

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

**5-YEAR PLAN OF WORK
2000 – 2004**

**Jacquelyn W. McCray, Ph. D.
1890 Cooperative Extension Program
1890 Research Program
University of Arkansas at Pine Bluff**

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5-YEAR PLAN OF WORK 2000-2004

INTRODUCTION

The School of Agriculture, Fisheries and Human Sciences at the University of Arkansas at Pine Bluff (UAPB) is composed of three academic departments and the 1890 research and Extension programs.

The main thrust of research and Extension programs at the university is to provide the necessary information and assistance to small scale farmers and limited-resource families in Arkansas, which will ultimately help them improve their living conditions. The formal research program at UAPB began in 1967 with \$16,980 in formula funds from CSRS:USDA. Since that time research activities have experienced steady growth due particularly to expanded federal funding. Current research studies are conducted in agricultural economics, aquaculture/fisheries, family life, human nutrition and health, plant science, and poultry science.

The 1890 Cooperative Extension Program at UAPB delivers outreach education and technical assistance as needs exist for specific program priorities. Program areas include economic and community development, family and youth development, livestock management, small farms, and aquaculture/fisheries. Since Arkansas is the only major aquaculture producing state where leadership to the industry is provided by the 1890 Extension program, research and Extension programs are very closely networked. Plans of work in this area are listed in a separate section of the report under the heading – Aquaculture/Fisheries research and Extension. Plans of work for all other research and Extension programs are presented first under the heading – Agricultural, 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, local advisory groups, conferences, and focus group discussions are major means for gaining input. Specific means of gathering stakeholder input for the various programs are presented in the narrative for each program area.

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 has been created and will be in place by September 1, 1999. The system modifies the current research peer review system to include a review by an outside scientist,

knowledgeable in the proposed research area, as well as the school-wide peer review committee. The new system also clarifies expectations for scientific productivity that will be monitored annually.

Merit review in Extension programs will include 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 will undergo an external merit review every three to four years either via a CSREES review or by external evaluators invited by University administration. Each department or unit head is required to facilitate the review process.

OVERVIEW OF RESEARCH AND EXTENSION PROGRAMS BY GPRA GOALS					
Function	Goal 1	Goal 2	Goal 3	Goal 4	Goal 5
1890 Research Programs	<ol style="list-style-type: none"> 1. Poultry production and management 2. Crop protection systems 3. Alternative crop production 4. Catfish production and management 5. Baitfish production and management 		<ol style="list-style-type: none"> 1. Herbs and vegetable production 2. Human nutrition and health 	<ol style="list-style-type: none"> 1. Integrated pest management 2. Small ruminant nutrition/management 	<ol style="list-style-type: none"> 1. Economic behavior of minority farmers 2. Improving quality of life
1890 Extension Program Projects	<ol style="list-style-type: none"> 1. Small farm/ Horticulture management 2. Livestock management 3. Catfish production/management 4. Baitfish production/management 	<ol style="list-style-type: none"> 1. Nutrition education and wellness system (Food Safety) 	<ol style="list-style-type: none"> 5. Nutrition education and wellness system (Diet and Health) 	<ol style="list-style-type: none"> 5. Farm pond management and irrigation reservoirs 	<ol style="list-style-type: none"> 5. Family and Youth Programs <ul style="list-style-type: none"> •Extension 5 (Juvenile crime prevention) •Adolescent pregnancy prevention •Drug abuse prevention •Parenting •Child care training

PART I – AGRICULTURAL, COMMUNITY, AND FAMILY PROGRAMS

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

Research Programs 1, 2, and 3 (For programs 4 and 5, see Part II – Aquaculture/ Fisheries Research and Extension Section)

Research Program 1 – Poultry Production and Management

Statement of Issues

The poultry industry in the U. S. is vertically integrated and highly competitive. Arkansas ranks second in the nation in broiler production and sixth in table egg production. The industry is the largest tax payer in Arkansas. In order to avoid duplication of research, researchers at the Fayetteville (UAF) campus conduct research extensively with broilers, while researchers at the Pine Bluff campus (UAPB) conduct research with commercial layers. Currently, fewer than 100 companies control over 50% of nation's egg supply. The highly competitive cost structure of the industry has given these large companies a competitive advantage over smaller companies. Economic success is more difficult to obtain for smaller producers both nationally and in the state. Poultry research at UAPB focuses on improving biological efficiency of egg-type chickens through management. Success will ultimately improve the economic viability of limited-resource farmers. A small improvement in production efficiency through proper management can have a large impact on total farm profits.

Performance Goals

1. Increase number of alternative poultry management practices that improve production efficiencies
2. Increase number of poultry producers that utilize caged systems and other alternative management practices for producing commercial layers

Key Program Components

1. Management oriented field trials with egg-type chickens
2. Laboratory analyses of interior and exterior egg qualities
3. Determination of the duration of induced tonic immobility as a criterion of fearfulness

Internal and External Linkages

1. Consultation with Small Farms project personnel
2. Consultation with 1890 Extension livestock specialist
3. Cooperation and consultation with poultry scientists at UAF

Target Audiences

1. Limited-resource farmers in Arkansas
2. Egg producers, researchers, and Extension agents

Evaluation Framework

The overall evaluation of the project's success will be captured through an assessment of the number of alternative management practices identified that can increase the production efficiencies of caged layers. Increasing the number of farmers utilizing identified management practices is the ultimate indicator of the project's effectiveness; however, this type of assessment and information delivery must be accomplished via partnership with Extension and technical assistance programs.

Output Indicators

1. Number of abstracts published
2. Number of journal articles published
3. Number of articles published in proceedings
4. Number of articles published in any other publication media
5. Number of presentations made at professional meetings
6. Number of presentations made at any other meetings for interested groups

Outcome Indicators

1. Utilization of best management practices that increase the production efficiency of caged layers
2. Decrease in production cost resulting in higher gross income from layer operations

Program Duration – Intermediate term

Allocated Resources – \$533,630

Stakeholder Input

Stakeholder input will be obtained from meetings with limited-resource farmers through the Small Farm program at the University. Input will also be obtained from individuals and focus groups attending the annual UAPB Rural Life Conference.

Research Program 2 – Crop Protection Systems

Statement of Issues

Limited-resource farmers and commercial hobby farmers in Arkansas generally do not have integrated pest management programs (IPM) for the production of vegetables. These farmers are often limited, by licensing safety requirements, in their ability to purchase and apply “restricted-use insecticides.” Over-the-counter insecticides often do not adequately control pest insects in vegetables when not used in an IPM program.

Performance Goals

1. Develop vegetable (slicer and green tomatoes) IPM programs for limited-resource farmers using general-use insecticides. The IPM program will produce higher fruit yields than using no insecticides, be less environmentally damaging, and yields similar as if using restricted-use insecticides.
2. Determine the amount yield loss caused by insects in late-season Brassica greens and develop IPM control methods which will prevent yield loss due to insect damage.

Key Program Components

1. Evaluation of IPM strategies for the control of pest insects in tomato production
2. Comparison of different IPM systems using both biological insecticides and chemical insecticides
3. Determine if insects impact the quality and/or production of Brassica greens in the fall
4. Determine the profit potential by the production and selling of vegetables (tomato and greens) in the local markets

Internal and External Linkages

Cooperation with the entomologists at the University of Arkansas (UAF) will continue as in past years. UAF entomologists have been included as investigators on research projects and co-authors on publications.

Target Audiences

Limited-resource farmers and hobby farmers who produce vegetables on small acreages

Evaluation Framework

The context of program evaluation will use a framework based on comparisons of whether the resulting IPM programs developed are more effective than using no insecticides or a regular spray schedule. In addition, evaluation will be based on whether the resulting recommendations will produce higher yields than the common standards (i.e. standard varieties or standard insecticides), be less environmentally damaging, or have an economic advantage.

Output Indicators

1. Number of abstracts published
2. Number of journal articles published
3. Number of articles published in proceedings
4. Number of articles published in any other publication media
5. Number of presentations made at professional meetings
6. Number of presentations made at any other meetings for interested groups

Outcome Indicators

1. Increased dependency on IPM systems that produce yields at the same levels as using restricted-use insecticides.
2. More use of biological insecticides in IPM programs
3. Lower application of chemicals to crops thus reducing potential ground water contamination and air quality problems.

Program Duration – Intermediate term

Allocated Resources – \$303,330

Stakeholder Input

Efforts will be made to attend periodic Extension meetings with limited-resource farmers to listen to their concerns about insect pest management problems in vegetables. Close contact will be maintained with UAF vegetable researchers and Extension specialists to learn of vegetable pest problems occurring in the state. Contacts with the other entomologists in the state will be maintained by attending the annual Arkansas Entomological Society meeting.

Research Program 3 – Alternative Crop Production

Statement of Issues

Small farmers account for most of the agricultural producers in the U. S. while larger farmers account for most of the farm sales. Small farmers sell less than other farmers. This imbalance creates serious financial problems for small limited-resource farmers. Because of the small profit margin on traditional row crops, most limited-resource farmers are having severe financial problems. Additionally, farm programs and production technologies tend to favor the larger farmers.

