

Arkansas (University of Arkansas System Division of Agriculture)

Plan of Work for 2023-2027

Status: Final (Approved 9/26/2022)

Executive Summary Overview

University of Arkansas System Division of Agriculture (Division of Agriculture) faculty, staff and facilities are located on seven university campuses, four Research and Extension Centers, six Research Stations, two Extension Centers, and in all 75 counties. A fifth regional Research and Extension Center is currently under construction. The Division of Agriculture remains committed to this statewide infrastructure with a presence in all 75 Arkansas counties, ensuring that Researchers and Extension educators are readily available to address the science and business of agriculture and the broader needs of families and the communities we serve.

Consistent with the land grant mission, Division of Agriculture Research and Extension faculty have a long history of providing leadership in the development, dissemination and delivery of innovative practices and emerging technology. Division researchers conduct basic and applied research for Arkansas producers, businesses, communities, and families. County agents and specialists strive to provide the best science-based recommendations available. Although stakeholders are exposed to multiple sources and copious amounts of information and data, the Division of Agriculture remains a reliable source of impartial and science-based recommendations, independent of financial or philosophical interests.

Although most in-person educational activities have resumed, the Division will continue to deliver timely and responsive distance education webinars and resources in 2023 to ensure wide-spread access to educational programs by Arkansans. This includes monthly webinars through the National Agricultural Law Center on current and emerging important agricultural, environmental and food law topics. Online courses are available 24/7/365 through the Division's website (<http://courses.uada.edu>). Division faculty also address timely topics of interest to Arkansans through virtual events and other web-based programming.

The focus of work conducted by the Division of Agriculture continues to be guided annually by grass-roots, community-based input from a diverse range of Arkansas citizens; mainly through the use of County Extension Councils and other local and program advisory groups. The Division of Agriculture formally engaged a large pool of stakeholders (including individual clientele, producers, schools, partner agencies and organizations, state government officials, community leaders, underserved groups, and legislators) in the design and development of the 2017-2023 Strategic Plan. Based on broad stakeholder feedback, the Division identified five areas to focus our efforts: Agricultural and Forestry Production and Processing, Access to Safe and Nutritious Food, Strengthening Arkansas Families, Building Communities and Strengthening Economies, and Natural Resource Conservation and Management. These five emphasis areas help to provide strategic local guidance for Division Research and Extension programs

and help to support integrated research/extension efforts that align with the NIFA Science Emphasis Areas.

Agricultural and Forestry Production and Processing

A critical need in Arkansas, and nationwide, is to ensure farm and forest enterprises are profitable and sustainable to meet the demands for safe food, fiber, and fuel. The agricultural industry must contend with more regulations, higher input costs, fluctuating commodity prices, climate extremes, and global trade policies. The Division of Agriculture research and educational programs will focus on increasing productivity in a humane and sustainable manner while decreasing costs through efficient use of resources. Plant systems emphasize economics, environment, genetics and breeding, weeds, disease, pest management, safe handling and storage, food processing, cultural practices, and soil fertility. Animal systems emphasize genetics, reproduction, economics, nutrition, waste management, physiology, environmental stress, health, and animal wellbeing. Common to both plant and animal systems is the appropriate use of new products and technology.

Access to Safe and Nutritious Foods

The availability of safe and nutritious food is vital to families and individuals in all communities. The Division of Agriculture works to promote healthy diets through research and public education efforts that target obesity and encourage better consumer habits through programs such as the Expanded Food and Nutrition Education Program (EFNEP) and SNAP-Ed. EFNEP empowers individuals and families with children, with limited income, to acquire knowledge, skills, attitude, and behavior changes necessary to maintain nutritionally sound diets and enhance personal development. SNAP-Ed provides nutrition education to food stamp recipients and those individuals and families who are eligible to receive nutrition assistance to help consumers make better choices about what to eat to stay active and live better.

The Division of Agriculture seeks to strengthen food systems through research and innovation. The long-term growth of the food industry in Arkansas is dependent upon the industry's ability to innovate, to respond to consumers' taste and expectations, to employ a quality workforce and to minimize environmental impacts and the use of natural resources while maintaining economic viability. Partnerships with community leaders and agencies are pursued to increase access to nutritious foods. Extension programs help people from many backgrounds understand how to make wise nutritional choices and stretch food dollars by cooking for themselves and utilize a wider variety of foods.

