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April 5, 2004

Mr. Bart Hewitt
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Dear Mr. Hewitt:

The 2005-2006 Extension of the 2000-2004 POW for 1890 Research and Extension Programs at the University of Arkansas at Pine Bluff is presented in the attached document. Eleven research, ten Extension and four integrated programs are planned for the extended period of time. Of these 25 programs, 12 continue from the 2000-2004 POW, two programs continue with modifications and 11 are new program areas developed in response to stakeholder input and evolving social and economic trends in the state.

Program descriptions for unmodified programs continuing from the 2000-2004 POW are not presented in the 2005-2006 extension, thus only program descriptions for new and modified program areas are included. Program descriptions for continuing programs remain as presented in the 2000-2004 POW or in subsequent POW revisions. Program areas are numbered consecutively in this document, therefore continuing program areas will have the same names as presented in the 2000 document, but may not have the same program number.

Procedures for Merit Review and Stakeholder Input remain as revised for the 2000-2004 POW.

Sincerely,

Jacquelyn W. McCray

Dean/Director

JWMcC/bjc

**IMPLEMENTATION OF PLANS OF WORK (POW)
UNDER THE AGRICULTURAL RESEARCH, EXTENSION, AND EDUCATION
REFORM ACT OF 1998 (AREERA)**

**Extended CSREES Plan of Work 2005-2006
University of Arkansas at Pine Bluff**

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April 1, 2004

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**IMPLEMENTATION OF PLANS OF WORK (POW)
UNDER THE AGRICULTURAL RESEARCH, EXTENSION, AND EDUCATION
REFORM ACT OF 1998 (AREERA)
Extended CSREES Plan of Work 2005-2006**

INTRODUCTION

The School of Agriculture, Fisheries and Human Sciences at the University of Arkansas at Pine Bluff (UAPB) is composed of three academic departments, the 1890 research and Extension programs, and the Aquaculture/Fisheries Center of Excellence. Research faculty are integrated into the academic units in agriculture and human sciences, while Extension personnel are under the direct supervision of associate Extension administrators. The Department of Aquaculture/Fisheries and the Aquaculture/Fisheries Center of Excellence are administered by a department head who is also the center director. Under this structure, academic faculty are integrated into the functions of the center of excellence through joint appointments that include academic, research and/or Extension responsibilities.

Research and Extension programs at the university provide information and assistance to small-scale farmers and limited-resource families designed to help them improve their living conditions. The formal research program at UAPB began in 1967 with \$16,980 in funds from CSRS:USDA. Since that time research activities have experienced steady growth due particularly to expanded federal funding and most recently state matching. Both federal and state funds are augmented by grant funds and special funds from CSREES and other USDA agencies.

The 1890 Cooperative Extension Program at UAPB, initially funded in 1972, delivers outreach education and technical assistance to limited-resource farmers and families. Eastern Arkansas is the primary beneficiary of Extension programs, but some programs are delivered statewide and other programs are expanding to new regions of the state. Program areas include family and youth development, livestock management, small farms, horticulture, and aquaculture/fisheries. Arkansas is the only major aquaculture producing state where leadership to the industry is provided by the 1890 institution and research and Extension programs are very closely networked. In the 2000-2004 Plan of Work (POW), this area is listed in a separate section of the Plan under the heading – Aquaculture/Fisheries research and Extension. All other research and Extension programs are less closely aligned and were presented under the heading – Agricultural, Community, and Family Programs. Because all Aquaculture/Fisheries programs continue as presented in the 2000-2004 POW and subsequent revisions, the Extended POW only includes new and modified program areas in Agriculture, Community and Family programs.

Stakeholder Input

Stakeholder input is a core component of all 1890 research and Extension programs. Means for acquiring input varies depending upon the nature of the research or Extension program and the diversity of relevant stakeholders. These may include local and state agencies, community groups, producers and other targeted audiences, as well as business and industrial groups.

Producer meetings, advisory groups, conference, and focus group discussions are major means for gaining input.

Our FY 2000-2004 POW described a stakeholder input process that, in light of structural differences in the departments and differences in audiences served, varied across departments and programs. This approach was taken because the clientele needs for research and Extension – in programs other than aquaculture are broad in scope, local in nature and geographically limited. While the Aquaculture Program provides research and Extension support for all aquaculture producers in the state, other programs support under-served and diverse audiences in a specific number of counties. The usual county-based stakeholder input process that is often the model used by other Extension organizations does not fit our staffing pattern. UAPB has never had county-based programs or staff. Our specialists in agriculture, family and community programs work with 1862 county agents, as requested, or organize clientele groups through community-based organizations, schools and the faith-based community. In all cases a single county is likely to benefit from only a single program area. Consequently, our initial stakeholder input plan required each program to develop its own input mechanism depending upon the nature of the program and the targeted clients. The university remains secure in its decision to vary stakeholder input methods by program area.

Because of concerns expressed by reviewers of our 2001 Report of Accomplishments, the following stakeholder input process was incorporated into the administrative structure of both research and Extension –

Stakeholder Input Requirements

1. Some formal mechanism shall be established to garner stakeholder input into the planning and implementation of any new research or Extension program. Such formal mechanisms may include –
 - a. Area-wide focus group meetings in the geographic area of the targeted program.
 - b. Structured survey of potential audience, commodity groups and other stakeholders.
2. An annual process shall be established to garner stakeholder input into the continued implementation of all ongoing research and Extension programs. Acceptable means of annual stakeholder input include –
 - a. Advisory committees composed of all relevant stakeholders.
 - b. Program task forces or coalitions that include program participants and community-based partners.

Results of initial stakeholder input shall be incorporated into the justification or need for the program section of all new research or Extension proposals. Annual accomplishment reports shall include the results of stakeholder input into ongoing programs as well as indications of how the input impacts program planning for future program activities and delivery.

The appropriate department heads and associate Extension administrators shall ensure that the requirements for initial and continuing stakeholder input are met.

Stakeholder input related to the 2005-2006 POW included discussions with producer groups in three areas of the state, meetings of program advisory committees and community-based

partners. The input received resulted in the redirection of the Livestock Management program (Extension) and replacement of the Minority Farmers (Research) program; the addition of four (4) new research programs (Genetic Improvement in Cowpea, Minimally Processed Value-added Products, Efficiency and Profitability of Hog Farms, and Predictors of Quality Child Care Programs); three new Extension programs (HACCP Training and Education, Environmentally Sound Crop Production, and Agriculture Awareness) and one integrated program in Water Quality Monitoring. Recent increases in state-matching funds and the deletion of two programs (Human Nutrition and Health and Integrated Pest Management) allowed this level of program expansion in response to stakeholder input. Despite this level of program expansion and redirection, the need for an Agricultural Products Marketing Program was identified by stakeholders, but is not addressed in this extended POW. It will become our highest priority for additional program expansion as funds become available.

Merit Review

Merit review is central to the University's goal of implementing quality programs that make a difference in the lives of people. Both research and Extension programs are monitored through the annual performance appraisal system to ensure adherence to this goal. Additionally, each department – Agriculture, Aquaculture/Fisheries, and Human Sciences – historically conducted separate reviews of research and Extension program proposals prior to their implementation. However, a new school-wide system for merit review of all programs was created and implemented September 1, 1999 and revised in 2002. The modified system maintains the departmental peer review for research proposals, but include an external merit review of all programs every three to four years. The new system also clarifies expectations for scientific productivity that is monitored annually. Each department or unit head is required to facilitate the review process and monitoring procedures.

Merit review in Extension programs includes inter- and intra-institutional assessments of program quality prior to the initiation of new programs and an annual review of program accomplishments during the annual performance appraisal process. Additionally, all programs are required to undergo an external merit review every three to four years either via a CSREES review or by external evaluators invited by university administration. The appropriate Associate Dean or Administrator is required to facilitate the review process. A CSREES program review was requested in 2003 and 2004, but the review has not been scheduled.

2005-2006 Plan of Work Programs

Since the 2000-2004 POW was approved, three research programs (Poultry Production and Management, Human Nutrition and Health, and Integrated Pest Management) and one Extension program (Farm Pond Management) were deleted as projects terminated and stakeholder input suggested a redirection of resources. These deletions occurred between 2001 and 2003. Two research programs (Sustainable Vegetable Production and Health Benefits of Probiotic Bacteria) and one Extension program (Recreational Fishing in the Delta) were added in 2003. These new programs and other programs from the 2000-2004 POW will continue into 2005-2006 POW.