Performance Goals

1. Develop alternative agricultural production practices that increase income
2. Identify improved agricultural production practices for southern peas, greens, and sweet potatoes
3. Identify additional varieties of southern peas that are suitable to the small farm situation
4. Develop enterprise budgets that fit the small farm situation
5. Increase overall profitability of small-scale and limited-resource farmers

Key Program Components

1. Genetic breeding/selection
2. Economic analysis of vegetables vs. traditional row crops
3. Agronomic studies – level of fertilizer/chemical application, soil-type, date of planting, and rate of seeding

Internal and External Linkages

In state

1. University of Arkansas – Fayetteville (planting/breeding/genetics)
2. Small Farm Project, Extension Program, University of Arkansas at Pine Bluff
3. Arkansas and adjoining state companies that purchase products from small limited-resource farmers
4. Small limited-resource farmer cooperatives
5. The Arkansas Land and Farm Development Corporation
6. The Black Farmer's Association, Arkansas

Target Audiences

Small and/or limited-resource farmers

Evaluation Framework

The program will be evaluated within the context of its impact on limited-resource farmers. The major evaluative criterion will be the number of limited-resource producers adopting new production and management practices.

Output Indicators

1. Number of abstracts published
2. Number of journal articles published
3. Number of articles published in proceedings
4. Number of presentations made at professional meetings
5. Number of presentations made at any other meetings for interested groups

Outcome Indicators

1. Increased number of farmers that adopt alternative agricultural production practices
2. Increased number of farmers that increase income by adopting alternative production practices
3. Increased reliance of farmers on enterprise budgets that fit the small-farm situation

Program Duration – Intermediate term

Allocated Resources – \$782,315

Stakeholder Input

The Small Farm Project provides agricultural research/Extension to 200-300 small limited-resource farmers in Arkansas. Faculty in the Department of Agriculture meet regularly with this group to discuss specific needs of small limited-resource farmers in Arkansas. Farmers indicate that their major constraints include – the acquisition of capital, decreasing output prices, and the need for enterprise budgets for vegetables (i.e. southern peas, greens, and sweet potatoes) that fit the small farm situation in the mid-South.

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

Extension Programs 1 and 2 (For programs 3 and 4, see Part II – Aquaculture/Fisheries Research and Extension Section)

Extension Program 1 – Small Farm/Horticulture Management

Statement of Issues

The number of small and minority farms in the Arkansas Delta is rapidly increasing. Many of these small farms are owned by families who lack adequate economic, technical or social resources to maintain viable operations. These facts threaten the economic livelihood and land ownership of many farm families and prevent the establishment of new farms by small-scale and non-traditional producers.

The majority of small and minority farms in the Delta produce traditional row crops. Traditional row-crop production presents challenges for small-farm operators for a number of reasons. These commodities are more economically produced by large-scale operations. In order to survive and be competitive in today's environment, small-scale operations must be highly efficient in production and management practices, cater to specialized markets, and their owners/managers must be informed about emerging agriculture technologies and trends.

Performance Goals

1. Increase number of small and minority farmers participating technical assistance and training programs
2. Increase number of small-scale producers successfully completing USDA loan applications
3. Increase number of small-scale producers employing risk management strategies
4. Reduce the rate of decline in small-scale and family farms

Key Program Components

1. Loan assistance
2. Financial planning
3. Risk management education
4. Crop production assistance
5. Marketing assistance
6. Field days and production meetings

Internal and External Linkages

The Small Farm Program works closely with the Agriculture Department, the Aquaculture/Fisheries Department, and the Economic Resource and Development Center (ERDC) – an outreach unit in the School of Business, UAPB. Partnerships have been formed with the Natural Resource Conservation Service (NRCS), Farm Service Agency (FSA), Rural Development (RD), The Cooperative Extension Service (CES), Arkansas Land and Farm Development Corporation (ALFDC), and the Monsanto Company. Partnerships have also been formed with other 1890 institutions including Alcorn State

University, Kentucky State University, Tennessee State University, Southern University, Lincoln

University, and Langston University. A partnership was also formed with the Black farmers and Agriculturalists Association of Arkansas.

Target Audiences

Small-scale and limited-resource farmers

Evaluation Framework

The outcome indicators identified for the program will form the basis for evaluating the overall impact of the program. Annual reports capture the status of all farm operations receiving technical assistance and management support from the project. 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. Number of educational meetings conducted on production, marketing, and labor needs of alternative crops
2. Number of educational meetings conducted on production, marketing, and economics of traditional row crops
3. Number of small-scale and minority farmers assisted with vegetable and row crop production
4. Number of educational meetings conducted on financing farm operations, completing loan applications and buying land
5. Number of small and minority farmers assisted with loan applications, record keeping and year-end analysis
6. Number of small and minority farmers informed about various USDA conservation and commodity programs
7. Number of small and minority farmers assisted with risk management education

Outcome Indicators

1. Increased number of small-scale and minority farmers receiving loans as a result of assistance
2. Increased number of small-scale and minority farmers adding alternative crops to their operations
3. Increased number of small-scale and minority farmers adopting new traditional row crop production and culture practices as a result of training provided
4. Increased number of small-scale farmers using risk management strategies
5. Increased number of small-scale and minority farmers who improve income as a result of training provided by the project
6. Increased number of small-scale and minority farmers who use various USDA programs participating in non-formal programs

Program Duration – Long term

Allocated Resources – \$2,232,265

Stakeholder Input

Advisory committee and clientele input are the major means of securing stakeholder input. The advisory committee consists of small and minority farmers, representatives from the NRCS, FSA, ALFDC, CES, and the UAPB Agriculture Department.

Extension Program 2 – Livestock Management

Statement of Issues

Livestock Management – Beef. Arkansas ranks fifteenth in beef cattle production in the nation. The Arkansas beef industry is basically a cow-calf business with all the calves moving west for backgrounding, feed out, and slaughter. A closer examination of the industry indicates the average herd was about 30 cows – a one bull unit operation. These operations are also side line operations to another job, a side line to other farming operations, or a retirement occupation for some.

Livestock Management – Swine. In 1995, 1.8 million hogs were sold from 2,800 farms in Arkansas. During this period of time the number of head sold per farm increased 450% and the number of hog farms decreased by 56%. Current estimates indicate that 90 to 95% of these swine are grown under contract on the west side of the state. However, a small independent swine industry still exists throughout the state. A small-scale swine unit is to be developed on the UAPB campus as a low-cost, low-input, low-intensity demonstration unit that will not be subject to liquid animal waste permit requirements. This facility will demonstrate use of a low-input swine production system that has potential adaptability to small-scale diversified farming operations.

Performance Goals

1. Increase the number of herds participating in bull soundness clinics
2. Improve profit margin of producers through adaption of herd management practices
3. Increase the number of small-scale and limited-resource farmers adapting pasture-based systems for swine production

Key Program Components

1. Beef herd management
2. Swine production systems

Internal and External Linkages

The 1890 Extension livestock management specialist will collaborate with the 1862 unit to present a unified cattle management program to the Arkansas beef producers. A partnership exists with the Arkansas Land and Farm Development Corporation in swine production.

Target Audiences

1. Small farmers – those with income less than \$250,000 and especially small limited-resource farmers – those with income of \$20,000 and less
2. Minority and other under served farmers
3. 1862 Cooperative Extension agriculture agents
4. Beef and swine producers
5. State/federal agencies and private industry involved in swine and cattle production

Evaluation Framework

Evaluation of program effectiveness will be based on an analysis of data related to the performance goals. Such data will include level of participation in field days and production meetings and clinics, number of new management practices adopted, and number of new beef and/or swine enterprises incorporated into the farming operations of target audience.

Output Indicators

1. Total number of non-formal programs conducted in beef cattle and swine production
2. Total number of Extension publications developed
3. Number of farmers adopting low-input swine production practices
4. Number of farmers adopting new beef management practices

Outcome Indicators

1. Improved beef and swine production practices
2. More diversity in animal enterprises on small-scale and family farms
3. Increase number of youth participating in beef and swine FFA and 4-H activities

Program Duration – Long term

Allocated Resources – \$483,261

Stakeholder Input

Stakeholder input is obtained via farmer forums and meetings with partner groups, county agricultural Extension agents, and small farm advisors.

GOAL 2. A safe and secure food and fiber system

Research Programs – None

Extension Program 5 – Nutrition Education and Wellness System (Food Safety)

Statement of Issues

Food-borne illnesses are a major health and wellness problem. Consumer mishandling of food during storage and preparation contributes to millions of cases of food-borne illnesses annually. This is especially true of low-income families. A comprehensive program on food safety education can prevent contamination which causes food-borne illnesses.