The Division also strives to enhance food safety through research and teaching best practices to all who handle food, from field to table. This includes education related to federal and state laws, such as how to adhere to the FDA's Produce Safety Rule and meeting certification requirements of the Arkansas Department of Health through ServSafe, a food safety certification program for individuals who work in food handling or food service and related industries. Extension educators provide evidence-based information to ensure that Arkansans are equipped with the best food safety information to keep their families safe from foodborne illnesses and other food-related safety issues.

Strengthening Arkansas Families

It is critical to address challenges that affect families, consumers, and the communities in which they live. The mental, physical, and financial well-being of families and the development of youth are

essential to building prosperity for Arkansans. The Division of Agriculture is responding to these needs by delivering research-based programs to reduce stress, improve mental health, strengthen relationships, increase financial stability, and improve well-being for Arkansans. 4-H clubs, activities and events across Arkansas involve young people in hands-on education and service-learning opportunities that enhanced their life skills, including decision making, problem solving, critical thinking, communications, and healthy lifestyle choices. 4-H conveys to the public that all youth have value. Striving to reach a diverse population is key to developing curriculum, offering recognition, and teaching strong leadership skills to represent our state's current demographics.

Building Communities and Strengthening Economies

Changes in the economy, technology and population are transforming how Arkansans live and work. There is a critical need for businesses to understand their changing economic environment and effectively employ tools and resources. At the same time, the labor force requires enhanced skills and training to succeed in today's global economy. At a time when many rural areas are losing population, communities must take a proactive approach to create a high quality of life and place if they want to survive. Effective and inclusive leaders working with engaged citizens are key to this effort. To address these critical needs, programs focus on four areas: economic viability and sustainability; entrepreneurship in evolving economies; leadership and civic engagement; and quality of life and place.

Natural Resource Conservation and Management

Arkansas faces critical natural resource issues including groundwater decline in Eastern Arkansas from irrigation, water quality concerns from animal manures, sediment loss from cropland and urban stormwater. We all share concerns for soil health, air quality, protection of ecosystem services of forests and wildlife habitat, but agriculture is under scrutiny to reduce impact on natural resources. We focus on unbiased Research and science-based Extension efforts to balance conservation of natural resources. Programs, such as Arkansas Discovery Farms and the Center for Agricultural and Rural Sustainability, will collaborate with farmers, landowners, and industry to deliver innovative, sustainable programs to ensure proper conservation and management of natural resources.

In addition to annual stakeholder engagement activities to inform Research and Extension programs, the Division will launch a formal and comprehensive effort in 2023 to identify priorities for the organization's new strategic plan with input from stakeholders that represent the diversity of Arkansas.

Merit and Scientific Peer Review Processes

Programs go through a three-tiered review process - stakeholder program identification and review; administrative approval and review; and external review.

Stakeholder program identification and review involves formal and informal means for all program areas. Public comment to inform extension and research programs is obtained from local meetings, community groups, commodity boards, program advisory committees, legislative committees and issue forums. Public meetings, field days and production meetings also provide input from under-served or under-represented individuals, groups or organizations.

For Cooperative Extension, county councils and subcommittees meet during summer months (each year) to provide input and/or review of program implementation, redirection, or new needs. Members

of these groups and others also participate in field days, special tours, workshops and conferences for the duration of the program. All reviews of research and extension programs include a stakeholder member or members of the community or industry most influenced by the program area.

Open public forums are held to address specific issues of importance to the stakeholder community or industry. Planned program areas for research and extension are administratively reviewed and approved by the Arkansas Director of the Agricultural Experiment Station and/or Director of Cooperative Extension Service, as appropriate, within the context of the Division of Agriculture's Strategic Plan and the specific needs identified by stakeholder groups. Smith-Lever, Hatch, McIntire-Stennis, Animal Health and regional projects are administratively reviewed and approved by the subject matter department head and the director of the Experiment Station and/or Extension Service. All research projects are reviewed by three outside scientists prior to submission to the respective subject matter department head and the experiment station.

Merit reviews are conducted by external reviewers as part of the Division of Agriculture's on-going program review process. The reviews are conducted by department, or program area across departments. Reviews are scheduled on a 10-year cycle and conducted concurrently for research, extension and academic instruction. All reviews are conducted by a team of recognized research, extension and teaching professionals balanced to reflect programmatic needs and diversity. All review teams include one or more Arkansas stakeholders. The review process involves a period of self-study, followed by program assessment and bench marking. The review team evaluates effectiveness relative to the stated mission and goals of the department or program as well as the needs of stakeholders. Following the outside review teams' written evaluation, the department or program prepares a response to the review. The Division of Agriculture and University administration then meet with the department or program faculty to develop a plan for implementing changes. The Division of Agriculture also conducts a mid-term internal review for departments, which tracks the progress of the department toward meeting the external review team's recommendations and the department's plan for implementing changes.

