Heat is one of the biggest enemies of broiler production. One of the ways it affects broilers is in lowering the fertility of heat-stressed roosters.

Ascorbic acid, Vitamin C, is known to improve fertility in some mammals in both stressful and non-stressful environments. Research at the Mississippi Agricultural and Forestry Experiment Station is focusing on whether the addition of Vitamin C can improve fertility in heat-stressed roosters. Rooster fertility was tested under varying heat stress conditions and with varying levels of Vitamin C added to their diets.

b. Results indicated that this vitamin does nothing to improve fertility in heat-stressed roosters, but at 250 ppm, it did improve fertility by 10 percent in non-stressed males. Similar results obtained in the U.S. poultry industry would result in an annual increase in day-old chicks worth about $40 million.

c. Hatch funds

d. State-specific

Key Theme - Animal Production Efficiency

a. Better eggs mean better broilers, a fact that prompted one Mississippi State University researcher to look at what a hen must eat to lay good eggs. When even a small improvement is made in Mississippi's $1.5 billion

poultry industry, the result is seen in millions of dollars.

A Mississippi Agricultural and Forestry Experiment Station project studied how different breeder hen diets affect the eggs they lay and ultimately the broilers that hatch. The research looked at the amount and type of fat added to hen diets, and the effect it had on egg quality, the newly hatched chick's health and viability, and the ready-for-slaughter broiler. The MAFES research found that the level and type of fat in the diet have separate, recognizable effects.

b. The overall conclusion was that adding an extra 1.5 percent of corn oil in breeder hen diets is useful in producing quality eggs and broilers which gain weight better. These results should be immediately useful to the poultry industry as nutritionists can tailor hen diets for the specific needs of flocks.

c. Hatch funds

d. State-specific

Key Theme - Aquaculture

a. Producers need a reliable, economical source of catfish fingerlings to maintain catfish production. Poor egg handling practices and lack of egg treatment can reduce egg hatching and fry survival rates below 50 percent, disrupting fingerling supplies and elevating prices.

The Mississippi State University Extension Service held a catfish hatchery management workshop in March and made numerous site visits during the operating season. Solutions were found for five hatcheries with severe problems, and two cases of egg mishandling were resolved. Fifteen hatcheries were advised to improve egg treatment to reduce losses from bacteria and overcrowding.

b. Those attending the workshop produce about 553 million fry, and estimated they would be able to produce 11 million more fry and 4.3 million more fingerlings using the knowledge gained. The value of these two products would represent $60,500 and $215,000 respectively at current market prices. Prescribed egg treatments reduced losses at three hatcheries by 10 to 20 percent. Improved egg handling at two other facilities increased the survival rate by nearly 30 percent, meaning an additional 10 million fry were produced valued at $50,000.

c. Smith-Lever funds

d. State-specific

Key Theme - Plant Health

a. Cotton is susceptible to seedling diseases when it is planted in unfavorable conditions. These diseases can significantly reduce stands and yields.

Mississippi Agricultural and Forestry Experiment Station researchers completed a three-year study of cotton fields under increased disease pressure. They tested different seed treatments under various management methods and disease pressures.

b. These studies indicate that supplementing treated cotton seed with in-furrow fungicides results in increased stands and increased yields when conditions of high disease pressure exist.

c. Hatch funds

d. State-specific

Key Theme - Agricultural Profitability

a. Rice prices were poor in 2000 and producers were faced with dramatically increased fuel prices. Fuel to operate water pumps is a major cost of rice production, so any reduction in this cost benefited farmers.

The Mississippi State University Extension Service held four rice meetings in the Sunflower County area to introduce an alternative method of watering rice fields that saves pumping cost. Both producers and consultants attended the meeting.

b. This alternative method of watering rice fields saves as much as 30 percent in water use, for an average of $20.36 per acre saved in fuel costs. If each farmer adopted this method, the total savings to the south Delta crop would be $1.85 million.

c. Smith-Lever funds

d. State-specific

Key Theme - Aquaculture

a. The Environmental Protection Agency is expected to place more restrictions in the near future on the amount of water allowed to be discharged from catfish ponds. Catfish farmers are also interested in reducing their reliance on groundwater to keep their pond levels constant.