Performance Goals

1. Increase number of participants who practice food safety measures in the selection of foods and food outlets to ensure that products purchased met food quality/safety standards
2. Increase number of participants who practice food safety measures in handling foods during storage, meal preparation, and service

Key Program Components

1. The FF NEWS curriculum (A comprehensive and culturally sensitive nutrition education program)
2. Food preparation demonstrations
3. Small group educational programs
4. Grocery store and other tours
5. Quarterly newsletters and fact sheets
6. Video presentations and role playing
7. Nutrition-based games and puzzles

Internal and External Linkages

The FF NEWS (Families First Nutrition Education and Wellness System) program is a multi-state partnership involving the University of Arkansas at Pine Bluff, Southern University (Louisiana), Langston University (Oklahoma), Prairie View A&M University (Texas), South Carolina State University, and Lincoln University (Missouri). It is designed to help food stamp recipients and other low-income families select and prepare meals consistent with their cultural traditions while improving their family's overall health.

Other partnerships include the Department of Human Services, 1862 Cooperative Extension, Employment Security Division, Department of Health, Job Training Partnership, faith-based organizations, Area Agency on Aging, and business and industry.

Target Audiences

Food stamp recipients and other low-income households in eight Arkansas counties.

Evaluation Framework

Evaluation is continuous throughout the FF NEWS program. In addition to the pre- and post-test of participant's knowledge of food safety and handling skills, a general assessment of knowledge gained during each instructional encounter is obtained via open-ended survey items and a short evaluation check list. Data collection is an integral component of the program and address the desired outcomes in the behavioral objectives. Each quarter the program will develop a compilation of evaluation data. These data will provide the foundation for assessing effectiveness and will be incorporated in quarterly and annual reports. A qualitative assessment of impacts of the program will be derived from an analysis of participant's scores on pre- and post-tests, while evaluation check list and intermittent surveys will provide an impression of participant satisfaction.

Output Indicators

1. Number of food stamp recipients participating in the FF NEWS module on food safety education
2. Number of food alliances and coalitions formed
3. Number of fact sheets and newsletters developed for low-income households that promote food safety education
4. Number of educational programs conducted for food stamp recipients on reducing food-borne risks and illnesses

Outcome Indicators

1. Number of low-income participants who engage in safe food storage and preservation practices
2. Number of low-income participants who practice food safety measures in handling foods during meal preparation and service
3. Number of clientele who exercise care in the selection of foods and food outlets to ensure that products purchased meet food quality/safety standards
4. Number of partnerships developed with other agencies with responsibilities for food safety education

Program Duration – Long term

Allocated Resources – \$272,250

Stakeholder Input

Coalitions are formed in each county where the program is implemented. The coalitions assist in identifying target areas and program participants and program implementation and evaluation strategies. A number of ways were used to identify stakeholders to ensure that diversity is achieved. Contacts were made with individuals who are knowledgeable about the community. Recommendations were sought from

key leaders of various racial and ethnic groups. Throughout the year a file of news articles are maintained that showcase potential stakeholders. Meetings are held at times stakeholders can participate. Stakeholders on the coalitions represent an appropriate cross section of the impacted clientele and communities.

Merit Review

In addition to the structured merit review process for the 1890 Extension Program, this program is reviewed periodically by the USDA Food and Nutrition Service and the Arkansas Department of Human Services.

GOAL 3. A healthy, well nourished population

Research Programs 6 and 7

Research Program 6 – Herbs and Vegetable Production

Statement of Issues

Disadvantaged rural and urban populations, especially the minorities suffering from physiological problems of health such as hypertension, diabetes, obesity, arthritis, need help in improving their quality of life. Nutritional intervention through introduction of alternative food constituents such as special kind of vegetables and spices may alleviate the problems. Research is required to identify suitable species/varieties, evaluate their cooking and taste qualities, and determine their acceptability as food items.

Performance Goals

1. Evaluate and screen at least 10 species/varieties of herbs and another 10 species/varieties of special vegetables for nutritional qualities
2. Identify at least one herb and/or one vegetable variety having qualities that can reduce the risk of hypertension, diabetes, and/or other nutritional disorders
3. Develop new cooking methods and recipes for the newly identified herbs and vegetables

Key Program Components

1. Field and greenhouse evaluation of herbs and vegetables germplasm
2. Laboratory analysis of new food sources for cooking, taste, and nutritional qualities
3. Clinical trials to evaluate the effects of new food sources on health status

Internal and External Linkages

Collaboration and partnership with UAPB Department of Human Sciences, UAF Department of Food Science and Nutrition, UAPB Small Farm Project and Cooperative Extension Program. Partnership with Fort Valley State University, Alcorn State University, and USDA-ARS.

Target Audiences

Socio-economically disadvantaged population of Arkansas with emphasis on adults with chronic nutritional disorders such as hypertension, arthritis, diabetes, and obesity.

Evaluation Framework

The success of the project will be evaluated by an assessment of the number of species/varieties evaluated as new and alternative sources of nutritional food items. This evaluation will include an analysis of production feasibility as well as taste and quality (chemical) analyses of the identified crop species/varieties.

Output Indicators

1. Number of abstracts published
2. Number of refereed publications
3. Number of non-refereed publications
4. Number of professional presentations
5. Number of presentations to lay and general audiences

Outcome Indicators

1. Availability of new improved and alternative crops for home gardens and small farms
2. Improved health and quality of life of the target population
3. Increased family income and decreased health care costs

Program Duration – Long term

Allocated Resources – \$518,495

Stakeholder Input

Meetings with the target population will be arranged three times during the tenure of the project to gather their views, suggestions, and expectations about the food-nutrition intervention strategies. Results of the research will be communicated to them through meetings, reports, and workshops.

Research Program 7 – Human Nutrition and Health

Statement of Issues

Delta Nutrition Research and Intervention Study. Numerous studies indicate the prevalence of nutrition-related health disorders in the population of the Lower Mississippi Delta (LMD) region. Compared to the rest of the U. S., major chronic diseases disproportionately affect adults in the region. In 1994, Arkansas ranked number one in the nation for deaths due to cerebrovascular disease. Studies have shown that minority populations bear a large burden of these chronic diseases. Mortality rates from chronic diseases are systematically higher among African Americans than in other ethnic groups. Nutrition research in the Department of Human Sciences addresses ways to achieve optimal nutritional status that will reduce nutrition-related health disorders, such as obesity, coronary heart disease, elevated serum cholesterol, hypertension, iron deficient anemia, and other related disorders.

Infant Nutrition. Breast feeding is the optimal way to nurture infant growth and development and to reduce infant illness, medical costs, and mothers' absenteeism from work. Trends of initiation and continuation of breast feeding at six months postpartum have been fluctuating during the 70s and 80s. The 1994 data showed a national initiation rate of 57% and continuation rate of 21%. The national goal is to increase the proportion of mothers who initiate breast feeding to at least 75% and to increase the proportion who continue to breast feed until their infants are six months old to at least 50%. (Healthy People 2000, 1990). In Arkansas, breast feeding is characterized by low incidence, low duration, and limited availability of programs and services to promote and support breast-feeding practice. In 1997, the Department of Health reported that the rate of breast-feeding initiation ranged from 5 to 5.5% in south Arkansas. Data from Jefferson Regional Medical Center in Pine Bluff is not available. Hospital-based breast-feeding promotion programs may be effective in extending the duration of exclusive breast feeding. Research is needed in south Arkansas to identify barriers to breast feeding, and determine the impact of prenatal nutrition and lactation educations on breast-feeding initiation and to prolong the duration of breast feeding. Results of this study may help in designing and promoting intervention programs that can increase both the incidence and duration of the breast feeding.

Performance Goals

1. Increase the number of consumers who engage in appropriate dietary and life-style practices
2. Increase the number of mothers who breast feed their babies in the early postpartum period to conform with Healthy People 2000 objectives
3. Document the impact of diet and exercise in the control of hypertension, body weight, and serum cholesterol levels in African Americans

Key Program Components

1. Nutrition assessment
2. Nutrition intervention
3. Breast-feeding intervention

Internal and External Linkages

1. Collaboration and partnership with health care professionals of the Area Health Education Center/Jefferson Regional Medical Center
2. 1890 Extension personnel, faculty in the Department of Nursing, and the Infirmery staff at UAPB
3. Collaboration with Jefferson County Health Department

Target Audiences

1. African-American hypertensive men and women, aged 35-55 for nutrition intervention study
2. Pregnant women for breast-feeding study
3. Health care professionals and educators

Evaluation Framework

Analysis of variance, regression analyses, chi square, and other appropriate test will be used to determine the specific dietary and health factors that predispose African-American women to high blood pressure and coronary heart disease.

Existing barriers to breast feeding will be assessed qualitatively by focus group technique and quantitatively by individual interview. The pre- and first post-assessment questionnaire obtained from the prospective cohort population will include questions regarding infant feeding intention, current feeding methods, factors influencing breast feeding decisions among pregnant women and barriers that discourage women from breast feeding.

Output Indicators

1. Number of abstracts published
2. Number of journal articles published
3. Number of articles published in proceedings
4. Number of articles published in any other publication media
5. Number of presentations made at professional meetings
6. Number of presentations made at any other meetings for interested groups

Outcome Indicators

1. Population of region is more knowledgeable of link between nutrition and health
2. Lower blood pressure, body weight, serum cholesterol, LDL, and serum triglyceride and increase in HDL cholesterol levels among target audience
3. Increase in the percentage of women who initiate and maintain breast feeding for five to six months

Program Duration – Intermediate term

Allocated Resources – \$2,211,238

Stakeholder Input

Focus group interviews with selected individuals from the targeted groups will allow direct input on dietary intervention and/or exercise programs. The same technique (focus group interviews) will allow direct input from pregnant mothers on barriers to breast-feeding and preferable intervention activities. A steering committee consisting of the principal investigator, project coordinator, health care professionals and others will serve as an evaluation team.