Five new research programs and four new Extension programs and one new integrated program are being added in the 2005-2006 POW extension. All new programs in the plan were developed via consideration of stakeholder input, the background and training of faculty, and available resources. All programs in Aquaculture/Fisheries continue as presented in the 2003 update to the 2000-2004 plan, while all newly planned programs are in the Agricultural, Community and Family Section of the plan.

As this POW is an extension of the 2000-2004 plan and six (6) of the eleven (11) research programs and three (3) of the ten (10) Extension programs continue from the 2000-2004 plan, only new or modified programs are presented. For the 2005-2006 POW, a third functional category is added to the overview matrix. Programs are reported as either 1890 research programs, 1890 Extension programs or integrated 1890 research and Extension programs. Three (3) of the four (4) integrated programs continue from the 2000-2004 plan.

**OVERVIEW OF RESEARCH AND EXTENSION PROGRAMS
2005-2006 PLAN OF WORK BY GPRA GOALS**

Function	Goal 1	Goal 2	Goal 3	Goal 4	Goal 5
1890 Research Programs	<ol style="list-style-type: none"> 1. Crop protection systems (C) 2. Alternative crop production (C) 3. Minimally processed value-added products (N) 4. Efficiency and profitability of hog farms (N) 5. Engineering insect resistance in cowpea through gene transfer (N) 		<ol style="list-style-type: none"> 6. Herbs and vegetable production (C) 7. Health benefits of probiotic bacteria (C) 	<ol style="list-style-type: none"> 8. Small ruminant nutrition/management (C) 	<ol style="list-style-type: none"> 9. Socioeconomic impact of agricultural policy on minority- and limited-resource farmers (N) 10. Improving quality of life (C) 11. Predictors of quality child care programs (N)
1890 Extension Programs	<ol style="list-style-type: none"> 1. Adoption of new best management practices (N) 2. Beef herd improvement (M) 	<ol style="list-style-type: none"> 3. Nutrition education and wellness system (Food Safety) (C) 4. HACCP training and education (N) 	<ol style="list-style-type: none"> 5. Nutrition education and wellness system (Diet and Health) (C) 		<ol style="list-style-type: none"> 6. Recreational fishing in the Delta (C) 7. Family and youth programs (M) <ul style="list-style-type: none"> •Young Scholars •Grandparents raising children (N) •Parenting education •Child care training 8. Agriculture awareness (N) 9. Youth livestock program (N) 10. Small farm management (N)
Integrated 1890 Research and Extension Programs	<ol style="list-style-type: none"> 1. Sustainable vegetable production (C) 2. Catfish production and management (C) 3. Baitfish production and management (C) 			<ol style="list-style-type: none"> 4. Water quality monitoring (N) 	

(C) – Continuing from 2000-2004 POW
(N) – New to 2005-2006 POW
(M) – Modified in the 2005-2006 (POW)

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

**Goal 1 – Research Program 1 – Crop protection systems
(Continuing from 2000-2004 POW)**

Key Theme: Other – Pest Management

**Allocated Resources – CSREES Funding – \$229,162
State Matching – \$34,840**

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**Goal 1 – Research Program 2 – Alternative crop production
(Continuing from 2000-2004 POW)**

Key Theme: Agricultural Profitability, Plant Germplasm, Small Farm Viability

Allocated Resources – CSREES Funding – \$380,522
State Matching – \$34,840

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Goal 1 – Research Program 3 – Minimally processed value-added products

Key Theme: Adding Value to Agricultural Products

Statement of Issues. Agriculture is Arkansas' largest industry and provides the economic foundation for many communities in. While agriculture adds many positive effects to our state's economy, it is vulnerable to forces beyond the producer's control. In addition, consumers continue to demand new, ready-to-eat, ready-to-use types of fresh fruits and vegetables. Recently, value-added agricultural products have drawn producers' interest in the demands of the marketplace. Adding value to commodities can increase profitability, employment, and State reserves.

Additionally, growing awareness and concern for the security and safety of food products is of national interest. In recent years, there has been an increase in studies of how pre- and post-harvest processing technology and packaging technology can minimize pathogenic microorganisms in food products. Although none of these techniques can completely control and protect food products from microbial contamination, they can play a role in reducing the potential risk of growth of pathogenic microorganisms during processing.

Currently consumer interest in natural foods is increasing because of their occurring antimicrobial system. The application of natural products from plants, fruits, and vegetables in food products has a wide range of benefits and has been used and/or can be useful in extending shelf life of foods, reducing or eliminating survival of pathogenic bacteria, and increasing overall quality of food products. The future of naturally occurring antimicrobials derived from plants, fruits, and vegetables is being rapidly developed and used in a variety of foods. This research program area addresses each of these issues.

Performance Goals

1. To provide leadership in value-added product development for the state's fruits and vegetables farmers.
2. To increase economic viability and competitiveness of Arkansas farmers/producers in the marketplace and add higher value for Arkansas agriculture commodities.
3. To provide research-based information to help Arkansas' farmers develop value-added agricultural products.
4. To improve quality and safety in our food supply from farm to table.

Key Program Components

1. Identify producers' concerns and needs in development of value-added fruits and vegetable products.
2. Evaluate marketable new and traditional fruits and vegetables for value-added products.
3. Conduct literature reviews to select promising compounds for their antioxidant and antimicrobial functionality.

Key Program Components, continued

4. Determine a food product target as a value-added product and develop a technical protocol for bench sample.
5. Develop a research protocol to extract or concentrate the selected compounds from fruit and vegetables plants.
6. Conduct laboratory experiments to prepare value-added products.
7. Conduct laboratory experiment to screen selected antioxidant and antimicrobial functionality in food products.
8. Develop a multi-institutional project for further study.
9. Establish partnerships between the Department of Agriculture at the University of Arkansas at Pine Bluff (UAPB) and farmers for continuous research and further new product development.

Internal and External Linkages

1. Other faculty in the Department of Agriculture at UAPB, the University of Arkansas Cooperative Extension Service, and limited resource farmers/producers.
2. Multi-state cooperation with appropriate land-grant institutions engaged in similar research.

Target Audiences

Food ingredient companies, fruit and vegetable farmers/producers, and agri-business professionals, i.e. product wholesalers and retailers.

Evaluation Framework

1. Number of new value-added fruits and vegetables products developed.
2. Number of antioxidant and antimicrobial compounds extracted or concentrated by developed methodology.
3. Number of collaborative research programs on value-added products developed.

Output Indicators

1. Number of abstracts and presentations at the scientific annual meetings.
2. Number of peer reviewed publications.
3. Number of presentations to interest groups including fruits and vegetables farmers and producers and food ingredient companies.

Outcome Indicators

1. Number of new developed value-added agricultural products developed.
2. Number of partnerships with farmers and producers adopting UAPB's value-added product development technology.
3. Number of linkages and partnerships with other land grant institutions and private industries for collaborative research program.

Program Duration – Long Term

Allocated Resources – CSREES Funding – \$98,344

State Matching – \$124,529

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Goal 1 – Research Program 4 – Efficiency and profitability of hog farms

Key Theme: Animal Production Efficiency

Statement of Issues. In the past, swine production contributed significantly to the agricultural income of Arkansas and more than 1.8 million pigs were produced annually. Many of the hog farms in Arkansas were small and had other sources of income for survival. Over the last two decades, the number of small hog farms has declined significantly. Research is required to identify the factors responsible for the decline. How well an operation is managed from both financial and production management aspects determines the success of a swine enterprise. In addition to increased production/management efficiency, knowledge of other factors is required to be a successful hog producer. Small- and limited-resources farmers have to become more efficient – getting better at managing all the different facets of traditional hog farming to improve production techniques and competitiveness. Evaluation of management practices of the hog farmers will be useful in addressing the challenges and concerns of the small and limited-resource farm families. Through research and Extension activities, new technologies can be delivered to these underserved groups.