The Mississippi Agricultural and Forestry Experiment Station has developed a management strategy that meets both these goals. They based their procedures on ponds that are used both for fish production and rainwater storage and which are deeper than typical production ponds. These ponds are linked in two- or four-pond series. They tested it using a mathematical model, then received grants to modify seven 1-acre ponds to see how these changes work in reality.

b. Simulations using the models suggest pond water discharges can be reduced 40 to 90 percent and groundwater use can be reduced 40 to 75 percent. Results are not yet compiled for the field trials. This approach is one of the first innovations in catfish pond design in the last 30 years, and may prove useful in reducing water discharges if the EPA restrictions do take effect.

c. Hatch funds

d. State-specific

Key Theme - Agricultural Profitability

a. Farmers in Sharkey County have routinely applied a combination of Roundup and 2,4-D herbicides to burn down winter weeds on row crop fields and prepare about 100,000 acres for spring planting. These materials cost $10.20 per acre in 2000.

The Mississippi State University Extension Service advised these farmers to use a banded application of Gramoxone Extra restricted to the tops of the rows rather than their normal burndown herbicide program. This banded application costs farmers about $3.87 per acre and was done along with the planting, saving an application cost. Farmers used this method on an estimated 5,000 acres of corn in Sharkey County.

b. Sharkey County farmers who followed this recommendation saved $6.33 per acre on herbicide costs for a total savings of $31,650 in chemicals alone. An additional application cost on these 5,000 acres would have averaged $15,000, bringing the total savings to $46,650 for Sharkey County farmers.

c. Smith-Lever funds

d. State-specific

Key Theme - Animal Health

a. Fescue is often used as forage for cattle, horses, sheep and other ruminants, but much of it is infested with a fungus for which no treatment has been found. The fungus causes reduced adult weight gains, depletion of hair, rougher coats, elevated body temperatures, lower weaning weights in calves and a depressed immune system, and raises body temperatures which decreases reproductive rates.

For two years, Mississippi Agricultural and Forestry Experiment Station animal scientists have sprayed both

fungus-free and fungus-infested tall fescue with an extract from seaweed and have observed results in trials. Spraying fescue with seaweed extract may help overcome some problems related to using infected fescue as forage.

b. Losses to fescue fungus are estimated to be $6 million annually in Mississippi. This extract has produced steers with increased resistance to diseases and better weight increase. The improved immunity appears to be long lasting. Adding this extract to cattle diets or feeding them fungus-infested fescue treated with the seaweed extract has another unexpected benefit. Steaks and roasts from these cattle have an increased shelf life of one day over cuts from untreated cattle.

c. Hatch funds

d. State-specific

Key Theme - Agricultural Production Efficiency

a. The Mississippi State University Extension Service's Cotton 2000 Planning Budgets indicate growers normally spend $35.27 on cotton herbicides per acre. Many cotton growers exceed this amount, with some spending more than $65 an acre to control weeds.

Many cotton growers are interested in using Roundup Ready technology to cut cotton production costs and apply less pesticides in the environment. The Extension Service planted a demonstration plot of Roundup Ready cotton to help growers evaluate the effectiveness and efficiency of a Roundup-enhanced herbicide program. Costs of this system were compared to Extension budget guidelines.

b. The Roundup Ready-enhanced cotton herbicide program demonstrated effective weed control in the field and cost $7.02 per acre less than budget. In Sharkey County where this demonstration was held, potential savings to cotton growers is estimated at $500,000 on their 70,000 acres. There is the added benefit of reduced environmental impact because of fewer pesticides used.
c. Smith-Lever funds

d. State-specific

Key Theme - Animal Health

a. A calf is born without the necessary antibodies to resist viral and bacterial infections which can cause high mortality rates within the first week of life. It is critical for the survival and subsequent growth of the newborn calf that it acquire passive immunity from receiving colostrum, the first milk a cow provides after giving birth that contains immunoglobulins necessary to protect calves from infections.