GOAL 3. A healthy, well nourished population

Extension Program 5 – Nutrition Education and Wellness System (Diet and Health)

Statement of Issues

Nutrition Education. Typically, food purchases are based on family preferences, cultural practices, and other factors that are often unrelated to health status and USDA dietary guidelines. Considering the obvious link between culture and food selection and preparation practices – instruction that is culturally sensitive and that directs particular attention to risk factors associated with racial and cultural health problems extends the value and usefulness of nutrition education.

Obesity, diabetes, hypertension, and cardiovascular disease rank high among health problems in all racial groups, but general health statistics indicate that the incidence of these health problems are higher in the African-American, Hispanic, and Native-American populations than in other population groups. In addition, there is a high incidence in the general population of obesity suggesting that Anglo-American food stamp recipients would benefit from more healthy diets as well.

These data suggest a need for culturally sensitive nutrition education that will enable food stamp recipients and other low-income households to make food selection and preparation choices consistent with their cultural traditions, but that also enhance the health status of family members and help them to effectively utilize food resources. Specific attention is given to nutritional problems associated with southern, soul food, and Tex-Mex diets.

Performance Goal

1. Improve the accessibility of nutrition information and education to food stamp recipients and other low-income households
2. Increase the number of participants reporting improved eating practices designed to reduce risk factors of chronic diseases
3. Increase the number of participants reporting expanded use of health prevention strategies
4. Increase the number of participants incorporating physical activity as well as nutrient monitoring into an overall plan to improve the health status of family members
5. Increase the number of participants who report the use of new management skills for extending food resources while selecting nutritious and culturally acceptable varieties of food

Key Program Components

1. Knowledge of nutrition
2. Improving food management and preparation skills
3. Linking diet and health

Internal and External Linkages

The FF NEWS (Families First Nutrition Education and Wellness system) Program is a multi-state partnership involving the University of Arkansas at Pine Bluff, Southern University (Louisiana), Langston University (Oklahoma), Prairie View A&M University (Texas), South Carolina State University, and Lincoln University (Missouri). It is designed to help food stamp recipients enhance the health status of family members and effectively utilize food resources. This culturally sensitive nutrition education program pays specific attention to nutritional problems associated with southern, soul food, and Tex-Mex diets. The program encompasses four modules. The four modules include 55 lessons as well as demonstrations and tours. Other partnerships include the Department of Human Services, Employment Security Division, Department of Health, faith-based organizations, Area Agency on Aging, and business and industry.

Target Audiences

Food stamp recipients and other low-income households in eight Arkansas counties

Evaluation Framework

Evaluation is continuous throughout the FF NEWS program. In addition the pre- and post-test of participants knowledge of nutrition and food preparation and management skills, a general assessment of knowledge gained during each instructional encounter is obtained via open-ended survey items and a short evaluation check list. Data collection is an integral component of the program and address the desired outcomes in the behavioral objectives. Each quarter the program will develop a compilation of evaluation data. These data will provide the foundation for assessing effectiveness and will be incorporated in quarterly and annual reports. A qualitative assessment of impacts of the program will be derived from an analysis of participant's scores on pre- and post-tests, while evaluation check list and intermittent surveys will provide an impression of participant satisfaction.

Output Indicators

1. Number of culturally sensitive educational resources on diet-related health risk factors developed and distributed to food stamp recipients and other low-income families
2. Number of Extension programs related to human nutrition and food management practices conducted for food stamp recipients and other low-income families
3. Number of participants who reduced diet-related, health-risk factors
4. Number of food stamp recipients and other low-income audiences recognized for achievements in the FF NEWS Program

Outcome Indicators

1. Number of program participants reporting changes in food preparation and consumption practices
2. Number of households adopting recommended Extension practices
3. Number of food stamp and other low-income families who reduce risk factors of chronic diseases through improved eating patterns

4. Number of participants who applied self-monitoring techniques to pursue improved health status goals
5. Number of food stamp recipients and other low-income households who planned meals to meet the nutrient requirements of family members

Program Duration – Long term

Allocated Resources – \$900,250

Stakeholder Input

Coalitions are formed in each county where the program is implemented. The coalitions assist in identifying target areas and program participants and program implementation and evaluation. A number of ways were used to identify stakeholders to ensure that diversity is achieved. Contacts were made with individuals who are knowledgeable about the community. Recommendations were sought from key leaders of various racial and ethnic groups. Throughout the year a file of news articles are maintained that showcase potential stakeholders. Meetings are held at times stakeholders can participate. Stakeholders on the coalitions represent an appropriate cross section of the impacted clientele and the communities.

Merit Review

In addition to the structured merit review process for the 1890 Extension Program, this program is reviewed periodically by the USDA Food and Nutrition Service and the Arkansas Department of Human Services.

GOAL 4. An agricultural system which protects natural resources and the environment**Research Program 8 – Integrated Pest Management****Statement of Issues**

Designing integrated pest management programs for limited-resource and alternative crop farmers is essential if this group is to prosper. Managing insect populations in small acreage in an environmentally, friendly manner is important because many of the limited-resource farmers will encounter problems with licensing and safety requirements needed to purchase restricted-use pesticides. In addition, evaluating and developing alternative crops will broaden these small farmers' options for profitable crops.

Performance Goals

1. Design integrated pest management systems for alternative crops that are grown by limited-resource farmers
2. Document the potential for increased economic opportunity through the development of alternative crops for limited-resource farmers
3. Develop varietal lines of pigeon peas and hot peppers with good agronomic qualities and low-insect susceptibility
4. Establish insect scouting procedures for southern peas, hot peppers, and pigeonpeas

Key Program Components

1. Alternative crop development
2. Integrated pest management system for small farms with alternative crops
3. Evaluation of natural control organisms
4. Use of non-restricted use insecticides for insect control

Internal and External Linkages

The alternative crops research is being conducted in cooperation with various research scientists including an agronomist, plant breeder, agricultural economist, and soil scientist. Each is involved in a particular phase of the research project. In addition, an area farmer with a field of southern peas will be paired with research plots at Pine Bluff and Lonoke, Arkansas. Many of the genetic lines of southern peas are being evaluated in collaboration with faculty on the Fayetteville campus. Dr. McLeod in the UA Fayetteville entomology department is collaborating on some of the alternative crops research. Local Extension personnel will be consulted as well as personnel in the Small Farms Project.

Target Audiences

Small-scale minority and limited-resource farmers in the Mississippi delta region

Evaluation Framework

The success of this project will be evaluated by faculty and administrators involved in issues pertaining to limited-resource farmers in the delta. The evaluation will be based upon the degree to which the projects' goals have been attained. Success in delineating insect problems and sustainable means of control for small limited-resource farmers will be the key indicator of project success.

Output Indicators

1. Number of abstracts published
2. Number of journal articles published
3. Number of articles published in proceedings
4. Number of articles published in any other publication media
5. Number of presentations made at professional meetings
6. Number of presentations made at any other meetings for interested groups

Outcome Indicators

1. Increased dependency on IPM systems that produce yields at the same levels as using restricted-use insecticides
2. More use of biological insecticides in IPM programs
3. Lower application of chemicals to crops thus reducing potential ground water contamination and air quality problem

Program Duration – Intermediate term

Allocated Resources – \$384,320

Stakeholder Input

Meetings of the Small Farmers Program are held at UAPB one or more times per year. Attendance and presentations at these meetings bring the entomologist into contact with small farmers. In addition, small farmers tour our research plots during field days, which provides the researchers with an opportunity to discuss pertinent concerns of the growers. Extension activities with local growers also expose the faculty to grower's concerns.

Research Program 9 – Small Ruminant Nutrition/Management

Statement of Issues

With the current world population at six billion people, there is world-wide stress on producing enough food for human consumption. Small ruminants, such as sheep and goats are affordable and have convenient body size for low-income farming systems. The small body sizes of sheep and goats enable the small farmer to stock greater numbers of capital investment for equipment required in sheep production is less than that for the cattle. Consequently, goat and sheep are becoming increasingly attractive to limited-resource farmers in southern Arkansas. They can utilize low-quality crop by-products to produce high-quality protein. In the U. S., most sheep and goat farmers have small flocks or herds (50 or fewer animals). Hence, most sheep and goats are produced as a secondary enterprise to support a primary incoming earning enterprise.