Performance Goals

The aim of the project is to clarify constraints related to hog production strategies to increase profits through improved management and feeding. The specific objectives are as follows:

1. To survey and evaluate the hog production practices for small, limited-resource farmers in Southeast Arkansas.
2. To develop market surveys and enterprise budgets that fit the small farm situation in Southeast Arkansas.
3. To identify and evaluate feeds used by hog farmers in Southeast Arkansas.
4. To identify and evaluate locally produced protein and energy feed ingredients for use by hog farmers in Southeast Arkansas.

Key Program Components

1. Descriptive research methodology to assess the management practices, financial burden/profitability, and marketing arrangements used by small, limited resources hog farmers in Southeast Arkansas.
2. Market survey to determine requirements for hog production, operational costs, description of quality standards and transportation costs.
3. Development of production profile that provides an early warning system to determine developing nutrition/health problems, clues to basic weaknesses in management and costs incurred by the producers.
4. Development of Enterprise Budgets to determine the best hog enterprise combination that maximizes net returns for a fixed amount of land, capital and management resources.
5. Performance studies using group-housed weaned pigs to evaluate feeds and feed ingredients.

Internal and External Linkages – Multi-disciplinary

1. Cooperation with UAPB Agricultural economic faculty
2. Cooperation with UAPB Agricultural education faculty
3. Cooperation with UAPB plant breeders

Target Audiences

1. Small- and limited resources hog farmers
2. Low-income families with interest in hog farming
3. Land owners
4. Agribusiness industry
5. General public with interest in hog farming

Evaluation Framework

1. Number of issues, emerging needs and programs for target audiences identified using pre- and post- research questionnaires, telephone surveys, personal interviews and direct structured observation
2. Post assessment to determine if the needs of target audiences have been met
3. Post assessment to determine if constraints related to hog production strategies have been addressed
4. Post assessment to determine if there is improved profits through improved management and feeding
5. Direct feedback from target audiences
6. Evaluation by faculty peers
7. Assessment of issues, emerging needs and programs

Output Indicators

1. Number of management practices identified
2. Number of problems and issues raised
3. Number of ways to address constraints related to hog production strategies
4. Development of cost-effective production strategies and the best alternatives for efficient and sustainable hog production
5. Development of market surveys and enterprise budget that fit the small farm situation in Southeast Arkansas
6. Identification of best hog enterprise combination that maximizes net returns for a fixed amount of land, capital and management resources
7. Number of publications and education materials through which research information is disseminated

Outcome Indicators

1. Number of farmers and/or families participating in programs and/or implementing changes in management techniques
2. Number of farmers with increased awareness of problems and improved knowledge and skills, and who modify behavior and adopt new techniques to address problems and issues

Outcome Indicators, continued

3. Amount of reduced production cost, increased production output, increased profits on hog

- farms and improve family incomes
4. Increased number of hog farms

Program Duration – Long Term

Allocated Resources – CSREES Funding – \$107,798
State Matching – \$135,603

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Goal 1 – Research Program 5 – Engineering insect resistance in cowpea through gene transfer

Key Theme: Biotechnology

Statement of Issues. Cowpea (*Vigna unguiculata* L. Walp.), an annual legume originated from Africa, is widely grown in tropical and subtropical regions including the southern United States. Cowpea grain contains about 25% protein especially rich in the amino acids lysine and tryptophan. In Arkansas, cowpea is mainly grown by small acreage farmers for fresh produce. Cowpea is heavily infested by insects such as weevils causing huge economic losses for small acreage farmers. Cowpea weevils are known to cause extensive damage to cowpea grain in storage; however they also infest the green pods while still in the field. Small farmers can not sell the infected pods in the farmers market. The use of insecticides is not an option as the fresh pods are used for consumption. Enhanced insect resistance in cowpeas through conventional breeding and/or biotechnology would benefit small-scale growers in Arkansas. However, currently, there are no cowpea cultivars that resist weevil's damage. Insertion of insect resistance genes, such as alpha-amylase inhibitor (α -AI-1), into cowpea through genetic engineering may prevent weevil damage in cowpea.

Performance Goals

1. Establish the most efficient regeneration protocol in cowpea for successful production of transgenic plants.
2. Produce transgenic plants with alpha-amylase inhibitor (α -AI-1) gene.
3. Confirm the transgenic nature of the regenerated plants using molecular techniques.
4. Test the resistance level(s) of transgenic plants against cowpea weevil
5. Provide the resistant transgenic plants for germplasm enhancement at UAPB and other institutions.

Key Program Components

1. Tissue culture of cowpea
2. Gene transfer through *Agrobacterium tumefaciens*
3. Molecular characterization of transgenic plants
4. Insect resistance assay

Internal and External Linkages

1. Plant biotechnologist from USDA-ARS, Northern Crop Science Laboratory, Fargo, ND
2. Plant biotechnologist from the University of California, Davis
3. Plant breeder and Plant Physiologist, Department of Agriculture, University of Arkansas at Pine Bluff

Target Audiences

Small acreage cowpea producers, limited-resource farmers

Evaluation Framework

The evaluation of this program will be based on the number of transgenic plants produced with insect resistant gene(s). Success of this program will be measured by the number of insect resistant transgenic plants available to farmers

Output Indicators

1. Identification of suitable regeneration medium
2. Identification of suitable cowpea cultivar for regeneration.
3. Establishment of gene transfer protocol in cowpea
4. Number of published abstracts
5. Number of research articles published in peer-reviewed journal
6. Number of presentations made at professional meetings
7. Number of presentations made at other meetings for interest groups

Outcome Indicators

1. Successful production of transgenic plants with insect resistant gene that resist cowpea weevil infestation.
2. Providing transgenic seeds to the cowpea breeding program for germplasm enhancement
3. Providing enhanced insect resistant cowpeas to the small acreage limited resource farmers in Arkansas for increased productivity

Program Duration – Long Term

Allocated Resources – CSREES Funding – \$108,848
State Matching – \$135,611

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Goal 1 – Extension Program 1 – Adoption of new best management practices

Key Themes: Innovative Farming Technologies, Precision Agriculture

Statement of Issues. In a stakeholders meeting on February 12, 2004, participants said “the lack of rapid adoption of new best management practices” is one of the factors that is likely to affect their row crop operations in the future. These farmers are like many others across the nation who are facing the dilemma of becoming efficient or perishing. This is especially true in the Limited-Resource Farmer (LRF) and Socially Disadvantaged Farmer (SDF) communities where the evidence can be found in the rapid decline of these farmers. One possible reason for the decline may be that LRF and SDF generally do not adopt new Best Management Practices (BMPs) rapidly. These practices include: Conservation Tillage, Integrated Pest Management, Site Specific Agriculture/Yield Mapping, Irrigation/Water Management, proper Nutrient Management and the use of Genetically Modified Organisms (GMOs). The lack of information and proof that the BMPs are profitable may be key reasons that BMPs are not adopted by LRF and SDF.

Nationally, Arkansas ranks first in rice production, fourth in cotton production, thirteenth in wheat production and ninth in soybean production. These cash crops (i.e. wheat and soybeans) are grown on substantial acreage owned by LRF and SDF farmers. The small profit margins in wheat and soybean production makes it difficult for farmers to cash flow. Demonstrations that show BMPs will be valuable teaching tools during field days and site visits by farmers to the University’s Pearlie S. Reed and Robert L. Cole Small Farm Outreach Wetland and water Management Center (SFO-WWMC). These demonstrations can provide incentives for farmers to adopt BMPs to enhance operations and increase income.

Performance Goals

1. The adoption of two or more BMPs by LRF and SDFs during a five-year period.
2. The development of enterprise budgets for wheat, soybeans and rice production that show differences in conventional production practices vs. BMPs.

Key Program Components

1. Demonstrations on conservation tillage
2. Demonstration on site-specific agriculture/yield mapping
3. Demonstration on liming and soil fertility
4. Demonstrations on irrigation techniques
5. Demonstrations utilizing GMO soybeans

Internal and External Linkages

1. Natural resources Conservation Service (NRCS)
2. NRCS – National Water Management Center (NRCS-NWMC)
3. NRCS – National Water and Climate Center (NRCS-NWCC)
4. U. S. Corps of Engineers – Memphis District

Internal and External Linkages, continued

5. U. S. Geological Survey
6. Arkansas Cooperative Extension Service
7. Arkansas Soil and Water Conservation Commission
8. Arkansas Geological Commission

Target Audiences

Limited Resource Farmers and Socially Disadvantaged Farmers serviced by the University of Arkansas at Pine Bluff as well as other farmers who attend field days and/or visit the SFO-WWMC.

