

2007 University of Arkansas Combined Research and Extension Plan of Work

Plants & Plant Products

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 101 10% Appraisal of Soil Resources
- 102 10% Soil, Plant, Water, Nutrient Relationships
- 111 10% Conservation and Efficient Use of Water
- 112 10% Watershed Protection and Management
- 201 10% Plant Genome, Genetics, and Genetic Mechanisms
- 203 10% Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 204 10% Plant Product Quality and Utility (Preharvest)
- 205 10% Plant Management Systems
- 206 10% Basic Plant Biology
- 213 10% Weeds Affecting Plants

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

1. Situation and priorities

Agriculture is a very large and diverse industry in Arkansas. Programs in cotton, rice, wheat, soybean, corn, and grain sorghum are crucial to making Arkansas highly competitive in the global economy. While the 2005 state rice acreage was the largest on record and produced the second best average yield on record, Arkansas rice producers continue to face many challenges in order to produce a profitable crop and maintain sustainability of the land. Currently, Arkansas ranks fourth in the US for cotton production. Soybeans remain the largest (based on planted acreage) row-crop. Since wheat continues to be a profitable crop for many producers, especially on acres where irrigation of row crops is not possible, Arkansas wheat producers are always looking for management practices to reduce production costs and still be able to produce economical high-yielding wheat. A key factor in maintaining high yields and consequently increased competitiveness and profitability in row crops is weed control. Weed control continues to be a key management decision that rice, corn, wheat and soybean farmers face each season. After variety selection, it is often the first management decision made each year. Failure to control weeds can often nullify other concerns as weed competition has the potential to completely rob crops of profitability. In turf and pasture management, for example, lack of effective weed control is preventing many farmers from taking advantage of the new seeded varieties and the accompanying cost of establishment savings.

Extension and research faculty also work together to identify and implement best management practices in horticulture enterprises and systems, to educate fruit, vegetable, ornamentals, turfgrass, commercial, and consumer clientele to enhance economic development in Arkansas, and to develop a system that is highly competitive in the regional and global economy.

Arkansas' climate and most of its soil and terrain are suited for the production of grasses and legumes necessary to support the livestock industries. Primary forages include tall fescue, clover and bermudagrass. Over 4.6 million acres of pastureland and 1.4 million acres of hay land (total 6 million acres) are managed to enhance livestock production and land stewardship. Livestock producers will benefit from forage management production programs to improve production efficiency and returns.

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

1. Assumptions made for the Program

While average yields for most commodities grown in Arkansas have increased significantly, Arkansas producers continue to face many challenges in order to produce profitable crops and maintain sustainability of land. The most significant issues include optimum variety selection, diminishing irrigation water quantity, integrated pest management issues, nutrient management, and soil conservation. Many of these issues are addressed through education programs and various verification programs which are providing growers with key recommendations for efficient production, weed control issues, and other resources. Cooperative efforts with grower groups, commodity boards, regulatory agencies, and other organizations also provide valuable feedback in programming on a regional and statewide basis. On-farm research results generate data from which recommendations are derived.

The majority of county Extension Councils in Arkansas have identified horticulture as a major emphasis area for their long range educational program. Horticulture inquiries are an increasing demand on the county agent's time and few have training in these diverse subjects. With support from the state horticulture staff, they will be able to better serve their clientele. New and existing horticultural production and service industries require on-going research and educational assistance in developing and adapting new technology and best management practices.

Because of the abundance of natural resources (water, land, etc.), livestock production will continue to be a major industry in Arkansas. The Cooperative Extension Service continues to develop programming needs through a grass-roots programming effort. Therefore, identifying and implementing programs needed by the producing clientele will address their needs. Livestock producers will face ever changing challenges, and they will look to the UA Division of Agriculture to help them face those challenges.

2. Ultimate goal(s) of this Program

- « Develop crop production systems that are sustainable, profitable and competitive in the global marketplace.
- « Partner with industry, commodity groups, etc., to facilitate technology development and adoption.
- « Initiate cooperative work among scientific disciplines to fine-tune the best management practices over a variety of geographic regions.
- « Investigate and address concerns, as they emerge.
- « Continue to support strategic partnerships that create value-added benefits for Arkansas' environment and its people.
- « Expand programs for effective sustainable agriculture systems.
- « Increase and enhance horticulture knowledge and expertise of commercial and consumer audiences and extension staff. Increase number and
- « Improve quality and profitability of commercial horticulture operations in the state.
- « Increase forage production efficiency.

V(F). Planned Program (Activity)

1. Activity for the Program

Develop and conduct workshops, educational meetings, demonstrations, and field days
Direct clientele contact: on- site visits, phone calls, mail and emails
Develop and produce educational products and materials
Conduct tours and demonstrations
Conduct discovery and applied research
Publish educational materials
Provide diagnostic services
Media work through print, radio, TV and internet
Partnering with commodity associations, groups, Master Gardeners, and traditional and nontraditional groups
Coordination of Master Gardener programs
Develop improved crop production systems that maximize profitability and sustainability