Performance Goals

1. Increase the understanding of utilizing crop by-products as animal feed to reduce production costs and protect the environment
2. Develop strategies to determine the level of dietary supplementation required when feeding crop by-products to sheep and goats
3. Document grazing efficiency incurred in a mixed grazing system

Key Program Components

1. Comparison of various ruminant management systems
2. Identification of acceptable crop by-product
3. Formulating nutrient-rich dietary supplements

Internal and External Linkages

In state

1. Agronomy scientists at UAPB
2. Research scientists and Extension personnel at University of Arkansas
3. Small Farm Program at UAPB

Multi state

Small Farm Program at Alcorn State University

Target Audiences

1. Sheep producers
2. Goat producers
3. Limited-resource farmers
4. Small livestock producers

Evaluation Framework

The program evaluation framework will be based on whether the use of some crop by-products as animal feed increase growth performance compared with other crop by-products. It will also compare grazing efficiency of animals in a multiple species stocking system compared to the traditional single species stocking system.

Output Indicators

1. Number of abstracts published
2. Number of journal articles published
3. Number of articles published in proceedings
4. Number of articles published in other publication media
5. Number of presentations made at professional meetings
6. Number of presentations made at any other meetings for interested groups

Outcome Indicators

1. Increased use of crop by-products as animal feed
2. Greater adoption of alternative animal enterprises by small-scale and family farms
3. Increased availability of high-protein animal products in global markets

Program Duration – Intermediate term

Allocated Resources – \$610,260

Stakeholder Input

Meetings of the Small Farm Program are held at UAPB several times per year. Attendance and presentations at these meetings bring research scientists into contact with small farmers. In addition, small farmers tour our research plots and animal facilities during field days, which provides the researchers with an opportunity to discuss pertinent concerns of audiences. Extension activities provide direct opportunities for scientists to interact with target audiences.

GOAL 4. An agricultural system which protects natural resources and the environment**Extension Program 6** (See Part II – Aquaculture/Fisheries Research and Extension Section)**GOAL 5. Enhanced economic opportunity and quality of life for Americans****Research Programs 10 and 11****Research Program 10 – Economic Behavior of Minority Farmers****Statement of Issues**

Minority farm operations in the U. S. are declining at an alarming rate. The rate of decline rate in Arkansas is higher than the national rate. There is little or no research done on the economic behavior and status of minority farmers in Arkansas. This research is necessary to provide a better understanding of the factors that contribute to the fast decline of minority farm operations and to form and apply appropriate economic and agricultural policies.

Performance Goals

1. Clarify the differences and similarities in the economic behavior of minority and majority farm households
2. Document the economic status of minority farmers in Arkansas
3. Identify the factors that contribute the higher decline rate of minority farmers in Arkansas
4. Create a database of Arkansas minority and limited-resource farm households
5. Develop econometric models related to farm operations of minority farmers

Key Program Components

1. Field surveys
2. Agricultural household models
3. Econometrics models and analysis
4. Applied microeconomic models

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 1862 Extension programs. The project will obviously require and use a great deal of input from farmers.

Target Audiences

Although the main focus of the study is minority farm households in Arkansas, the study will use majority farmers and other limited-resource farmers as a control group. Consequently, the study will gather data from a representative sample of all farmers in Arkansas.

Evaluation Framework

The performance goals provide the framework for evaluation. Specifically, overall assessments will measure improved accessibility to data regarding economic status, problems encountered in financing farm operations, and general well-being of farming enterprise operated by minority farmers in Arkansas.

Output Indicators

1. Number of abstracts published
2. Number of journal articles published
3. Number of articles published in proceedings
4. Number of articles published in any other publication media
5. Number of presentations made at professional meetings
6. Number of presentations made at any other meetings for interested groups

Outcome Indicators

1. Better understanding of factors that impact the economic viability of small minority farmers
2. Adequate database to conduct economic modeling and assess policy issues that influence the survival of small-scale and minority farmers
3. More defensible strategies for reducing the rate of decline of small and minority farmers in the state

Program Duration – Intermediate term

Allocated Resources – \$501,635

Stakeholder Input

Farmer meetings and forums as well as consultation with professional colleagues, county agents, USDA farm service agencies, and other public and private groups documented the need for this project. Input from these and other stakeholders will be sought throughout the duration of the project.

Research Program 11 – Improving Quality of Life

Statement of Issues

The adolescent years can be a challenging time for some families, with increased conflict between youth and parents. Parents often lack information about adolescent development and parenting skills necessary to respond to the challenges of this developmental stage. Society is also confronted with a number of social issues related to adolescents – juvenile delinquency; teen alcohol and drug usage; early sexual activity; teen pregnancy; school dropout; conduct problems; and, more recently, an increase in violence as evidenced by the reoccurring school shootings. Family functioning is often associated with these social concerns, and more specifically, the nature and quality of the parent/adolescent relationship. Current responses to these concerns focus more on intervention than prevention. Research findings suggest that young adolescents do well when they have a healthy positive family life characterized by parents who model effective parenting practices. Research that evaluates the effectiveness of parent education programs to improve the quality of interpersonal relationships between parents and their adolescent children can strengthen family environments and improve quality of life.

Performance Goals

1. Increase in number of parents who engage in new parenting practices
2. Increase in number of parents who report improved quality of parent-child relationship
3. Increase in number of youth who report improved attitudes towards parents

Key Program Components

1. Evaluation of parenting education programs
2. Develop and test parenting education program based on assessment and modification of existing program models
3. Deliver, monitor, and evaluate new models for parenting education programs

Internal and External Linkages

Partnership with social service agencies, schools, and churches

Target Audiences

Faith-based organizations and other public and private groups administering parenting education programs; and families with adolescent children, with an emphasis on those adolescents who might be more vulnerable to at-risk behaviors.

Evaluation Framework

The project's impact will be determined by its success in identifying, modifying, or developing effective parent education programs and the impact of these programs on family interactions and internal relationships. Upon entering the study, participants fill out a battery of questionnaires examining aspects of

parenting practices and indicators of the quality of parent-child relationship. After completion of the parent education program, participants will fill out the same battery of questionnaires. Comparisons of pre- and post-test data will be analyzed for significant changes.

Output Indicators

1. Number of abstracts published
2. Number of journal articles published
3. Number of articles published in proceedings
4. Number of articles published in any other publication media
5. Number of presentations made at professional meetings
6. Number of presentations made at any other meetings for interested groups

Outcome Indicators

1. New strategies for developing positive family dynamics including communications interpersonal relations and parenting practices
2. Greater number of youth and adolescents who have supporting home environments and nurturing relationships with parents
3. Reduced juvenile crime and delinquency

Program Duration – Intermediate term

Allocated Resources – \$490,000

Stakeholder Input

Areas of need and interest in the development of the parent education program were identified via discussions with the target population, other family professionals and in planning meetings with various helping agencies and groups. The research scientists are involved in numerous coalitions and networks that address family and youth issues.

GOAL 5. Enhanced economic opportunity and quality of life for Americans

Extension Program 7 – Family and Youth Programs

Statement of Issues

Across the country there is growing concern about the well-being of American children and their families. More children today are being raised 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 in life. Research indicates that a number of factors put children at greater risk of violent crime – living in extreme poverty, experiencing violence and adult discord in the home and the absence of a male authority figure. Children growing up in these circumstances face tough odds. Research predicts that these youngsters are at greater risk of using drugs and being incarcerated before they reach the age of 18. Many of them will reach adulthood without the necessary skills to be contributing members of society. The vast majority of children in single-parent families are in female-headed families where they are more likely to be poor. This especially true of minority children. Children from minority, low-income families frequently experience inadequate readiness for school which puts them at risk for later school failure. By age 16, minority students are three times more likely than white students to have repeated two or more grades. An increased number of minority 17-year-olds experience difficulty in such school subjects as reading, math, and science, not being able to demonstrate essential tasks such as calculating decimals or summarizing a newspaper article. In 1996, 7,178 Arkansas teenagers gave birth which cost taxpayers more than \$100 million. Experts recognize that sex and drugs often go together. Getting high can lead to sexual encounters, increasing the risks of pregnancy, sexually transmitted diseases and HIV exposure, as well as date rape and violence.

In combination, 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 program empower parents and child care providers to enhance the growth and development of children and adolescents. The Extension 5 crime prevention program targets children, schools, communities and families to provide community and family-level interventions that give children opportunities to grow up healthy and safe, and the 1890 adolescent pregnancy and drug abuse prevention programs which have an abstinence-based focus are designed to stem the incidence of negative behaviors experienced by some adolescents.