Recently completed research at the Mississippi Agricultural and Forestry Experiment Station confirmed that immunity levels of newborn dairy calves tube-fed colostrum at birth were higher than those that nursed their

mothers. Ensuring that a newborn calf has sufficient levels of colostrum for the immunity needed to survive is extremely important as acquiring this immunity within the first few hours of birth almost ensures the calf’s survival.

b. Calves that were allowed to nurse their mothers had consistently lower immunity levels than the calves that were fed a gallon of colostrum. University officials promoted this practice extensively across the state, and today most producers are using this technique, with a subsequent decrease in calf deaths.

c. Hatch funds

d. State-specific

Key Theme - Plant Production Efficiency

a. Cotton defoliation is a crop management technique critical to maximizing crop yield and quality. Recent research indicates that improper timing of defoliation can reduce yield by 200 pounds of lint per acre or more. Quality can also suffer. Sharkey, Issaquena and Humphreys counties have about 160,000 acres of cotton, so it is important that these farmers know proper cotton defoliation techniques.

The Mississippi State University Extension Service conducted two cotton defoliation seminars in August for these farmers. University cotton specialists taught 75 farmers proper techniques which they then used on their fields.

b. These growers represented 100,000 to 125,000 acres of cotton. With an estimated area yield of 750 pounds of lint per acre, these growers harvested about 84 million pounds of cotton. Conservatively estimating this cotton's quality was $.03 better than improperly defoliated cotton, this information was worth at least $2.52 million to these farmers.

c. Smith-Lever funds

d. Multistate Extension

Key Theme - Animal Production Efficiency

a. Mississippi's heat and humidity combine to significantly cut dairy milk production during the summer. When outside temperatures reach 75 to 80 degrees, dairy cattle experience mild heat stress, and at 90 degrees and higher, they experience severe heat stress.

Managing heat stress is important in Mississippi because hot and humid conditions last from mid-May to mid-September. Heat stressed dairy cows have increased respiration rates, higher internal body temperatures and reduced milk production by 20 percent or more. MSU joined forces with Cornell University to study heat

stress in dairy cows. Cows were cooled with fans and water spray and various combinations of wind speed and wetting frequency were compared.

b. Researchers found that wetting the cows' hide and blowing them dry with fans drew down internal temperatures 1 to 1.5 degrees in an hour. This cooling rate is much faster than the cows could achieve on their own. Further goals of the research include finding the most efficient way to cool cows using water and fans, and so help dairy farmers find better ways to cool their cows.

c. Hatch funds

d. State-specific

Key Theme - Plant Production Efficiency

a. The SMART program (Soybean Management Applying Research and Technology) has been helping improve Mississippi soybean yields since it began in 1992. Bolivar County soybean producers have been involved in the program each year.

The SMART program helps growers make decisions on all their fields and lets other growers see how the SMART fields are managed. Growers harvest higher yields through help with irrigation timing, insect monitoring and fungicide applications. Bolivar County had four growers enrolled in the SMART program in the 2000 crop year, all with irrigated fields. About 40 percent of the county's soybean acreage is irrigated, and the county has been very dry for the past two years.

b. These soybean fields in the SMART program averaged 58 bushels per acre, which was eight bushels more per acre than irrigated fields not in the program averaged. If the county could average eight more bushels per acre on its 92,000 irrigated soybean acres, yields would increase by 736,000 bushels and profits by $3.6 million.

c. Smith-Lever funds

d. State-specific

Key Theme - Plant Production Efficiency

a. In key rice producing areas of the Mississippi Delta, water weevils can cause serious economic loss if left uncontrolled. The Environmental Protection Agency phased out the use of Furadan for rice water weevil control and since no insecticides are labeled for control of the rice water weevil larvae, the adult weevil must be controlled prior to oviposition.

Mississippi State University's Extension Service compared various insecticides to determine the degree of

control they gave over key insect pests of rice. Economic thresholds of adult water weevils were established to determine when to treat the fields.

b. Data showed several alternative insecticides gave effective control of rice water weevils and stink bugs. Seed treatment with Icon or application of a foliar insecticide provided excellent rice water weevil control and increased yields an average 300 pounds per acre for an additional $23 per acre. Assuming 40 percent of the acreage was treated, rice grower income increased $2.9 million using this new treatment.

c. Smith-Lever funds

d. State-specific

Key Theme - Agricultural Profitability

a. Because of drought, the Mississippi Forestry Commission imposed a statewide burn ban that prevented rice farmers from burning rice straw after harvest. Tillage to dispose of this straw would increase production costs $8 to $16 per acre at a time when commodity prices were very low.