Evaluation Framework

A survey will be given to LRF and SDF who attend field days to determine their interest in adopting BMPs. Comments and Feedback will be solicited from individuals and groups that tour the SFO-WWMC.

Output Indicators

1. The number of site visits by farmers
2. The number of participants that attend field days
3. Number of fact sheets developed
4. Annual reports
5. Number of presentations made at meetings for interested groups
6. Number of partnerships developed

Outcome Indicators

1. The number of farmers who see and adopt BMPs
2. Increased net farm profit by farmers using BMPs
3. Reduction in the rate of LRF and SDF loosing their farm
4. A reduction in pollutants that impair streams in the Arkansas Delta

Program Duration: Long Term

Allocated Resources – CSREES Funding – \$238,269
State Matching – \$451,278

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Goal 1 – Extension Program 2 – Beef herd improvement

Key Theme: Agricultural Competitiveness

Statement of Issues. Arkansas ranks fifteenth in the nation in beef production with 31,000 to 32,000 producers and better than 900,000 head of beef cows. The vast majority of these operations are cow-calf operations with the calves being sold at weaning. They are then moved out of state for backgrounding, feed out and slaughter. The vast majority of the state's herds are sideline operations to an off-farm job, other farming operations or they are a retirement vocation. Many limited-resource producers have expressed a need for information and help on breed selection, herd health, improved herd performance, marketing information and bull fertility. Improvements in these areas of the herd management program will improve the profitability and competitiveness of these herds by helping the producer market more calves that are heavier and have more market value.

Performance Goals

1. Improve the performance of selected herds in Arkansas through the use of herd performance records.
2. Improve the reproductive efficiency of selected herds in Arkansas through the use of herd inventory records.
3. Improve the reproductive efficiency of herds through Bull Breeding Soundness Exam Clinics.
4. Improve the market value of calves through breed selection.
5. Increase the number of calves sold and quality of calves sold through improved herd health.

Key Program Components

1. Use of Cow Herd Performance Program
2. Use of Herd Inventory Records – Field Book and Summary Forms
3. Work with agents on Bull BSE Clinics
4. Work with producers on breed selection and herd breeding programs
5. Work with producers on herd health programs
6. Work with producers on market value of feeder calves

Internal and External Linkages

1. UAPB Faculty and Staff
2. 1862 State and County Staff

Target Audiences – Beef cattle producers

Evaluation Framework

1. Use of performance records to monitor growth rate of calves within herds.
2. Use of herd inventory records to monitor reproductive efficiency within herds.
3. Use of records on herds to identify changes in herd health practices and changes in herd breeding programs.

Output Indicators

1. Number of herds using performance records and the results from using performance records.
2. Numbers of herds using Herd Inventory records and the results from using those records.
3. Number of Bull BSE Clinics and the results on the bulls tested.
4. Records on herds that change or modify their breeding programs.
5. Records on herds that change or modify their herd health programs.

Outcome Indicators

1. Increased performance of herds on test.
2. Increase in calves weaned per cow exposed.
3. Increase in relative market value due to breed selection and calf quality.

Program Duration – Intermediate Term – Performance Goal 5
Long Term – Performance Goals 1 – 4

Allocated Resources – CSREES Funding – \$145,522
State Matching –

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Goal 1 – Integrated Research and Extension Programs 1 – Sustainable vegetable production (Continuing from 2000-2004 POW)

Key Theme: Other – Sustainable Agriculture

Allocated Resources – CSREES Funding – \$427,406
State Matching – \$91,210

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Goal 1 – Integrated Research and Extension Programs 2 – Catfish production and management (Continuing from 2000-2004 POW)

Key Themes: Agricultural Competitiveness, Agricultural Profitability

Allocated Resources – CSREES Funding – \$968,200
State Matching – \$871,154

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Goal 1 – Integrated Research and Extension Programs 3 – Baitfish production and management (Continuing from 2000-2004 POW)

Key Themes: Agricultural Competitiveness, Agricultural Profitability

Allocated Resources – CSREES Funding – \$977,645
State Matching – \$912,187

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

**Goal 2 – Extension Program 3 – Nutrition education and wellness system (Food Safety)
(Continuing from 2000-2004 POW)**

Key Themes: Food Safety, Food Resource Management

Allocated Resources – CSREES Funding – \$27,240
State Matching – \$8,108
Other Funding – USDA-FNS – \$328,866

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Goal 2 – Extension Program 4 – Hazard Analysis and Critical Control Point (HACCP) training and education

Key Themes: HACCP, Food borne Pathogen Protection

Statement of Issues. Recent studies indicated a reduction in the prevalence of *Salmonella* in large meat and poultry plants after HACCP implementation. FSIS targeted extensive technical assistance to small and very small plants. However, small and very small meat and poultry plants would need guidance and assistance in the HACCP implementation since many are still not familiar with HACCP. HACCP technical assistance program for small and very small meat and poultry processors would not only improve the safety of their products, but also contribute to their economic viability. Workshops will be beneficial to personnel from small and very small meat and poultry processing plants, food service establishments such as restaurants and grocery stores, and the general public interested in HACCP and food safety.

Performance Goals

1. To provide HACCP training and education for personnel from small and very small meat and poultry processors, food service establishments, and the general public interested in HACCP.
2. To develop a Resource Center for HACCP training and education, and technical guidance and assistance to small and very small meat and poultry processors, food service institutes, and the general public.

Key Program Components

1. Submit a proposal regarding HACCP training and workshop for small and very small meat and poultry processors to U.S. Department of Agriculture/Food Safety and Inspection Service (USDA/FSIS).
2. Obtain assistance from FSIS to develop HACCP training and workshops at UAPB.
3. Contact small and very small meat and poultry processing plants, and possible food service institutes in Arkansas randomly by email or phone to determine their status in compliance with HACCP, and what their concerns and needs are related to HACCP in general.
4. Develop a HACCP Team, consisting of HACCP certified staff, faculty from at UAPB, and individuals with meat and poultry processing plant experience.
5. Develop the Resource Center for HACCP with food safety and HACCP training and educational materials from FSIS.
6. Visit small and very small meat and poultry processing plants if any plant requests assistance and consultation to review their HACCP implementation.
7. Develop and hold a HACCP workshop at UAPB for small and very small meat and poultry processing plants and any interested participants including food service institutes.
8. Submit a copy of the newly developed HACCP and food safety materials to the FSIS for publication and publicize resources including publications, fact sheets, video, and books.
9. Develop HACCP/food safety as a graduate level course at UAPB to support better career opportunity for Agriculture/Regulatory Science major students.

Internal and External Linkages

Faculty in the Department of Agriculture at UAPB, the Cooperative Extension Service, and HACCP experts from other universities, private industry, and federal agencies.

Target Audiences

1. Employees from small and very small meat and poultry processors, and food service institutions
2. The general public and students

Evaluation Framework

1. Number of small and very small meat and poultry plants certified by HACCP training and education at UAPB
2. Number of plants that come in compliance with FSIS/HACCP after participating in HACCP training

Output Indicators

1. Number of participants who learned how to develop HACCP plan for their plants
2. Number of any newly developed HACCP and food safety materials for training including publications and fact sheets
3. Number of training and education workshops conducted

Outcome Indicators

1. Increase in number of FSIS/HACCP certified small and very small meat and poultry processing plants.
2. Increase in number of HACCP based meat and poultry plants that produce safe and better quality products.
3. Number of ongoing HACCP/food safety related training and education programs.

Program Duration – Long Term

Allocated Resources – CSREES Funding – \$142,101
State Matching –

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National Goal 3. A healthy well-nourished population.