Performance Goal

1. Identify and organize community leaders in special task forces to support program initiatives
2. Increase the number of youth and adult participating in programs promoting life-long health practices and well-being of youth, families, and communities
3. Develop and maintain partnerships with religious, local, state, and regional entities to strengthen families and communities
4. Increase the number of low-income, minority families who adapt practices designed to create environments that enhance the intellectual, social, emotional, and physical development of their children
5. Increase the number of low-income, minority families who developing personal and management skills that will enable them to achieve economic and social efficiency

6. Expand the number of minority students who succeed in mathematics and science
7. Strengthen the capacity of community agencies and organizations to work together in providing support to parents and other family members
8. Reduce the incidence of teenage birth and abortion rate and number of cases of STDs in target counties

Key Program Components

Young Scholars Program

1. Parent education
2. Child development, including strategies for preventing violence in children
3. Financial and resource management including food, clothing, and home environment
4. Problem-solving and conflict-resolution skills
5. Job-related skills and career and personal development
6. Family relationships
7. Stress management and coping skills
8. Self-esteem and relationship building
9. Nutrition, diet, and health

Adolescent Pregnancy Prevention Program

1. Communicating with parents
2. Building A positive self-concept
3. Goal setting
4. Understanding moral values
5. Staying in control
6. Effective parenting
7. Decision making

Drug Abuse Prevention Program

1. Newsletter series for ministers
2. Newsletter for youth
3. Fact sheets for parents

Juvenile Crime Prevention strategies

Internal and External Linkages

A number of partnerships have been formed with individuals, businesses, industries, foundations, organizations and institutions to provide support to these program initiatives – University of Arkansas System; University of Arkansas Medical Sciences; Delta Health Education Center; U. S. Department of Justice; Drug Reinforcement Division; Billy “Ray” Hobley Foundation; ENTERGY, Inc.; Arkansas Farm Bureau Federation; Southwestern Bell Telephone Company; County Quorum Courts Governing Boards (Jefferson, Phillips, Lee, Mississippi, and Desha counties); Arkansas Land and Farm Development Corporation; Jefferson County Sheriff Department; Arkansas Department of Health; Fruit of the Loom, Inc.; Wal Mart Foundation; Department of Health; Department of Human Services; public schools; public

school teachers; 1862 Cooperative Extension; faith-based organizations; mental health centers; and various departments across the university.

Target Audiences

1. Low-income, minority children, ages 6 to 15, their families and organizations/agencies that serve low-income families
2. Public schools and faith-based organizations
3. Parents and grandparents
4. Communities
5. Local governmental units
6. Local businesses

Evaluation Framework

Outcomes of the programs in this area will be documented for accountability and program improvement purposes. Evaluation methods will include a record keeping system for summarizing program activities and achievements of participants. The system will include lessons taught, pre- and post-test measures of change, self-reports, written observations, questionnaires, and other instruments. In the Young Scholars Program, additional data will include household composition, the number of contacts with each household and each child, the date and duration of each contact. The program will maintain a narrative of important events. Included in the narrative will be the names of all personnel, personnel changes, the names of organizations, associations, agencies, and volunteers participating in the program and the nature of their participation, program policies, activities, and other events. The narrative will provide a source of data for reporting purposes and reviewing program management. A comprehensive evaluation of these programs will be conducted at the end of the five-year cycle.

Output Indicators

1. Number of parenting programs conducted for parents and grandparents
2. Number of after-school programs conducted for low-income, minority children, ages 6-15
3. Number of low-income, minority children participating in after-school programs
4. Number of programs conducted for parents enrolled in the Young Scholars Program
5. Number of community networks created to assist families, school, community leaders, and local clientele in increasing business development opportunities
6. Number of community leaders identified and organized into special task forces to support program initiatives
7. Number of community forums conducted to equip clientele with skills needed to identify, analyze, and solve community problems
8. Number of effective marketing strategies implemented to define and promote program goals related to enhancing families, youth, schools, and communities
9. Number of family and community development programs assessed and monitored to assure that needs of targeted audiences are met
10. Number of customized programs provided that respond to needs of clientele in areas of crime prevention, education, improved community image, fragile families, and poor communities

11. Number of programs implemented promoting life-long health practices and well-being of youth, families, and communities
12. Number of partnerships developed and maintained with religious, local, state, and regional entities to strengthen families and communities
13. Number of teenagers reached through the newsletter series, *Teens on the Go*
14. Number of programs conducted for aiding the healthy development of youth
15. Number of educational experiences designed to promote social development of youth
16. Number of programs conducted for child care providers
17. Number of child care providers who implemented one or more of Extension's recommendations for best practices in working with young children
18. Number of teenage participants who – gained new knowledge about making personal decisions; learned better ways of communicating with parents; gained new knowledge of managing peer pressure; gained new strategies for improving self-confidence; changed attitudes about early sexual involvement; made decisions not to use tobacco, alcohol, and other substances; and gained new knowledge about sex and STDs

Outcome Indicators

1. Children and parents who acquire and use more efficient social skills
2. Improve performance in math and science by low-income students
3. Children and parents reporting an increased sense of self worth
4. Increased community involvement by parents and youth
5. Parents who demonstrated more efficient use of resources
6. Increased collaboration with agencies, institutions, businesses, and organizations
7. Decrease in teenage birth and abortion rates and number of cases of STDs
8. Fewer state and federal resources spent on adolescent childbearing
9. More teens practicing appropriate skills in coping with peer pressure, in communicating with parents, practicing self-control, improving interpersonal skills, delaying sexual involvement with sex and drugs
10. Fewer discipline problems in school

Program Duration – Long term

Allocated Resources – \$1,901,685

Stakeholder Input

Local coalitions and/or task forces are formed in each county where the programs operate to get stakeholder input. The roles of the task forces include – identifying concerns at the community level; reviewing curriculum in reference to needs of the community; identifying target areas; referring participants to the program; identifying resources for carrying out the program; publicizing and promoting program; identifying funding sources; and the implementation and evaluation process.

The stakeholders on the task forces represent a broad, cross section of the impacted clientele. A number of ways were used to identify stakeholders to ensure that diversity is achieved. Contact was made with a number of community persons who represent various racial and ethnic groups. A file of news articles

showcasing potential participants is maintained to encourage participation. Specifically, public school superintendents in targeted areas were contacted to secure listing and permission for program participating of interested principals for school-based programs. Program participants were recruited through school principals. Local governing boards, county judges, judicial officers, other recognized leaders (religious, business, civic, etc.) and employees of health organizations, utility companies, news media and other influential groups were contacted and recruited. Task force meetings are held at times when stakeholders can attend and in locations where they feel comfortable. Minutes are written of each meeting that denote input given and action considered. Stakeholder input is also received through follow-up surveys and evaluations.

Merit Review

An external panel of three to four individuals with the educational or Extension knowledge and skills to conduct the work will review the programs during the Spring 2000. This review will reflect single and/or multiple issues that cut across all programs representative of Goal 5.

PART II – AQUACULTURE/FISHERIES RESEARCH AND EXTENSION PROGRAMS

OVERVIEW

The Aquaculture/Fisheries Center integrates Extension, research and academic programs. Basic operational foundations of the Aquaculture/Fisheries Center include the following:

1. Stakeholder input. Farmers help decide priorities and comprise the majority of the programs advisory council.
1. Most research is very applied and is immediately useful to farmers. Research results are delivered to farmers via a strong Extension program, incorporating field days, county agents, presentations at producer meetings, a newsletter, and personal contacts.
1. Researchers and Extension faculty routinely meet together and jointly decide on program priorities. Several faculty are on split Extension/research appointments. This provides a strong research-Extension link.
1. The excellent quality of the faculty. Faculty with strong research credentials and a desire to conduct research of importance to farmers have been selected. Sources of support for combined program. Fish farmer associations (catfish, bait and ornamental) see that the program is making a difference on-farm and have provided financial and political support. Numerous demonstration and research projects are conducted on-farm, with costs born by the farmers.
1. External funding. Faculty actively seek, and have secured, external funding (competitive grants) for research and Extension programs. The state will be providing support this year for the first time. Faculty are active in regional projects and many are conducting research and Extension projects in cooperation with other universities and institutions.

Stakeholder Input

The Aquaculture/Fisheries Center obtains stakeholder input through diverse means from a wide variety of audiences. Input is obtained through farmer associations and organization, such as the Catfish Farmers of Arkansas, Arkansas Farm Bureau Federation and state and federal agencies and organizations such as Arkansas Game and Fish Commission, USDA-Agricultural Research Service, etc. Stakeholder input is also obtained through formal and informal focus groups (such as the one conducted at the 1999 Rural Life Conference), through surveys of county agents and from county-level commodity committees, through fish farmer surveys, through Extension fisheries and aquaculture specialists, and through individual contacts. In addition, farmers are included in program planning meetings. The University of Arkansas at Pine Bluff also has established a National Fisheries Advisory Council composed of local, state, and national representatives, to provide advice and guidance to the program. Extension faculty are integrated with research and academic programs within the Aquaculture/Fisheries Center, and as such, input into Extension activities and programming is also obtained from research and teaching faculty.

Merit and Peer Review

Two merit review committees, one for research and one for extension have been formed in the school of agriculture, fisheries and human sciences. Additionally, merit and peer review for aquaculture/fisheries programs will be conducted within the framework of the existing UAPB National Fisheries Advisory Council. The review process will be consistent with that of other aquaculture Extension programs that are conducting such reviews. Specifics of the peer review process will be established with counsel from the National Program Leader for Aquaculture, CSREES, who is a voting member of the UAPB National Fisheries Advisory Council. A peer review is scheduled for this fall (1999). This is in addition to the internal reviews that are conducted for all manuscripts and Evans-Allen project proposals.