Stakeholder input: Action Taken to Seek Stakeholder Input

The University of Arkansas System Division of Agriculture utilizes both formal and informal mechanisms for ensuring the planned programs address areas of strategic importance to the state.

Division of Agriculture planned programs are based on the needs identified through electronic and print surveys of current and potential stakeholders representing the diversity of the population in the regions and state. Single issue and county level meetings are held as needed to address emerging issues and to craft additional program responses if needed to promptly address the problem. Program evaluations are also used to collect feedback from clientele.

The Division of Agriculture is currently in the early stages of planning a formal and comprehensive effort in 2023 to identify priorities to inform the organization's new 5-year strategic plan with input from stakeholders that represent the diversity of Arkansas.

Stakeholder input: Methods to Identify Individuals and Groups

The University of Arkansas System Division of Agriculture seeks input from diverse stakeholder groups. Stakeholders serve on county councils, advisory committees, and boards that advise and oversee the

work of the Division. Individuals and stakeholder groups are identified by Arkansas Experiment Station faculty and administrators, state and county Extension faculty and staff, research and extension program partners, and clientele. Efforts are made to include and engage people that reflect the gender, racial, ethnic, and socioeconomic and other diversity of the state representing aspects of community such as county services (e.g., DHS, Food Bank or Pantry); financial sector (e.g., banks, agricultural lending, investments); faith-based sector (e.g., church, youth minister); education (public, private, vocational); commercial sector (e.g., chambers of commerce, industry); health (e.g., hospital, public health, doctor); agricultural production; agricultural businesses; county Extension council; 4-H program (e.g., leader, teen, alumni, foundation); government official (e.g., county, city); Extension homemaker; natural resources (e.g., wildlife, forestry, conservation); media (e.g., radio, newspaper, television); and youth services (e.g., community center, youth organizations).

Additional methods to identify stakeholder groups and individuals from whom to gather information for the Division's new 5-year strategic plan may be developed as the planning process is formalized.

Stakeholder input: Methods for Collecting Stakeholder Input

Division of Agriculture stakeholders participate in establishing annual Cooperative Extension program priorities for each of the 75 counties in Arkansas. Each summer and fall, Division of Agriculture Extension faculty meet with County Extension Council members and program sub-committees to identify local needs for the program planning year beginning October first. County-level secondary data compiled by state faculty are utilized to examine the diversity of needs and to understand the changing demographics within each county. Stakeholder-gathered data, such as priorities identified through the Farm Bureau policy development process, are also used to identify research needs. Several priority-setting activities were held during 2021 and 2022 with specific commodity and stakeholder groups to seek input on the research planning process.

In addition to the standard methods of obtaining stakeholder input described above, in 2017, the University of Arkansas System Division of Agriculture updated its strategic plan. The 2017-2023 strategic plan for the Division included input from internal and external stakeholders statewide. Internal and external stakeholders participated in these processes. Specific surveys were conducted with individuals representing underserved or under-represented groups, women in agriculture and small farm operation producers.

During the statewide listening sessions held in support of the Division of Agriculture current five-year strategic plan, policy makers and key community and state organizational leaders considered critical and emerging needs within our state, and the role of the Division in addressing those needs. This group voiced their concerns about population changes across the state and challenges facing communities in a competitive economy. We heard comments concerning the different issues Arkansans must struggle with every day, including maintaining a competitive edge in agriculture and childhood health and obesity.

Stakeholder input: A Statement of How the Input Will Be Considered

The Division of Agriculture's 2017-2023 Strategic Plan outlines the specific objectives for each area and is based on what we learned from our stakeholders during the comprehensive strategic planning process. It includes the following priorities:

Agricultural and Forestry Production and Processing

Access to Safe and Nutritious Food

Strengthening Arkansas Families

Building Communities and Strengthening Economies

Natural Resource Conservation and Management

Annually at the local level, County Extension Councils and program subcommittees analyze primary and secondary data to identify community needs and issues and establish priorities for the program year that align with the Division's strategic plan. Priorities set for each county are then compiled and shared with administration and state-level faculty and staff. County Extension Council and subcommittee members also work with county agents and staff to plan, implement and evaluate programs related to identified priorities, and to communicate program impacts with stakeholders.