Through coordination with Delta Council and the Mississippi Forestry Commission, a procedure was established to allow each county Board of Supervisors to request exemption from the burn ban for a specified time. Each county agent in the rice-growing region was given sample letters to supervisors to request the exemption. These letters also described proposed procedures for burning rice fields.

b. Exemptions were granted in most rice growing counties. Assuming that at least half of the rice acreage was burned after harvest, rice farmers saved $8 to $16 per acre, or between $880,000 and $1.76 million.

c. Smith-Lever funds

d. State-specific

Key Theme - Agricultural Profitability

a. Many low-income, minority cattle producers do not follow recommended practices to produce quality forages and cattle. Poor fencing allows lesser-quality bulls to enter neighboring herds and affect their quality. Poor nutrition, inferior herd genetics and virtually no herd health program hurt producers and the industry.

With the assistance of the local cattlemen's association, Mississippi State University’s Extension Service targeted low management, minority producers in a meeting that covered the proper management of forages, animal genetics, herd health, facilities, record keeping and sources of assistance. The 10 producers in attendance had 182 brood cows but only 47 calves, or a 47 percent calving rate. At an annual cow cost of $350, these producers would have to sell every calf weighing at least 400 pounds for a minimum of $1.50 a

pound just to break even, an impossible situation in recent markets.

b. If these producers increased their calving percentage to just 70 percent based on information learned in the program, the break-even price would decrease to $1.25 per pound. With more nutrition coming from forage, the annual cost to produce a cow would drop below $350, making profits possible at market.

c. Smith-Lever funds

d. State-specific

Key Theme - Agricultural Competitiveness

a. Making a profit in farming is especially difficult when markets are down, but farmers in the southeast have some assistance in this area through the efforts of the Marketing Club Network.

The Mississippi State University Extension Service originally offered small marketing clubs where participants marketed the products of hypothetical farms, learning the process without any risk. Later, they partnered with two other groups to offer marketing training to farmers in 10 southeastern states. Between 600 and 800 farmers participate in monthly teleconferences at 65 to 80 locations to hear marketing information without spending much time traveling. The one-hour conference calls are held two business days after the supply-and-demand report is published each month.

b. The teleconferences get this information to farmers two weeks to a month sooner than they could get it anywhere else, and farmers can ask questions of the speakers. Participating farmers have reported increased income from $500 to $150,000 because of good marketing decisions they made based on information learned in the network.

c. Smith-Lever funds

d. State-specific

Key Theme - Risk Management

a. Farmers wage a never-ending battle to be more efficient and productive. One of the most important decision-making aids is a budget that lets them estimate expected income and expenses, and evaluate alternative cropping scenarios.

Mississippi State University's Extension Service developed a free, user-friendly, computerized budgeting tool that can be downloaded from the Internet. The Mississippi State Budget Generator v5.2 is designed to estimate annual costs and returns for a variety of individual crop enterprises and whole-farm plans using

consistent calculation methods. A computerized budget improves the accuracy of income and cost estimates, allowing users to explore the ways to maximize profits.

b. This computerized budgeting program complements MSU's hard-copy budgets published annually for a variety of crops. Using the software, producers tailor a variety of budgets to their particular operation. The information derived from a budget includes estimated income and expenses for the farming operation. Today's increasing costs and decreasing prices mean farmers should learn to develop and use a budget that can help them become better decision-makers.

c. Smith-Lever funds

d. State-specific

Key Theme - Plant Production Efficiency

a. Mississippi's climate is well-suited to soybean production, but some of the soils are not ideal for soybean growth.