**Goal 3 – Research Program 6 – Herbs and vegetable production
(Continuing from 2000-2004 POW)**

Key Themes: Human Health, Human Nutrition

**Allocated Resources – CSREES Funding – \$312,676
State Matching – \$34,841**

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**Goal 3 – Research Program 7 – Health benefits of probiotic bacteria
(Continuing from 2000-2004 POW)**

Key Themes: Human Nutrition, Human Health

Allocated Resources – CSREES Funding – \$196,643
State Matching –

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**Goal 3 – Extension Program 5 – Nutrition education and wellness system (Diet and Health)
(Continuing from 2000-2004 POW)**

Key Themes: Human Nutrition, Human Health

Allocated Resources – CSREES Funding – \$81,721
State Matching – \$24,325
Other Funding – USDA-FNS – \$996,368

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

**Goal 4 – Research Program 8 – Small ruminant nutrition/management
(Continuing from 2000-2004 POW)**

Key Theme: Sustainable Agriculture

**Allocated Resources – CSREES Funding – \$275,677
State Matching – \$34,840**

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Goal 4 – Integrated 1890 Research and Extension Programs 4 – Water quality monitoring of swine waste treatment system and constructed wetland on the UAPB campus farm

Key Themes: Nutrient Management, Water Quality

Statement of Issues. Swine production has become one of the key United States agricultural enterprises in recent years. Over one hundred million hogs were produced in this country in 1998 (USDA, 1999). These hogs generate almost two hundred million tons of solid waste a year. Large amounts of swine waste cause environmental concerns such as greenhouse gas and odor emission, and potential nutrient contamination to surface and ground waters. Currently, the anaerobic lagoon is the most widely used technology for swine waste treatment in the southeastern region of the United States. Surface water quality from and odor associated with swine waste management is a key concern for many small farmers in the Southeastern and Midwestern United States.

Arkansas currently ranks seventeenth in the nation in swine production with the majority of farming operations occurring in the western side of the state. Counties with over 10,000 swine include Benton, Conway, Hempstead, Howard, Little River, Johnson, Madison, Montgomery, Perry, Pike, Polk, Pope, Sevier, Washington and Yell. In 1987 Arkansas farms (2,467 total) averaged 183 swine per farm (452,930 total). In 1997 the total number of farms decreased to 1,247, while the averaged swine per farm increased to 688 (858,741 total). The reason for the total number of farms decreasing, while the total number of swine almost doubling was the shift from small confined feeding operations to large corporate feeding operations.

Small swine farms persist in Jefferson County. In 1987 Jefferson County farms (19 total) averaged 33 head/farm (628 heads total). In 1997 the number of swine operations in Jefferson County decreased to six with an average of 42 swine per farm (250 head total). This decrease in small operations in Jefferson county may be related to the increasing price of feed coupled with the relatively low price received for selling swine at all stages. Another reason for the decrease may be related to the problems associated with compliance regulations for dealing with swine waste from these small confined feeding operations.

Performance Goals

Research Performance Goals

1. Monitor and validate long-term water quality (P, N) in a demonstration swine waste treatment system lagoon prior to sprinkler discharge.
2. Monitor the odor associated with the swine waste treatment system sealed septic tanks and surface lagoon.
3. Monitor and validate hill slope runoff water quality after major rain events,
4. Monitor and validate beginning and ending water quality associated with constructed wetland cells and varied aquatic plants both in the farm pond and wetland cells.
5. Model hill-slope runoff from the farm watershed using the APEX model (similar to EPIC).

Extension Performance Goals

1. Increase the numbers of small and minority farmers participating in technical assistance and training programs associated with swine waste treatment.
2. Reduce the rate of decline in small-scale and family hog farms.
3. Demonstrate viable water quality improvement alternatives for nonpoint-source pollution and a management alternative for small scale swine waste treatment.
4. Demonstrate odor management techniques associated with a small scale swine waste treatment system.

Key Program Components

1. Swine Waste Treatment System (with solid-liquid separator, settling basin, anaerobic lagoon and solid waste storage tanks)
2. Constructed Wetland Cells (with wetland vegetation)
3. Tall vegetation near the anaerobic lagoon (assists with odor control)
4. Water quality monitoring
5. Computer modeling of hill-slope runoff
6. Demonstration/outreach workshops

Internal and External Linkages

A close partnership has been forged with the Natural Resource Conservation Service (NRCS) and the NRCS National Water Management Center. Engineers with NRCS have played key roles in designing both the Swine Waste Treatment System and Constructed Wetland Cells. Also, animal science and regulatory science faculty are working together utilizing this Swine Waste Treatment System as a spring board for future research projects. We anticipate that partnerships will be forged with the Black Farmers and Agriculturalists Association of Arkansas as well as the Arkansas Farm Bureau.

Target Audiences

Small-scale and limited-resource swine farmers are the target audience. Local farmers that may want to start small scale confined feeding operations will be targeted as well.

Evaluation Framework

Outcome indicators identified for the project will serve as the basis for evaluating the project. Annual reports will record the progress of the project in meeting the project goals. Progress from year to year will provide a quantitative assessment of the projects effectiveness.

Output Indicators

1. Compile a water quality (P, N) data set for the UAPB Farm Pond and hill slope runoff prior to building the swine waste treatment system lagoon and sprinkler discharge.
2. Compile beginning and ending water quality associated with constructed wetland cells and varied aquatic plants both in the farm pond and wetland cells,
3. Develop hill-slope runoff model output for the farm watershed using the APEX model (similar to EPIC).

Output Indicators, continued

- 4. Conduct at least one Swine Waste Treatment System Outreach/Demonstration meeting each year.
- 5. Conduct at least one Farm Water Quality Improvement Outreach/Demonstration meeting each year.
- 6. Conduct at least one Swine Odor Outreach/Demonstration meeting each year.
- 7. Document the number of small, local and limited resource farmers that have been assisted with swine waste treatment, odor and/or water quality issues each year.

Outcome Indicators

- 1. Improved water quality in the UAPB Farm Pond with the use of the Constructed Wetland
- 2. Treat swine waste from the UAPB Farm in accordance with State Regulation Five of the Pollution Control and Ecology Department
- 3. Increased number of small and limited resource farmers that use swine waste treatment practices (odor, water quality, solid and liquid waste treatment) as a result in our demonstration and training.
- 4. Increased number of conservation practices utilized by swine farmers as a result of outreach and assistance provided by the project.

Program Duration – Long Term

Allocated Resources – CSREES Funding – \$321,255
State Matching – \$34,840

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

Goal 5 – Research Program 9 – Socioeconomic impact of agricultural policy on minority- and limited-resource farmers

Key Theme: Agricultural Financial Management

Statement of the Issues. Minority farm operations in the U.S. are declining at an alarming rate and the rate of decline in Arkansas is higher than the national rate. There is no systematic study of the socioeconomic impact of agricultural policy on minority and limited resource farms in Arkansas. A major finding of a previous project (The Economic Behavior and Status of Minority Farmers in Arkansas) was that minority farmers feel marginalized in the current agriculture system. They have problems accessing credit and agricultural programs aimed at supporting farmer's economic sustainability. This research will focus on agricultural policy and its application and how both affect minority and limited resource farmers. The findings of the project will be used to recommend policies and applications that will enhance the socioeconomic status of these farmers. The project will use research findings to make appropriate recommendations for action by the federal government and limited-resource and minority farmers that will empower them to enhance their socioeconomic status.

Performance Goals

The project will answer the following questions –

1. What factors affect production and consumption decisions of rural households in households?
2. What factors affect their participation in federal and state agricultural programs and how do these programs impact their incomes?
3. What is the level and type of interaction between farmers and state and federal agricultural agents?
4. What are the expectations/needs, experiences and perceptions of farmers about access to credit and other agricultural programs?
5. What are the farmers' perceptions and expectations of the farm bill?
6. What obstacles limit agricultural agents' ability to serve minority and limited-resource farmers?
7. What are the agricultural agents' perceptions, expectations of the farm bill?
8. What are the provisions of the farm bill and how do these affect limited-resource and minority farmers?
9. What policies would best enhance incomes of minority and limited-resource farmers?
10. What policy application methods would best serve minority and limited-resource farmers?