Division of Agriculture Research and Extension faculty and scientists meet with administration to discuss stakeholder needs solicited at meetings throughout the year. Identified needs are integrated into the Extension and Research planning process to ensure program relevance. Several departments and many of our institutes and centers maintain external advisory boards that provide direct feedback to the unit on the specific research or educational program. Stakeholder representatives serve on most policy-setting groups or program reviews to ensure that the public has a voice in the decision-making process and in program evaluation. Special meetings are held as needed to address major issues impacting any stakeholder group. Stakeholder input remains vital to ensuring program relevance, and each year programs are adjusted to address identified needs.

Critical Issues

UADA- Access to Safe and Nutritious Food

Initiated on: Nov 26, 2019

State: Arkansas

Term Length: Long-term (>5 years)

Food safety will always be important and creates a constant need for good information. The Division continues to work with the poultry and many industries on new solutions as well as updated educational programs in food safety. Growers of fresh fruits and vegetables have increasingly been challenged by food safety concerns and the myriad of new management practices and regulations now in effect. Extension is providing access to the required education to these growers throughout the state.

In the area of nutrition, Extension helps people from many backgrounds to understand how to make wise nutritional choices and to stretch food dollars by cooking for themselves, utilize a wider variety of foods, and promote a healthier lifestyle with physical activity for all ages. Division scientists conduct research to improve existing and develop new processing technologies to ensure we continue to have healthy, high-quality foods.

The Division of Agriculture will strengthen food systems through research and innovation. The long-term growth of the food industry in Arkansas is dependent upon the industry's ability to innovate, to respond

to consumers' taste and expectations, to employ a quality workforce and to minimize environmental impacts and the use of natural resources while maintaining economic viability.

Science Emphasis Area

Family & Consumer Sciences, Food Safety, Human Nutrition, Youth Development

UADA- Agricultural & Forestry Production & Processing

Initiated on: Nov 26, 2019

State: Arkansas

Term Length: Long-term (>5 years)

A critical need in Arkansas, and nationwide, is to ensure farm and forest enterprises are profitable and sustainable to meet the demands for safe food, fiber, and fuel. The agricultural industry must contend with more regulations, higher input costs, declining commodity prices, climate extremes, and global trade policies. The Division of Agriculture research and educational programs will focus on increasing productivity in a humane and sustainable manner while decreasing costs through efficient use of resources. We are actively pursuing opportunities to focus on beginning, veteran and underserved farmers as part of the overall program. The impact of greenhouse gas production and carbon sequestration of farm and forestry practices are being examined. Carbon markets may become a revenue generating farming practice.

Division scientists continue to develop new, and refine, existing plant production and processing systems, that are then disseminated to producers through Extension programs. Plant system efforts will continue to emphasize economics, environment, genetics and breeding, weeds, disease, pest management, safe handling and storage, food processing, cultural practices, and soil fertility. Large data and spatial analysis are becoming major drivers for decision making, Using sUAVs, realtime, field-scale information can be made to producers. The availability of high-resolution satellite imagery may surpass sUAV data acquisition.

Animal systems emphasize genetics, reproduction, economics, nutrition, waste management, physiology, environmental stress, health, and wellbeing. Common to both plant and animal systems is the appropriate use of new products and technology. Poultry is the largest Arkansas industry and future challenges in production and biosecurity need research and technology transfer throughout the production and delivery chain.

The Division of Agriculture also works to support the needs of economics side of agriculture, as there is great potential for market growth through the development and adaption of novel and innovative products and technology. Agriculture economists are accessing economic risk and trying to understand markets so that profitable decisions can be made. Considerable education effort in matching products to markets has led to increased producer value.

Science Emphasis Area

Agroclimate Science, Bioeconomy, Bioenergy, and Bioproducts, Environmental Systems, Food Safety, Sustainable Agricultural Production Systems

UADA- Building Communities and Strengthening Economies

Initiated on: Nov 26, 2019

State: Arkansas

Term Length: Long-term (>5 years)

Changes in the economy, technology, and population continue to transform how Arkansans live and work. There is a critical need for businesses to understand their changing economic environment and effectively employ tools and resources. At the same time, the labor force requires enhanced skills and training to succeed in today's global economy. Many rural areas are losing population, which means communities must take a proactive approach to create a high quality of life and place if they want to survive. To address these critical needs, Division efforts focus on four areas: economic viability and sustainability; entrepreneurship in evolving economies; leadership and civic engagement; and quality of life and place.