USDA-ARS, in partnership with Mississippi Agricultural and Forestry Experiment Station developed a new high-yielding soybean variety that adapts well to the clay soils in much of Mississippi's soybean-growing region. Known as Bolivar, the variety will be available in limited quantities for production in 2001.

b. Bolivar averages seven bushels more per acre statewide than does the current favored public variety, and matures one day earlier. It has also shown good resistance to some common soybean ailments. The state had 3,200 acres of Bolivar seed production in 2000, and the variety is expected to be in limited production on some Mississippi farmers' fields. The rest of the seed will remain in seed production.

c. Hatch funds

d. State-specific

Key Theme - Animal Production Efficiency

a. Cattle producers often turn over ownership of their cattle too soon, sacrificing dollars they could earn if they kept the cattle longer.

Recently, the Mississippi State University Extension Service started emphasizing the importance of retained ownership and value-added options for producers. Through the Mississippi Stocker Calf Program, the Farm to Feedlot program and short courses, Extension specialists are educating producers on the advantages of retaining ownership of calves through their sale for slaughter.

b. Extension specialists demonstrated that through the Stocker Calf Program, producers can increase their

profits by up to $53 a head by retaining ownership through the stocker phase. The Farm to Feedlot program showed that by retaining ownership until the sale of cattle for slaughter, producers can earn $77 more a head. This program provided $2.5 million more income for retained ownership calves.

c. Smith-Lever

d. State-specific

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	46	1	0	7,443	One software package for clientele use
Food Safety	0	0	0	55,290	

Short-term outcomes for this goal include the following:

PPA: Catfish --The short-term outcome in the POW was to increase the probability of success of new or expanding catfish processing operations by providing up-to-date technological, operational, economic, and industry information. During FY 2000, members of the MSU-ES Food and Fiber Center assisted six new/potential or existing processors. Faculty conducted feasibility studies for new or expanding operations, helped resolve product issues, assisted in development of value-added products, and provided safety and sanitation training. These efforts resulted in increased profits to the catfish industry, and improved product quality and safety for the consumer.

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. For decades, the government conducted meat inspections based primarily on sight and smell conditions. In 1998, the U.S. Department of Agriculture's Food Safety Inspection Service changed the standards for food

safety to the Hazard Analysis Critical Control Point system, requiring companies to meet new standards using more scientific methods.

One Mississippi poultry company turned to Mississippi State University's College of Veterinary Medicine for assistance in developing and implementing methods to meet and exceed the new standards. With industry cooperation, university professionals went beyond eliminating bacteria in the processing and developed methods to reduce bacteria from broilers before they reach the plant.

b. The poultry company implemented two new practices as a result of the MSU study. These changes don't save the company money, but they help produce a more wholesome product that surpasses government standards. The company gave the university $50,000 to show their continued commitment to food safety research.

c. Hatch funds

d. State-specific

Key Theme - Food Quality

a. Describing the flavor and quality of cheese has always been a subjective process as skilled evaluators grade cheeses according to their expert opinions. This information has not always been useful to consumers or for statistical analysis.

A Mississippi Agricultural and Forestry Experiment Station researcher drew together a wide-ranging panel of 15 cheese experts who evaluated 250 cheddar samples. They selected 70 cheeses as representative of varying ages and geographic locations. After sampling these cheeses, the panel developed a Cheddar Language of 26 words that standardize descriptions of cheese flavor and texture.

b. This Cheddar Language was subsequently fine-tuned and has become the standard reference for identifying and quantifying cheese flavors. This language is helping those in the industry determine consumer preferences and has improved communication and made replication of test results possible.

c. Hatch funds

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	0	0	1	125,808	
Human Nutrition	13	0		327,343	

No short-term goals were specified for goal 3. 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 Health

a. People of all ages with a variety of conditions such as amputations, autism, Down Syndrome, emotional disabilities, muscular dystrophy, spinal cord injuries or cerebral palsy require therapy to improve physical or mental disabilities and movement dysfunctions.