GOAL 1. An agricultural system that is highly competitive in the global economy**Research Program 4 – Extension Program 3 – Catfish Production and Management****Statement of Issues**

Aquaculture is the fastest growing segment of U.S. agriculture, and farm-raised catfish accounts for most of the aquaculture production in the United States. Arkansas is the second largest catfish producing state with over 34,000 acres that are valued at over \$100 million in farm-gate value in 1998. Commercial catfish production acreage in Arkansas has expanded by 242% over the past decade, and average yield for food fish has increased by 178%, from 2,250 lb/acre to 4,000 lb/acre. The UAPB Aquaculture/Fisheries Center is the primary Arkansas source of research-based information and fish health and water quality services to catfish producers. Nationwide, the catfish industry includes over 170,000 acres that produced over 564 million pounds in 1998. With the economic difficulties experienced by row crop farmers, catfish is clearly a profitable alternative for many farmers. The capital-intensive nature of catfish farming generates a high economic multiplier. In 1998, the catfish industry nationwide generated a total economic impact of over \$4.6 billion. Much of this economic activity generates employment opportunities and income in rural areas of the United States such as the Delta region. While this industry continues to grow in size and complexity, there are new challenges that require research-based solutions if the industry will continue to develop and contribute to the U.S. economy. The UAPB National Fisheries Advisory Council, with representatives from the Catfish Farmers of Arkansas, the Arkansas Bait and Ornamental Fish Growers Association, processing plants and feed mills and the Aquaculture Division of the Arkansas Farm Bureau provide continual input into the research and Extension program and priorities in terms of issues that should be addressed by the UAPB Aquaculture/Fisheries Center. There is agreement that these issues should be addressed within the context of specific research disciplines, but should include analyses of the economically optimal solutions and should be collaborative with the USDA-ARS Aquaculture Systems Research Unit. This Unit specifically studies the management systems that result from advances in specific areas such as nutrition, water quality, fish health, and hatchery production. While budgeted separately, the USDA-ARS unit at UAPB is a collaborating partner in the overall effort.

Specific Program Plan

Improving catfish production efficiency and product quality

Performance Goals

1. Increase catfish producers' income through decreasing catfish losses due to disease
2. Improve production efficiency through the development of feeds that reduce cost and enhance stress tolerance in fish
3. Improve production management efficiency through development of management strategies and systems that produce greater yields at lower cost
4. Enhance understanding of factors that affect phytoplankton bloom dynamics in catfish production
5. Improve farm profit levels through enhanced understanding of the economic trade-offs among various

management strategies and systems

6. Develop improved grading equipment to minimize farm and processor losses due to premature harvesting of submarket-sized fish

7. Develop and implement a curriculum of fish farm safety to reduce the number of fatalities and injuries occurring on fish farms

Output Indicators

1. Number of refereed journal articles
2. Number of proceedings, book chapters, books published
3. Number of abstracts published
4. Number of research presentations at scientific meetings
5. Number of producers, agents, and ponds enrolled in the Catfish Yield Verification Program
6. Number of hits on the Catfish Yield Verification Program web site
7. Number of producers participating in catfish demonstration projects and field trials
8. Number of producers participating in educational programs

Outcome Indicators

1. Reliance of producers on catfish disease diagnostic lab for accurate determination of diseases
2. Reduction in losses due to diseases and water quality problems
3. Adoption by feed mills of new feed formulations designed to reduce cost or to improve performance of fish
4. Number of producers using recommended management strategies and systems
5. Improved farm profit levels resulting from adoption of recommended management strategies and systems
6. Number of producers using the improved grading equipment on farm
7. Reduction in fatalities and injuries on catfish farms

Key Program Components

1. Fish health program
2. Fish nutrition program
3. Catfish management strategies program
4. Water quality management program
5. Management of farms for profit program
6. Post-harvest technology development program
7. Fish farm safety program

Internal and External Linkages

Multi state

Southern Regional Aquaculture Center that sponsors regional projects involving a large percentage of the land-grant universities in the southern region. Cooperative research programs with USDA-Agricultural

Research Service that involve Arkansas, Mississippi, and Louisiana. National Fish Farm Safety Program. Participants include scientists and Extension personnel from Alabama, Arkansas, Louisiana, Mississippi, and Texas.

University of Memphis

In state

Catfish Farmers of Arkansas
Catfish producers in Arkansas
Arkansas companies serving the catfish industry
Arkansas Development and Finance Authority
Aquaculture Division of the Arkansas Farm Bureau
Arkansas State Plant Board
1862 Cooperative Extension Service
USDA-Agricultural Research Service

Target Audiences

1. Catfish producers
2. Potential catfish producers
3. Catfish Farmers of Arkansas
4. Catfish Farmers of America

Evaluation Framework

1. County agent records
2. Participant assessment of knowledge, attitudes and skills
3. Surveys of practices adopted
4. Comparison of verification yields to statewide yields
5. Examples/success stories

Program Duration**Short term**

Performance Goals 4, 6, and 7

Intermediate term

Performance Goal 5

Long term

Performance Goals 1, 2, and 3

Allocated Resources

Research – \$3,986,010

Extension – \$1,816,925

Research Program 5 – Extension Program 4 – Baitfish Production and Management

Statement of Issues

Aquaculture is the fastest growing segment of U.S. agriculture. The farm-raised bait industry is the fourth largest (in dollar value) segment of the U.S. aquaculture industry. Arkansas is the major supplier of bait and feeder fish to the nation, with a farm-gate value of \$38 million in 1998. Sales of ornamental fish were valued at an additional \$3 million. The vast majority of baitfish farms are small family operations. The UAPB Aquaculture/Fisheries Center provides research-based information and fish health and water quality services to producers. The economic impact of this industry in Arkansas alone is approximately \$317 million. Yet baitfish are produced in every state in the U.S., often by small-scale producers. These small businesses are an important part of the family income of these businesses in states across the U.S. This industry continues to confront new challenges and competition that require research-based solutions if the industry will continue to develop and contribute to the U.S. economy. The UAPB National Fisheries Advisory Council, with representatives from the Catfish Farmers of Arkansas, the Arkansas Bait and Ornamental Fish Growers Association, processing plants and feed mills and the Aquaculture Division of the Arkansas Farm Bureau provide continual input into the research and Extension program and priorities in terms of issues that should be addressed by the UAPB Aquaculture/Fisheries Center. There is agreement that these issues should be addressed within the context of specific research disciplines, but should include analyses of the economically optimal solutions.

Specific Program Plan

Improving bait, feeder, and ornamental fish production efficiency and product quality

Performance Goals

1. Increase bait and feeder fish producers' income through decreasing fish losses due to disease
2. Improve production efficiency through the development of feeds that reduce cost and enhance stress tolerance in fish
3. Improve production management efficiency through development of hatching and spawning techniques, strategies and systems that increase production efficiency
4. Enhance understanding of factors that affect phytoplankton bloom dynamics in baitfish and feeder fish production
5. Develop and implement a curriculum of fish farm safety to reduce the number of fatalities and injuries occurring on fish farms

Output Indicators

1. Number of refereed journal articles
2. Number of proceedings, book chapters, books published
3. Number of abstracts published
4. Number of research presentations at scientific meetings

5. Number of producers participating in demonstration projects and field trials
6. Number of producers participating in educational programs

Outcome Indicators

1. Reliance of producers on fish disease diagnostic lab for accurate determination of diseases
2. Reduction in losses due to diseases and water quality problems
3. Adoption by feed mills of new feed formulations designed to reduce cost or to improve performance of fish
4. Number of producers using recommended management strategies and systems
5. Improved farm profit levels resulting from adoption of recommended management strategies and systems
6. Reduction in fatalities and injuries on bait and feeder fish farms

Key Program Components

1. Fish health program
2. Fish nutrition program
3. Baitfish spawning and hatching systems program
4. Water quality management program
5. Fish farm safety program

Internal and External Linkages

Multi state

Southern Regional Aquaculture Center that sponsors regional projects involving a large percentage of the land-grant universities in the southern region; National Fish Farm Safety Program. Participants include scientists and Extension personnel from Alabama, Arkansas, Louisiana, Mississippi, and Texas

University of Memphis

In state

Arkansas Bait and Ornamental Fish Growers Association
Baitfish, feeder fish, and ornamental fish producers in Arkansas
Arkansas companies serving the bait and feeder fish industry
Arkansas Development and Finance Authority
Aquaculture Division of the Arkansas Farm Bureau
Arkansas State Plant Board
1862 Cooperative Extension Service

Target Audiences

1. Baitfish producers
2. Feeder fish producers

3. Ornamental fish producers
4. Arkansas Bait and Ornamental Fish Growers Association

Evaluation Framework

1. County agent records
2. Participant assessment of knowledge, attitudes, and skills
3. Surveys of practice adoption
4. Examples/success stories

Program Duration

Short term

Performance Goals 3, 4, and 5

Intermediate term

Performance Goal 2

Long term

Performance Goal 1

Allocated Resources

Research – \$2,176,145

Extension – \$1,434,710

GOAL 4. An agricultural system which protects natural resources and the environment**Extension Program 6 – Farm Pond Management and Irrigation Reservoirs****Statement of Issues**

The thousands of farm ponds across Arkansas and the United States represent an opportunity to provide fishing opportunities for recreation and for profit for farm owners. Properly managed farm ponds will yield two to three times more fish than unmanaged ponds. In addition, the proposed southeast Arkansas irrigation projects designed to provide agricultural water supplies from the White River, Bayou Meto, and the Little Red River will create on-farm storage reservoirs capable of capturing and storing water for use during summer months. In the Bayou Meto Irrigation Project alone, 357 30-acre water storage reservoirs are planned. The proposed 65% cost share will provide capital for reservoir construction that will increase the likelihood of achieving the project goal. Other irrigation projects have similar provisions. The newly created on-farm storage reservoirs will provide opportunities for the creation and management of quality recreational fisheries resources. If managed properly, these reservoirs can provide quality fisheries and can represent a source of supplemental income through fishing leases to clubs and individuals.