Key Program Components

1. Field surveys
2. Analysis of socioeconomic impact of agricultural policy

Key Program Components, continued

3. Perceptions of minority farmers regarding agricultural policies and their application
4. Perceptions of agricultural agents on policy application and service provision to minority and limited-resource farmers
5. Econometrics models and analysis
6. Applied microeconomic models
7. Qualitative analysis of focus group discussions data

Internal and External Linkages

The research project will be conducted in cooperation with the director of the university's Small Farm Project, county extension agents and other personnel in the 1890 and 1860 extension programs. The project will obviously require and use a great deal of input from farmers.

Target Audiences

The main focus of the study is limited-resource farmers in Arkansas. It will also involve agricultural agents in the state.

Evaluation Framework

The performance goals form the framework for evaluation. The following questions will be used to evaluate the study:

1. Did the project interview an adequate number of farmers and conduct 5 focus group discussions with them?
2. Did the project interview an adequate number of agricultural agents and conduct 3 focus group discussions with them?
3. Did the project present findings at research forums?
4. How many publications resulted from this study?
5. What recommendations were made to state and federal agricultural agencies?
6. Were the research findings and recommendations presented to the stakeholders (farm households and other interested parties) for feedback?

Output Indicators

1. Number of published journal articles
2. Number of presentations at professional conferences
3. Number of presentations at stakeholder and interest group forums
4. Number of presentations at other forums

Outcome Indicators

1. Number of changes in policy or policy applications recommended
2. Increased participation of minority and limited resource farmers in agricultural programs
3. Changes in production and consumption behavior of minority and limited resource farmers in response to greater awareness of agricultural policy
4. Increased access to credit and other programs by minority and limited resource farmers

Outcome Indicators, continued

5. Increased level of policymakers interest/attention to research findings
6. Changes in service provision to limited resource and minority farmers by state and federal agricultural agents

Program Duration – Intermediate Term

Allocated Resources – CSREES Funding – \$225,686
State Matching – \$34,841

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**Goal 5 – Research Program 10 – Improving quality of life
(Continuing from 2000-2004 POW)**

Key Theme: Other – Parental Involvement in Schools

Allocated Resources – CSREES Funding – \$80,234
State Matching – \$69,760

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Goal 5 – Research Program 11 – Predictors of quality child care programs

Key Theme: Child Care/Dependent Care

Statement of Issues. Many childcare centers are considered poor to mediocre in quality as determined by the environmental rating scales for centers and family daycare homes. Yet, many children spend six or more hours per day in such facilities. In the 15 counties that make-up Southeast Arkansas there are four centers (1.5% of the 269 operating facilities) that are accredited - an indicator of a quality center. The Arkansas Department of Human Services, Division of Child Care and Early Childhood Education license centers meeting minimum requirements, but minimum requirements do not speak to the issue of quality. Accreditation by the accrediting body of the National Association for the Education of Young children (NAEYC) denotes educational programs and facilities that exceed minimum requirements for licensing. The lives of children and families can be improved if the quality of childcare centers and day care family homes that care for children is improved.

Performance Goals

1. Identify childcare centers and family day care homes in Southeast Arkansas that are licensed by Arkansas Department of Human Services (DHS), Division of Child Care and Early Childhood Education, Child Care Licensing Unit.
2. Determine the perceptions of directors, teachers, and parents of quality childcare centers.
3. Identify indicators of quality based on scores received from environmental rating scales compared to childcare licensing requirements and NAEYC accreditation criteria.
4. Evaluate and rate the quality of childcare centers and family daycare homes using the environmental rating scale.
5. Identify barriers to improved quality in child care facilities.

Key Program Components

1. Survey the directors, teachers and parents to get their perception of a quality childcare center and family home and training needed.
2. Rate the centers in Southeast Arkansas using the environmental rating scales.
3. Compare the perceived quality of a center to the environmental rating scale.
4. Develop workshop and training based on needs identified by directors, teachers, etc.
5. Introduce the process of accreditation to childcare directors and teachers to determine the feasibility of obtaining accreditation for the childcare centers and family homes in the region.

Internal and External Linkages

1. Department of Human Sciences, UAPB
2. Arkansas Department of Human Services, The Division of Childcare and Early Childhood Education
3. Childcare centers and family daycare homes in Southeast Arkansas

Target Audiences

Directors, teachers and parents of children in childcare centers and family daycare homes in Southeast Arkansas.

Evaluation Framework

The success of this program will be determined by the levels of accomplishment on the outcome indicators.

Output Indicators

1. Number of presentations made at meetings for interest groups
2. Number of presentations made at professional meetings
3. Number of workshops/trainings given for target audience
4. Number of published abstracts
5. Number of journal articles published

Outcome Indicators

1. Increase number of centers that show improved quality ratings
2. Increase number of centers that apply for and receive accreditation
3. Increase number of training opportunities for childcare teachers and directors

Program Duration – Intermediate Term

Allocated Resources – CSREES Funding –
State Matching – \$183,454

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**Goal 5 – Extension Program 6 – Recreational fishing in the Delta
(Continuing from 2000-2004 POW)**

Key Themes: Tourism, Supplemental Income Strategies

Allocated Resources – CSREES Funding – \$117,875
State Matching – \$75,871

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Goal 5 – Extension Program 7 – Family and youth programs

Key Theme: Children, Youth and Families at Risk

Statement of Issues. Public officials and citizens in general in Arkansas continue to be concerned about the well-being of the state’s children and their families. More children are being raised today without the support and presence of a father in the home. As a result, many children will grow up with a deficit of the emotional and financial support they need to succeed. This is especially true of minority children. Forty-seven percent of the state’s minority children live in single parent homes. Sixty-three percent of these children live in neighborhoods where more than 35 percent of families are female-headed. Fourteen percent live with a grandparent. The vast majority of children in single-parent families are in female-headed households where they are more likely to be poor. In 1999, 53.9 percent of Arkansas’ minority female-headed families with children lived in poverty. Eleven percent of 16-19 year olds are high school dropouts; 12.9 percent are idle. That is they are not in school and not in the labor force. This group of young people is at risk of delinquency, crime, a life of inadequate workforce participation, and diminished opportunities for adult success.

The Extension family and youth programs address these myriad issues. The Young Scholars Program through parental and community support is designed to reverse the poor academic trends of low-income minority children. The Parenting and Grandparents Raising Grandchildren programs empower parents/grandparents and childcare professionals to enhance the growth and development of children and adolescents. *Teens on the Go*, a newsletter series for students in grades 7-12, is designed to strengthen the decision-making skills of youth.

Performance Goals

1. Increase the number of childcare professionals and low-income, minority parents/grandparents who adopt practices designed to create environments that enhance the intellectual, social, emotional and physical development of their children.
2. Increase the number of low-income, minority families who develop personal and management skills that will enable them to achieve economic and self-sufficiency.
3. Expand the number of minority students who succeed in mathematics and science.
4. Increase the number of teenagers who make personal decisions that stem the incidence of negative behaviors.

Key Program Components

1. Parenting education
2. Child development skills
3. Financial and resource management
4. Nutrition, diet and health
5. Job related skills, career and personal development
6. Math and science skills related to agriculture and family and consumer sciences
7. Decision-making skills

Internal and External Linkages

A number of partnerships have been formed with business and industry, local community organizations and institutions to provide support to the programs indicated above.

Target Audiences

1. Low-income minority children, ages 6-15 and their families
2. Parents
3. Grandparents raising grandchildren
4. Child care professionals
5. Teenagers in grades 7-12

Evaluation Framework

A number of methods will be used to evaluate the programs in this area. These will include pre- and post assessment, incomplete sentences, and a record keeping system for summarizing program activities and achievement of participants. A merit review of these programs will be conducted in the spring of 2006.