Mississippi State University's Extension Service offers therapeutic riding, or hippotherapy, as an alternative or supplement to conventional treatment. Patients sit atop the horse with a bareback pad and actively respond to the motions of the walking horse. Hippotherapy works because the three-dimensional gait of the horse is the best known simulation of the human walk. A horse has front-and-back, up-and-down and side-to-side rotations that are not successfully imitated by mechanical devices. There is no need for riding skills because the patient need not influence the horse's movement in any way.

b. Therapeutic horseback riding provides physical, emotional and psychological benefits to individuals with special needs. This therapy improves flexibility, balance and muscle strength, and patients who have grown tired of the monotony of physical therapy can benefit. Riding a horse also gives confidence as they do something they otherwise would not be able to do.

c. Smith-Lever

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	78	17		83,267	
Soybeans	16	3		69,156	
Swine	7	0	2	7,342	
Wildlife and Fisheries	0	0	2	92,849	

No short-term goals were specified for goal 4. 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 - Recycling

a. Farmers across Mississippi are faced with the problem of used poly tubing and pesticide containers accumulating at their farms. Simply throwing them away is a hassle and fills landfills.

In 1996, the Mississippi State University Extension Service began a program in Quitman County to collect this poly tubing from farms. In the spring of 2000, the county received a $12,000 grant to purchase two poly tubing reels to loan to producers and to pay the pickup fee charged by the recycler.

b. Previously, the county recycled about 140,000 pounds of poly tubing and 20,000 pounds of pesticide containers. The loaner reels can increase poly tubing collections to 300,000 pounds a year, resulting in a $6,000 saving to farmers in Quitman County. Recycling the poly tubing also improves the appearance of farms and helps the county reduce wastes headed to the landfill.

c. Smith-Lever funds

d. State-specific

Key Theme - Nutrient Management and Forest Resource Management

a. Wastes from Mississippi's two largest industries, forestry and poultry, are serious disposal problems. Unused wastes have become economic burdens due to increased landfill and transportation costs, environmental concerns and governmental regulations. Alternative waste disposal options would greatly benefit both industries.

A group of researchers at Mississippi State University's Forest and Wildlife Research Center is evaluating composting wood waste and poultry manure to reduce them in an environmentally friendly way to a stable final product free of pathogens and plant seeds, and that can be applied to soil to improve its characteristics. In the study, researchers composted poultry manure with wood waste from a furniture manufacturer, small amounts of fabric scraps and other compounds that are difficult to separate from furniture scraps.

b. Results of their study indicated that composting could be an economical, simple, safe and viable option for disposal of wood wastes. Because of the small particle size, these types of compost are well suited as a soil additive in areas with low organic matter. Composting can get rid of the cellulose and toxins in wood that harm plant growth. Research is continuing with other types of manure and agricultural residues and uses for the composted material.

c. Hatch funds

d. State-specific

Key Theme - Hazardous Materials

a. Unused pesticides accumulate on farms, creating a potential danger to the environment. Mississippi does not have a facility licensed to dispose of hazardous wastes such as pesticides and disposing of these is expensive.

In an effort to protect the environment and eliminate these unused chemicals in part of the state, the Mississippi State University Extension Service held a waste pesticide collection in Sunflower County in conjunction with two environmental agencies. The cost of disposal was covered through a grant from the state Department of Environmental Quality. Eighty-six farmers from 22 primarily Delta counties brought 150,159 pounds of unusable crop chemicals to the collection site.

b. The event, the 40th of its kind in the state since 1994, saved Mississippi farmers more than $165,000 in disposal costs. Since 1994, these collections have safely disposed of almost 1 million pounds of pesticides. Organizers say the turnout shows that farmers truly care about protecting the environment.

c. Smith-Lever funds

d. State-specific

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)
- Wildlife & Fisheries (Youth Development; Socio-Economic Investigations of Fish and Wildlife)
- Youth Development (4-H)
- 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**
				21	
Agribusiness	0	0	0	114,052	
Children, Youth and Families at Risk	0	0	0	281,244	
Consumer Education	0	0	0	75,277	
Economic/ Community Development	0	0	0	147,536	

Financial Management	3	4	3	53,215	
Food and Food Products	0	0	1	17,249	
Forest Products	0	0	0	4,891	
Safety	0	0	1	58,941	
Wildlife and Fisheries	0	0	2	92,849	
Youth Development	0	0	4	434,542	
Youth Livestock	0	0	1	169,246	

No short-term goals were specified for goal 5. 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 - Family Resource Management

a. Investing can be intimidating for people who have never done it before. Recent turbulence in the stock market make it an even more daunting prospect.