Specific Program Plan

Improving recreational fishing opportunities through management of farm ponds and irrigation reservoirs

Performance Goals

1. Improve recreational fishing opportunities for farm pond owners
2. Develop quality fisheries in surface water storage reservoirs as a source supplemental food and family income

Output Indicators

1. Number of participants in attendance at educational meetings, field days and workshops
2. Number of mass media articles, programs and features prepared
3. Number of direct county agent contacts with producers, consultants on specific management issues
4. Number of producers acquiring new skills to manage farm ponds and surface water storage reservoirs for sportfishing

Outcome Indicators

1. Producers used new knowledge about managing farm ponds to improve recreational fishing
2. Producers used new knowledge about managing surface water storage reservoirs

Key Program Components

1. Farm pond management program
2. Surface water storage reservoirs management program for sportfishing

Internal and External Linkages

Southern Regional Aquaculture Center that sponsors regional projects involving a large percentage of the land-grant universities in the southern region.

In state

1862 Cooperative Extension Service (for wildlife components of multi-use management)
Arkansas Development and Finance Authority
Catfish Farmers of Arkansas
Arkansas Bait and Ornamental Fish Growers Association
Aquaculture Division of the Arkansas Farm Bureau
Arkansas aquaculture supply companies
National Resources Conservation Service
Arkansas Game and Fish Commission
Ducks Unlimited

Target Audiences

1. Farm pond owners
2. Owners of surface water storage reservoirs
3. Adult full- and part-time farmers

Evaluation Framework

County agent records
Participant assessment of knowledge, attitudes and skills
Surveys of practice adoption
Examples/success stories

Program Duration

Short term

Performance Goal 1

Long term

Performance Goal 2

Allocated Resources

Extension – \$186,845

Total Resources Allocated FY 2000-2004 Across All Programs – \$21,745,569

Jacquelyn W. McCray, Ph. D.
Dean, School of Agriculture, Fisheries and Human Sciences
and Director, 1890 Research and Extension Programs

Date

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

	2000			2001			2002			2003			2004			TOTAL
	CSREES	State	Other	CSREES	State	Other	CSREES	State	Other	CSREES	State	Other	CSREES	State	Other	
GOAL 1. An agricultural system that is highly competence in a global society.																
Research Programs																
1. Poultry production and management	102726	0	0	102726	10000	0	102726	10000	0	102726	10000	0	102726	10000	0	553630
Research SYs	1.40			1.40			1.40			1.40			1.40			
2. Crop protection systems	48666	0	0	48666	15000	0	48666	52500	0	48666	52500	0	48666	52500	0	453330
Research SYs	0.80	0.40		0.80	0.75		0.80	0.75		0.80	0.75		0.80	0.75		
3. Alternative crop production	76463	0	0	76463	137500	0	76463	137500	0	76463	137500	0	76463	137500	0	932315
Research SYs	0.56			0.56	0.75		0.56	0.75		0.56	0.75		0.56	0.75		
4. Catfish production and management	186573	157629	453000	186573	157629	453000	186573	157629	453000	186573	157629	453000	186573	157629	453000	3986010
Research Sys	2.00	0.68	3.00	2.00	0.68	3.00	2.00	0.68	3.00	2.00	0.68	3.00	2.00	0.68	3.00	
5. Baitfish production and management	231028	204201	0	231028	204201	0	231028	204201	0	231028	204201	0	231028	204201	0	2176145
Research Sys	4.70	0.72		4.70	0.72		4.70	0.72		4.70	0.72		4.70	0.72		
Extension Programs																
1. Small farm/ Horticulture mgmt.	40453	30000	300000	40453	125000	300000	40453	125000	300000	40453	125000	300000	40453	125000	300000	2232265

Extension FTEs	1.25	0.50		1.25	1.50		1.25	1.50		1.25	1.50		1.25	1.50		
2. Livestock management	83261	0	0	85000	15000	0	85000	15000	0	85000	15000	0	85000	15000	0	483261
Extension FTEs	1.00			1.00			1.00			1.00			1.00			

	2000			2001			2002			2003			2004			TOTAL
	CSREES	State	Other	CSREES	State	Other	CSREES	State	Other	CSREES	State	Other	CSREES	State	Other	
3. Catfish production/management	179576	183809	0	179576	183809	0	179576	183809	0	179576	183809	0	179576	183809	0	1816925
Extension FTEs	3.40	0.22		3.40	0.22		3.40	0.22		3.40	0.22		3.40	0.22		
4. Baitfish production/management	161737	125205	0	161737	125205	0	161737	125205	0	161737	125205	0	161737	125205	0	1434710
Extension FTEs	3.00	0.15		3.00	0.15		3.00	0.15		3.00	0.15		3.00	0.15		

GOAL 2. A safe and secure food and fiber system.

Research Programs/NA

Extension Program

5. Nutrition education and wellness system (Food Safety)	0	0	47250	0	9000	47250	0	9000	47250	0	9000	47250	0	9000	47250	272250
Extension FTEs		0.10	1.00		0.10	1.00		0.10	1.00		0.10	1.00		0.10	1.00	

GOAL 3. A healthy, well-nourished population.

Research Programs

6. Herbs and vegetable production			0	79699	30000	0	79699	30000	0	79699	30000	0	79699	30000	0	518495
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Research SYs	0.80			0.80			0.80			0.80			0.80			
7. Human nutrition and health	108250	0	389996	108250	0	389996	108250	0	389996	108250	0	300000	108250	0	300000	2311238
Research Sys	1.69		0.25	1.69		0.25	1.69		0.25	1.69		0.25	1.69		0.25	
Extension Program																
5. Nutrition education and wellness system (Diet and Health)	7500	0	141750	0	46000	141750	0	46000	141750	0	46000	141750	0	46000	141750	900250
Extension FTEs		0.10*	3.00		1.50	3.00		1.50	3.00		1.50	3.00		1.50	3.00	

2000			2001			2002			2003			2004			TOTAL
CSREES	State	Other	CSREES	State	Other	CSREES	State	Other	CSREES	State	Other	CSREES	State	Other	

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

Research Programs

8. Integrated pest mgmt.	64864	0	0	64864	15000	0	64864	15000	0	64864	15000	0	64864	15000	0	384320
Research SYs	1.06			1.06			1.06			1.06			1.06			
9. Small ruminant nutrition/management	98052		0	98052	30000	0	98052	30000	0	98052	30000	0	98052	30000	0	610260
Research SYs	1.70			1.70	0.50		1.70	0.50		1.70	0.50		1.70	0.50		
Extension Program																
6. Farm pond management and irrigation reservoirs	25000	12369	0	25000	12369	0	25000	12369	0	25000	12369	0	25000	12369	0	186845
Extension FTEs	0.25	0.303		0.25	0.303		0.25	0.303		0.25	0.303		0.25	0.303		

GOAL 5. Enhanced economic opportunity and quality of life for Americans.

Research Programs

10. Economic behavior of minority farmers	76327	0	0	76327	30000	0	76327	30000	0	76327	30000	0	76327	30000	0	501635
Research SYs	0.73			0.73			0.73			0.73			0.73			
11. Improving quality of life	98000	0	0	98000	0	0	98000	0	0	98000	0	0	98000			490000
Research SYs	1.44			1.44			1.44			1.44			1.44			

2000			2001			2002			2003			2004			TOTAL
CSREES	State	Other	CSREES	State	Other	CSREES	State	Other	CSREES	State	Other	CSREES	State	Other	

Extension Program

7. Family & Youth Programs <ul style="list-style-type: none"> • Extension 5 (Juvenile crime prevention) • Adolescent pregnancy prevention • Drug abuse prevention • Parenting • Child care training 	223137	66000	0	223137	180000	0	223137	180000	0	223137	180000	0	223137	180000	0	1901685
Extension FTEs	2.20	1.50		2.20	3.00		2.20	3.00		2.20	3.00		2.20	3.00		

EXTENDED TOTAL	1891312	779213	1331996	1885551	1363213	1331996	1885551	1363213	1331996	1885551	1363213	1242000	1885551	1363213	1242000	2214556 9
TOTAL – Research Sys	16.880	1.800	3.250	16.880	3.400	3.250	16.880	3.400	3.250	16.880	3.400	3.250	16.880	3.400	3.250	
TOTAL – Extension FTEs	11.100	2.873	4.000	11.100	6.773	4.000	11.100	6.773	4.000	11.100	6.773	4.000	11.100	6.773	4.000	

*Matching – FF NEWS