Output Indicators

1. Numbers of parenting and child development programs conducted for childcare professionals, parents and grandparents
2. Number of after-school programs conducted for low-income, minority children, ages 6-15
3. Number of low-income children participating in after-school programs
4. Number of programs conducted for parents enrolled in the Young Scholars Program
5. Number of teenagers reached through *Teens on the Go*
6. Number of educational experiences designed to promote social development and increase math and science skills among low-income minority children, ages 6-15
7. Number of childcare professional who implemented one or more of Extension's recommendations for best practices in working with children
8. Number of teenagers who read *Teens On the Go* and developed decision-making skills

Outcome Indicators

1. Improved performance in math and science by low-income, minority children
2. Increased number of childcare professionals, low-income parents and grandparents who report creating environments that enhance growth and development of children.
3. Increased number of low-income parents who demonstrate more efficient use of resources
4. Increase number of teens reporting using decision-making skills to steer them from negative behaviors

Program Duration – Long Term

Allocated Resources – CSREES Funding – \$510,579
State Matching – \$115,974
Other – \$94,536

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Goal 5 – Extension Program 8 – Agriculture awareness

Key Theme: Youth development

Statement of Issues. Arkansas is a diverse state that depends on a strong agricultural industry and agriculture is Arkansas' largest industry providing over \$5 billion a year in farm income. Roughly one half of the state's land is devoted to agriculture, and our climate and topography makes it well suited for production of a broad spectrum of commodities. Arkansas ranks first in the production of rice and baitfish; and second in the production of broilers and catfish. The state is also highly ranked in the production of turkey, cotton and soybean.

Although Arkansas depends on Agriculture, it is seldom taught in elementary or secondary schools. The fact that most children are two or three generations away from the farm, there is an increasing need for agricultural awareness. A center dedicated to teaching youth about agriculture was established on the University of Arkansas at Pine Bluff's research and demonstration farm in Lonoke, Arkansas. School children from rural and urban areas learn a variety of agricultural subjects through hands-on lessons at the center. The program also provides in-school visits to schools that may not be able to send children to the center.

Performance Goals

1. Increase awareness of agriculture among youth, especially school age children in Arkansas.
2. Promote awareness of the role of agriculture in Arkansas economy.

Key Components

1. Field trips
2. Hands-on instructions/lectures
3. Demonstrations
4. Short camps
5. Assessment and Evaluation

Internal and External Linkages

1. Cooperative Extension Service, University of Arkansas (major collaborating partner)
2. Department of Agriculture, University of Arkansas at Pine Bluff
3. Department of Aquaculture and Fisheries, University of Arkansas at Pine Bluff
4. Arkansas Farm Bureau, Little Rock, Arkansas
5. Public and private K-12 schools
6. Home schooled students

Target Audiences

1. K-12 school youth
2. Community youth groups

Evaluation Framework

The program will be evaluated comprehensively by reviewing the number of students involved in the program and the comments/suggestions received from students, teachers, parents, volunteers and other stakeholders of the program.

Output Indicators

1. Number of educational programs held at the center
2. Number of programs held in other parts of the state
3. Number of students and adults participating in agricultural awareness activities
4. Number of students attending fishing derbies and the Pizza Ranch and Insect Festivals
5. Poster presentations at regional, state, and local conferences and fairs

Outcome Indicators

1. The number of counties and schools participating.
2. Total number of youth visiting the center and participating in other program activities.
3. Level of community and parental support through volunteer work for the center.
4. Increased knowledge of the history and development of the state's agricultural industry.
5. Students, teachers and parents will have greater understanding of the food production and distribution system and its impact on the nation's economy.
6. Students will develop an appreciation for production agriculture that is environmentally friendly and preserves valuable natural resources.
7. Students will begin to appreciate the scientific and technical nature of modern agriculture.

Program Duration – Long Term

Allocated Resources – CSREES Funding – \$100,559
State Matching – \$92,172

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Goal 5 – Extension Program 9 – Youth livestock management

Key Theme: Youth Development/4-H

Statement of Issues. Youth (4-H and FFA) livestock projects are very popular in Arkansas. These projects encompass all species of domestic livestock. The culmination of many of these projects are competitive events such as district and state 4-H horse shows; county fairs, district fairs and the state fair; county, district and state 4-H O’Ramas; and, submission of 4-H record books on livestock projects. These events are excellent experiences for learning personal responsibility, sportsmanship and how to function and cooperate in group activities. On a more basic level, livestock projects teach youth about animal agriculture, they develop in the child respect and appreciation for animals and these projects expose youth to career opportunities.

Performance Goals

1. Conduct youth competitive livestock events
 - a. District 4-H Horse Show
 - b. District Livestock Show
 - c. State Fair Swine Shows
2. Chair 4-H Veterinary Science Project
3. Judge 4-H Record Books

Key Program Components

1. District 4-H Horse Show
2. Southeast District Fair
3. Arkansas State Fair
4. Arkansas 4-H Veterinary Science Project / 4-H O’Ramas
5. 4-H Project Record Books

Internal and External Linkages

1. UAPB Faculty and Staff
2. 1862 State and County Staff
3. University of Arkansas at Fayetteville, Southern Arkansas University and Arkansas State University Faculty, Staff and Students

Target Audiences

Youth (4-H and FFA)

Evaluation Framework

1. Maintain records on participation in the Southeast District 4-H Horse Show
2. Maintain records on participation in the Southeast District Fair
3. Maintain records on participation in the State Fair Swine Shows

Evaluation Framework, continued

4. Maintain records on participation in the 4-H Veterinary Science Project
5. Maintain records on the number of 4-H Record Books submitted in the areas of Swine and Veterinary Science

Output Indicators

1. Number of youth participating in the District 4-H Horse Show
2. Number of youth participating in the Southeast District Fair
3. Number of youth participating in the Swine Shows at the State Fair
4. Number of youth participating in the 4-H Veterinary Science Project
5. Number of 4-H Record Books submitted in the areas of Swine and Veterinary Science

Outcome Indicators

1. Increase level of participation at the District 4-H Horse Show
2. Increase level of participation at the Southeast District Livestock Show
3. Increase level of participation at the State Fair Swine Shows
4. Increase level of participation in the 4-H Veterinary Science Project

Program Duration – Long Term

Allocated Resources – CSREES Funding – \$145,522
State Matching –

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Goal 5 – Extension Program 10 – Small farm management

Key Theme: Agricultural Financial Management

Statement of Issues. In a survey taken by Socially Disadvantaged Farmers (SDF) in Eastern Arkansas, credit or access to credit was identified as the number one problem facing the SDF in Arkansas. SDF find it very difficult to obtain credit. The process of completing balance statements, making cash flow projections, and analyzing different enterprise budgets can be very difficult for the average SDF who has a high school diploma; and even harder for those who lack a high school education. Consequently, SDF need assistance with loan applications. Also, training and education in financial management is needed to help SDF in seeking credit.

The second major problem facing SDF as identified by the survey was the need to improve their land in order to increase yields. Land improvement practices include adding irrigation, land leveling, lime, and installing underground pipelines. It also involves using recommended crop production practices. Few SDF participate in Cooperative Extension Service (CES) programs and therefore most SDF don't follow CES recommendations.

SDF also identified the need to add alternative enterprises (vegetables, fruits, goats) to small farm operations as a major tool for the success and survival of their farming operations. However, to effectively add alternative enterprises to farm operations – markets, infrastructure, and in some cases labor will need to be identified. In addition, SDF must learn appropriate production practices for the alternative enterprises.

Performance Goals

1. To annually provide 100 SDF with training and education on loan packaging including education on financial statements, ratios, cash flow analysis, repayment ability, and breakeven analysis.
2. To help 25 SDF improve their land by providing information on USDA Programs that provide cost share assistance (50 to 75%) on practices such as irrigation, land leveling and installation of underground pipelines.
3. To assist 25 SDF in improving their land and yield by adding lime when needed and when possible using a USDA loan to apply the lime.
4. To provide Cooperative Extension Service crop production recommendation to 250 SDF in an effort to help improve farm yields.
5. To help three vegetable cooperatives build infrastructure by assisting the co-ops in developing proposals to obtain grading equipment and coolers.
6. To provide production assistance with alternative enterprises to ensure that SDF produce maximum yields.
7. To assist SDF who add alternative enterprises to identify markets.

Key Program Components

1. One-on-One Assistance
2. Workshops
3. Newsletters
4. Field Days
5. Tours
6. Field Visits
7. News Articles

Internal and External Linkages

The Small Farm Program will be working closely with the following groups: (1) UAPB Agricultural Department which includes the Economic, Agronomy, Animal Science, and Entomology Units; (2) the horticulture and livestock specialist in the UAPB Cooperative Extension Program; (3) the Risk Management Agency, the Natural Resource Conservation Service, the Farm Service Agency, and the Cooperative Extension Service; (4) the Arkansas Chapters of the Black Farmers and Agriculturalist Association; (5) the Silas Hunt Community Development Corporation; and (6) the Arkansas Land and Farm Development Corporation.