Economic development research and extension programs enable communities and regions to identify and implement innovative economic and workforce development strategies. Entrepreneurship and business development programs assist in the development of value added and local food systems, risk management, pursuit of new market opportunities such as government contracts, and development of new businesses, products, and services. Science, technology, and workforce skill development programs are also available to youth and adults.

Leadership development and Public Policy Center programs help Arkansans broaden their understanding of issues and opportunities facing our state and strengthen their ability to make a difference. Local government programs provide community members and local officials with resources to plan the provision of infrastructure and services in the changing economic climate of the state.

Science Emphasis Area

Education and Multicultural Alliances, Family & Consumer Sciences, Sustainable Agricultural Production Systems, Youth Development

UADA- Natural Resource Conservation and Management

Initiated on: Nov 26, 2019

State: Arkansas

Term Length: Long-term (>5 years)

Arkansas is rich in natural resources, but each region of the state faces unique challenges to protect the natural resources for future generations. For example, in the Mississippi Delta region of Eastern Arkansas, groundwater decline due to decades of crop irrigation is a major concern, as is sediment loss from cropland. Water quality and soil nutrient loading from animal manure applications is a critical issue in the Ouachita and Ozarks mountain regions. Climate change is an increasing concern as Arkansas is currently experiencing extremes in weather cycles that are causing flooding and drought, often in the same year. Improving soil health to potentially increase profitability by reducing irrigation and fertilizer needs as well as becoming more resilient to climate change is gaining the interest of Arkansas farmers.

Interest in soil conservation practices such as minimum tillage, cover crops and residue management is increasing. Some early adopter farmers of these practices have formed the Arkansas Soil Health Alliance, a non-profit organization with the goal of educating other farmers. Division scientists work collaboratively with partners to define and promote science-based practices for natural resource conservation by utilizing on-farm educational programs that work directly with farmers such as the Discovery Farms program, Soil Health Demonstration program, Crop Research Verification Trials and 300 Days of grazing. Discovery Farms are private working farms that have volunteered to let the Division monitor edge-of-field water quality runoff, soil health, water use efficiency and resiliency to climatic extremes whereas the Soil Health demonstration program compares cover crop vs a control side-by-side to detect benefits to soil health. The Crop Research Verification program enrolls fields for on-farm demonstration of science-based recommendations which lead to profitable and sustainable crop production.

The Center for Agricultural and Rural Sustainability (CARS) encourages collaboration among scientists, farmers, landowners, and industry to deliver sustainable programs for conservation and management of natural resources along the supply chain. The Arkansas Forest Resources Center develops and delivers programs that enhance and ensure the sustainability of forest-based natural resources in Arkansas.

In the area of nutrient management, the Division's soil testing laboratory analyzes samples to ensure farmers and landowners receive appropriate fertilizer recommendations. Manure testing service continues to provide manure and poultry litter analysis needed for nutrient management plans by livestock and poultry producers. The Division delivers an online training program to provide the necessary training to certify nutrient management planners and nutrient applicators.

Science Emphasis Area

Agroclimate Science, Bioeconomy, Bioenergy, and Bioproducts, Environmental Systems, Sustainable Agricultural Production Systems

UADA- Strengthening Arkansas Families

Initiated on: Nov 26, 2019

State: Arkansas

Term Length: Long-term (>5 years)

Arkansans are facing many serious challenges to health and wellbeing, including high rates of obesity, poverty and family instability. The Division is committed to helping Arkansans develop and transition through life stages by offering programs for children and youth, young adults, families, adults, and senior adults.

The Division of Agriculture strives to provide Arkansas youth tools and skills to increase their resiliency and well-being. That goal is being accomplished through positive youth development programming, primarily delivered through the Arkansas 4-H Program. The 4-H program has a presence in all 75 counties and conducts programs in the areas of civic engagement, STEM, and healthy living while incorporating leadership opportunities for the youth of Arkansas.

It is also critical to address challenges that affect families, consumers, and the communities in which they live. The Family and Consumer Sciences program offers Extension programming focusing on

parenting, leadership, family relationships, stress management, and financial resource management, thereby improving quality of life for all Arkansans.

The Division of Agriculture is continually working to identify and investigate current and emerging needs of families and youth that will then inform Division programs into the future. A large emphasis is on utilizing and exploring the impacts of policy, systems, and environmental interventions (PSEs), which has continued to be shown as an effective component to create sustained change.

Science Emphasis Area

Education and Multicultural Alliances, Family & Consumer Sciences, Youth Development