The Neshoba County Extension Service was one of many Mississippi counties which started an investment club to educate residents on investment strategies and encourage members to invest their money. The Red Hills Investment Club was formed in 1996 with an initial 17 members, each committed to investing $25 a month with the goal of doubling their money in five years.

b. By March 2000, the remaining 12 members had each invested $1,100 for a club total of $13,200. The club reached their financial goal with a portfolio worth a little more than $26,000. In the process, members learned how to research companies and how to invest in the stock market, and gained confidence in their ability to grow their money.

c. Smith-Lever funds

d. State-specific

Key Theme - Workforce Preparation-Youth

a. Americans' trend of getting in debt is starting at young ages. Mississippi passed a law in 1999 requiring all high schools to teach personal financial management courses in hopes of reaching young people before they get in financial trouble.
The Mississippi State University Extension Service partnered with state and national organizations to train teachers in how to present the new financial management curriculum. Teachers were introduced to the program and shown innovative ways to teach the information. Mississippi is one of the first states to offer this training, which is an elective for the students.

b. In 2000, more than 250 Mississippi teachers completed the training, and more than 3,000 high schoolers have learned personal financial management skills. The goal of the training is to help young people better understand financial planning and set goals for themselves, recognizing the difference between wants and needs. Such training can change the course of lives, leading to more productive citizens.

c. Smith-Lever funds

d. State-specific

Key Theme - Leadership Training and Development

a. Gardens improve the beauty and value of the areas where they are placed, but many people today do not know how to create or maintain these.

The Master Gardener Volunteer Program started in Mississippi in 1993 and operates through the Mississippi State University Extension Service. It's goal is to enhance consumer horticulture through the efforts of trained, supervised volunteers who provide educational assistance to the public on lawns, fruits, vegetables, trees and ornamentals. In 2000, there were 27 Master Gardener programs in Mississippi counties.

b. Nearly 750 volunteers gave more than 22,500 hours in service to their respective counties. This contribution to Mississippi individuals and communities is valued at about $337,500. A Junior Master Gardener Program was also started to involve the state's youth.

c. Smith-Lever funds

d. State-specific

Key Theme - Youth Development/4-H

a. The 4-H program is designed to help youth improve themselves and develop leadership skills. The Mississippi 4-H program is made up of youth from kindergarten to 12th grade, and half the participants are from minority groups.

While it started as an agricultural organization, 4-H has changed with society and continues to meet needs of today's youth. New programs have been developed to meet the needs and interests of today's youth, including special needs youth.

b. Thanks in part to new programs involving an even wider range of youth, the 4-H program in Mississippi grew to more than 128,000 people in 2000, an increase of 27 percent. These youth learn vital skills that stay with them for the rest of their lives, and make them more productive and prosperous citizens.

c. Smith-Lever funds

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 under-served and under-represented groups, were determined. (Most of the advisory groups mentioned in the stakeholder input process are required to be representative of all potential clientele.)

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 2,954,583 total contacts made by Extension, 953,691 (32.3%) 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. In future years, it is expected that more information about the results and/or feasibility of these outcomes will be reported.

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

For the effectiveness part of the question, it is too early to tell whether most of the planned program in the Mississippi State University POW has been effective. More information will be available in future years to match against the intermediate- and long-term outcomes specified in the individual program plans.

The program efficiency has improved from the standpoint of providing a mechanism for researchers and extensionists to interact in the planning process. A required part of the joint planning process is the sharing of information between the two "camps." Further information regarding the efficiency of particular programs should be available at a later date.

E. Multistate Extension Activities

MSU-ES identified 17 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)

titution Mississippi State University
te Mississippi

eck one: __X_ Multistate Extension Activities
____ Integrated Activities (Hatch Act Funds)
____ Integrated Activities (Smith-Lever Act Funds)

e of Planned Program/Activity	**Actual Expenditures FY 2000**	**FY 2001**	**FY 2002**	**FY 2003**	**FY 2004**
thern Extension & Research Activities	67,195.54				
ney and You	5,873.56				
l-South Fair	13,221.89				
thern Reg. Middle Managers Conference	5,973.00				
thern Reg. Volunteer Leaders Forum	115,672.75				
gram Leadership Conference	40,495.01				
ional 4-H Congress	26,725.25				
State Ministers Meeting	6,509.05				
-LA Family Matters Conference	51,604.09				
nklinton Beef and Dairy Project	51,545.48				
man Project	12,959.98				
State Soybean Forum	31,871.53				
ta States Farm Management Group	1,181.62				
twide Cotton Conference	9,426.63				
thern Reg. Extension Animal Scientists	6,676.73				
thern Forage & Pasture Improve. Conf.	4,925.84				
ional Ext. Livestock Specialists Conf.	10,555.36				

al	**462,413.40**				

rm 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.