Targeted Audiences

The targeted audience includes the following farmers: (1) Socially Disadvantaged Farmers in Arkansas which include women, African Americans, and Hispanics; (2) Limited-Resource Farmers or those farmers classified as having gross sales less than \$100,000; total assets less than \$150,000 and operator household income less than \$20,000, and (3) Small Farmers or farms with less than \$250,000 annually in agricultural product sales.

Evaluation Framework

An evaluation form will be developed and administered to farmers receiving the different services offered by the program. These services include assistance in the following areas: loan applications, crop production, land improvement, cooperative infrastructure, and alternative enterprise production. The outcome from these evaluation forms will form the basis for evaluating the overall impact of the program. These data are charted from year to year and provide a quantitative assessment of the program's impact on management efficiencies, crop yields, and overall profitability of small-scale farm operations.

Output Indicators

1. The number of farmers assisted with loan applications.
2. The number of educational workshops sponsored.
3. The number of farmers that sign up for USDA cost share program to improve their land after being informed by extension associates about the programs.
4. The number of farmers that soil test after being informed by the extension associates.
5. The number of farmers that seek to apply lime after learning about the need.
6. The number of farmers that have an interest in diversifying with alternative enterprises after being informed about the feasibility of diversification.

Outcome Indicators

1. The number of SDF, LRF, and SF that receive loans and thus maintain their operation.
2. The number of SDF, LRF and SF who are aware of and use USDA cost share programs to improve land on their farms.
3. The number of SDF, LRF, and SF who soil test and make plans (USDA loans or other methods) to apply lime as recommended by soil test.
4. The number of SDF, LRF, and SF who increase yields as a result of assistance provided.
5. The number of SDF, LRF, and SF who consider and diversify with an alternative enterprise.
6. The number of cooperative that develop plans to built infrastructure.

Program Duration – Long Term

Allocated Resources – State Matching – \$144,614
Other – \$300,000

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**Summary of Total Resource Allocations (CSREES/State/Other)
1890 Research and Extension Programs
University of Arkansas at Pine Bluff**

	2005			TOTAL	2006			TOTAL
	CSREES	State	Other		CSREES	State	Other	
GOAL 1 – An agriculture system that is highly competitive in the global economy								
Research Programs								
1. Crop protection systems	113,447	17,247		130,694	115,715	17,593		133,308
Research SYs	2.94	.49		3.43	2.94	.49		3.43
2. Alternative crop production	188,377	17,247		205,624	192,145	17,593		209,738
Research SYs	4.03	.49		4.52	4.03	.49		4.52
3. Minimally processed value-added products	48,685	61,648		110,353	49,659	62,881		112,540
Research Sys		.81		.81		.81		.81
4. Efficiency and profitability of hog farms	53,365	67,130		120,495	54,433	68,473		122,906
Research Sys		1.23		1.23		1.23		1.23
5. Engineering insect resistance in cowpea through gene transfer	53,885	67,134		121,019	54,963	68,477		123,440
Research Sys		1.29		1.29		1.29		1.29
Extension Programs								
1. Adoption of new best management practices	117,955	223,405		341,360	120,314	227,873		348,187
Extension FTEs	2.44	4.36		6.80	2.44	4.36		6.80
2. Beef herd improvement	72,041			72,041	73,481			73,481
Extension FTEs	1.40			1.40	1.40			1.40

	2005			TOTAL	2006			TOTAL
	CSREES	State	Other		CSREES	State	Other	
Integrated Research and Extension Programs								
1. Sustainable vegetable production								
Research	61,711	17,247		78,958	62,945	17,593		80,538
Research SYs	1.91	.49		2.40	1.91	.49		2.40
Extension	149,876	27,906		177,782	152,874	28,464		181,338
Extension FTEs	4.92	.39		5.31	4.92	.39		5.31
2. Catfish production and management								
Research	224,821	267,461		492,282	229,317	272,810		502,127
Research SYs	3.76			3.76	3.76			3.76
Extension	254,486	163,803		418,289	259,576	167,080		426,656
Extension FTEs	3.81			3.81	3.81			3.81
3. Baitfish production and management								
Research	256,512	305,163		561,675	261,642	311,266		572,908
Research SYs	4.77			4.77	4.77			4.77
Extension	227,471	146,415		373,886	232,020	149,343		381,363
Extension FTEs	3.40			3.40	3.40			3.40
Goal 2 – A safe and secure food and fiber system								
Research Programs – NA								
Extension Programs								
3. Nutrition education and wellness system (Food Safety)	13,485	4,014	162,805	180,304	13,755	4,094	166,061	183,910
Extension FTEs		.13		.13		.30		.30

	2005			TOTAL	2006			TOTAL
	CSREES	State	Other		CSREES	State	Other	
4. HACCP training and education	70,347			70,347	71,754			71,754
Extension FTEs	.35			.35	.35			.35
Integrated Research and Extension Programs – NA								
Goal 3 – A healthy well-nourished population								
Research Programs								
6. Herbs and vegetable production	154,790	17,248		172,038	157,886	17,593		175,479
Research SYs	3.54	.49		4.03	3.54	.49		4.03
7. Health benefits of probiotic bacteria	97,348			97,348	99,295			99,295
Research SYs	2.10	.45		2.55	2.10			2.10
Extension Program								
5. Nutrition education and wellness system (Diet and Health)	40,456	12,042	488,416	540,914	41,265	12,283	507,952	561,500
Extension FTEs		.38	3.70	4.08		.38	3.70	4.08
Integrated Research and Extension Programs – NA								
Goal 4 – An agricultural system which protects natural resources and the environment								
Research Program								
8. Small ruminant nutrition/management	136,474	17,248		153,722	139,203	17,592		156,795
Research SYs	3.54	.49		4.03	3.54	.49		4.03
Extension Program – NA								

	2005			TOTAL	2006			TOTAL
	CSREES	State	Other		CSREES	State	Other	
Integrated Research and Extension Program								
4. Water quality monitoring								
Research	99,033	17,248		116,281	101,014	17,592		118,606
Research SYs	2.33	.49		2.82	2.33	.49		2.82
Extension	60,004			60,004	61,204			61,204
Extension FTEs	.19			.19	.19			.19
Goal 5 – Enhanced economic opportunity and quality of life for Americans								
Research Programs								
9. Socioeconomic impact of agricultural policy on minority- and limited-resource farmers	111,726	17,248		128,974	113,960	17,593		131,553
Research SYs	2.97	.41		3.38	2.97	.41		3.38
10. Improving quality of life	80,234	34,535		114,769	81,838	35,225		117,063
Research SYs	1.60	.30		1.90	1.60	.30		1.90
11. Predictors of quality child care programs		90,819		90,819		92,635		92,635
Research Sys		1.30		1.30		1.30		1.30
Extension Programs								
6. Recreational fishing in the Delta	58,354	37,560		95,914	59,521	38,311		97,832
Extension FTEs	.87			.87	.87			.87

	2005			TOTAL	2006			TOTAL
	CSREES	State	Other		CSREES	State	Other	
7. Family and youth programs •Young Scholars •Grandparents raising children •Parenting education •Child care training	252,762	57,413	46,800	356,975	257,817	58,561	47,736	364,114
Extension FTEs	8.16	1.77		9.93	8.16	1.77		9.93
8. Agriculture awareness	49,782	45,630		95,412	50,777	46,542		97,319
Extension FTEs		.82		.82		.82		.82
9. Youth livestock program	72,041			72,041	73,481			73,481
Extension FTEs	1.40			1.40	1.40			1.40
10. Small farm management		71,591	200,000	271,591		73,023	100,000	173,023
Extension FTEs		1.02	5.00	6.02		1.02	5.00	6.02
Integrated Research and Extension Programs – NA								
RESEARCH TOTAL	1,680,408	1,014,623		2,695,031	1,714,015	1,034,916		2,748,931
SYs	33.49	8.73		42.22	33.49	8.28		41.77
EXTENSION TOTAL	1,439,060	789,779	898,021	3,126,860	1,467,839	805,574	655,688	2,911,252
FTEs	26.94	8.87	8.70	44.51	26.94	9.04	8.70	44.68