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. A tri-state in-service education session for pilot areas was held in September 1999, and a three-state-wide in-service education session via distance learning is planned for 2000 (with AR and LA).

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.

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. Stay on Track for a Healthy Future was the theme of the March 2000 conference. 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.

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 - Purpose: 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".

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.

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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titution Mississippi State University
te Mississippi

eck one: ____ Multistate Extension Activities
_X_ Integrated Activities (Hatch Act Funds)
____ Integrated Activities (Smith-Lever Act Funds)

e of Planned Program/Activity	Actual Expenditures FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
ibusiness	*				
f and Forage	259,761				
fish	*				
n	15,740				
ton	32,322				
ry	*				
d and Food Products	327,581				
est Products	*				
estry	*				
ticulture	117,063				
ltry and Products	*				
e	1,723				
ety	*				
beans	1,073				
ne	*				
dlife and Fisheries	*				
addendum for detailed program/activity)					
al	**755,263**				

lthough integrated programs exist in these areas, Hatch funds are not reported.

Integrated Activities (Hatch Act Funds)
Addendum to CSREES-REPT (2/00)
Fiscal Year 2000

Institution: Mississippi Agricultural and Forestry Experiment Station

Priority Planning Group: Individual Project	**Actual FY2000**
Beef and Forage:	
Beef Production Mgt Central MS	64,640
Beef Pro Mgt Animal Res Ctr - MS	44,044
Beef Production/Mgt North MS	114,399
Forage Pasture Crops-South Miss	12,425
Forage Crops Central Miss	6,691
Disease of forage grasses and grain	4,351
Forage Pasture Crops Env Quality	4,297
Forage Crops for Brown Loam	8,914
Subtotal Beef and Forage:	**259,761**
Corn:	
Improving Corn Production in MS	**15,740**
Cotton:	
Cotton Prod Systems for MS Delta	675
Dev/Eval of Insect Resistant Cotton	8,477
Insect Mgt & Control in Miss	11,606
Sys Soil Fertility Mgt for Row Crop	2,820
Weed Mgt in MS-Yazoo Delta	3,121
Control of Major Diseases of Cotton	5,623
Subtotal Cotton:	**32,322**
Food and Food Products:	
Dev New Cultivars/Cultural Practice	112,492
Dev for Vegetable Crops in South MS	27,656
Dev New Cultivars/Cultural Practice	21,523
Temperate-Zone Fruit Evaluation...	165,910
Subtotal Food and Food Products	**327,581**
Horticulture:	

Physiological & Cultural..Horticulture	15,532
Grow, Harvest, Process Sweetpotatoes	101,531
Subtotal Horticulture	**117,063**
Rice:	
Rice Weed Control in Mississippi	**1,723**
Soybean:	
Soybean Weed Mgt Progs in MS Delta	**1,073**
Total	**755,263**

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eck one: ____ Multistate Extension Activities
____ Integrated Activities (Hatch Act Funds)
_X_ Integrated Activities (Smith-Lever Act Funds)

e of Planned Program/Activity	Actual Expenditures FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
ribusiness	387,174.60				
f and Forage	288,624.99				
fish	71,862.72				
n	73,613.51				
ton	225,968.90				
ry	52,168.17				
d and Food Products	37,140.07				
est Products	36,467.68				
estry	433,066.92				
rticulture	591,804.37				
ltry and Products	53,976.15				
e	20,894.55				
ety	45,512.75				
beans	173,587.21				
ne	49,417.67				
dlife and Fisheries	109,008.42				
al	**2,650,288.10**				