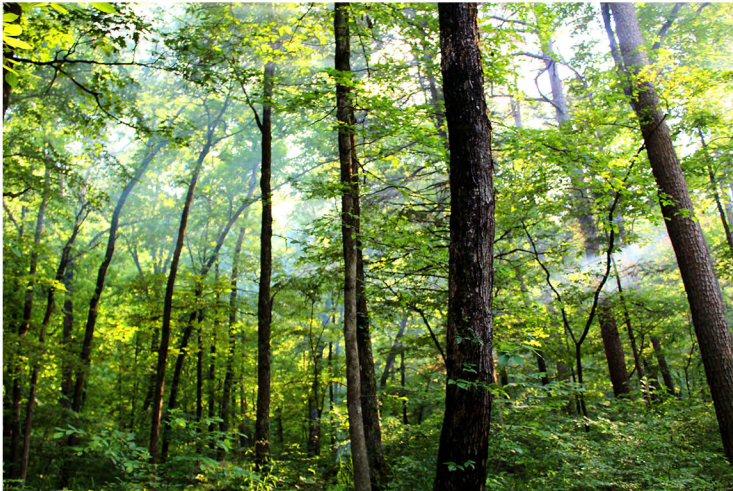




**UofA**  
DIVISION OF AGRICULTURE  
RESEARCH & EXTENSION  
University of Arkansas System

# FY23 NIFA

## REPORT OF ACCOMPLISHMENTS





# INTRODUCTION

---

The University of Arkansas System Division of Agriculture, which was created on September 26, 1959, has a long-standing history of community impacts across Arkansas and beyond. Since its inception in 1959, the Division has worked with a wide variety of stakeholders in Arkansas including community members, elected officials, farmers, ranchers, business owners, local, state, and federal agencies to identify Arkansas individuals, families, and communities' needs to develop its quinquennial strategic plans. These strategic plans, which are often revised every year, communicate to stakeholders how the Division aligns resources to address the identified community needs and track progress being made through research and Extension programming.

The Division's primary mission is helping producers and processors of food, fiber and fuels access and use appropriate technologies. The statewide infrastructure also supports a broader mission that affects people in all walks of life. These areas include food safety and security, health and nutrition, natural resource conservation, and 4-H and other programs serving youth, families and communities.

Proving credible evidence of the accomplishments and contribution of the Division's work on the socio-economic wellbeing and health wellness of Arkansans is key to stakeholders. However, it has not always been an easy task for the employees of the Division. The Office of Organizational Accountability and Evaluation (OOAE) is working closely with each department of the Division to help build and sustain a stronger culture of accountability and evaluation in the organization. One of the goals of OOAE is to increase the visibility of the Division including Extension through impact storytelling. This year, the OOAE has worked with the Department of Communications to publish the FY23 NIFA report in a way that is more accessible to stakeholders and has asked a few administrative leaders to share their perspectives on the importance of impact storytelling and what it means for their departments.

*Cont. on next page*



*“When it comes to reporting it normally isn’t a favorite part of our jobs. However, it is essential to tell our story. Reporting allows us to share the good news of what Extension is doing, the successes we are having and the positive impacts we are*



*making on the citizens of the Ouachita District. Our stakeholders such as concerned citizens of our communities, Farm Bureau, Quorum Courts, Youth Development programs, Master Gardeners, and Extension Homemakers, benefit from our agents making a difference in the lives of our citizens,” -*  
Carla Due, Ouachita District Director



*“We rely on quantitative and qualitative evaluation data to document the impacts of this work and improve our programs. Through programs such as voter education, leadership and board training, and technical*

*assistance for businesses, communities and regions, our community, professional and economic development programs are making a difference all across Arkansas,” -* Stacey McCullough, Assistant Vice President for Community, Professional and Economic Development

*“The work of Family & Consumer (FCS) Professionals is to improve the lives of individuals, families, and communities. Reporting program impacts is important in FCS because this tells our story to stakeholders.*



*It tells the individuals and families we serve in our communities that we hear and see them as well as their challenges, and it shows them the progress we are making on the goals and objectives we set together. Reporting shows our grant funders, Quorum Court members, and state legislators that we are a wise investment of resources to address defined community needs so they will invest or continue to invest in our programs. Reporting provides us objective data to use when making decisions on how to best focus resources and efforts to establish and effectively sustain programs to serve all Arkansans,” -* Nina Roofe, Assistant Vice President for Family and Consumer Sciences

We hope this report provides you with a small glimpse of what the Division does and how it continues to positively impact the lives of our people and communities in Arkansas and beyond. The Division is present all across Arkansas and continues to count on your invaluable support to further advance its land grant mission and bring about greater change to the communities.

*- The Office of Organizational Accountability and Evaluation*

# TABLE OF CONTENTS

---

**Overview..... 1**

**Critical Issue: Access to Safe and Nutritious Food..... 3**

**Critical Issue: Agricultural and Forestry Production and Processing..... 5**

**Critical Issue: Building Communities and Strengthening Economies..... 8**

**Critical Issue: Natural Resource Conservation and Management..... 11**

**Critical Issue: Strengthening Arkansas Families..... 14**



# OVERVIEW

University of Arkansas System Division of Agriculture faculty, staff and facilities are located on five university campuses, five regional Research and Extension Centers, six Research Stations, three Extension Centers, and in 75 counties. Unlike most states today, the Division of Agriculture remains committed to this statewide infrastructure with a presence in all 75 Arkansas counties. This ensures 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 and dissemination of innovative practices and emerging technology. UADA researchers conduct basic and applied research for Arkansas producers, businesses, communities, and families. Extension specialists, agents, and researchers deliver research-based education statewide using diverse educational methods, including educational classes, workshops, landowner visits, individual consultations, demonstrations, and field days/tours/camps. County agents and specialists work together with community partners to provide the best science-based recommendations available.

In FY2023, the Division of Agriculture Extension educators reached Arkansans over 11 million times. In FY2023, the Division of Agriculture Extension saw over 9 million contacts (both direct and indirect) reached from various social media and

website platforms and a four percent increase of in-person educational contacts over FY2022. Despite increasing the number of in-person educational activities over FY2022, the Division of Agriculture has continued to use Zoom to deliver programming and engage with clientele and employees. In FY2023, we hosted 20,910 Zoom meetings and 245 webinars.

## VOLUNTEER IMPACT

The Division of Agriculture relies heavily upon volunteers for increasing the impact and reach of our Extension programs. Our largest volunteer groups include Master Gardeners, 4-H volunteers, Extension Homemakers and other volunteers who gave their time and energy to Extension programs. During FY2023, there were nearly 54,000 Extension volunteers serving over 406,000 hours for a value of nearly \$13 million (Independent Sector, April 2023).



## ONLINE TRAINING

Although many people were eager to return to face-to-face trainings and education in FY2022, demand remains relatively high for online instruction in FY2023. The Division of Agriculture maintains

*Division of Agriculture researchers were awarded **\$26 million** in grant awards in FY2023. Total expenditure for the year was **\$72.8 million**. Research results were showcased in **511 peer-reviewed publications** and our researchers were cited **25.3 thousand times**.*

a robust selection of online trainings 24/7/365 through our website <https://learn.uada.edu/>. Throughout the year we had 125 courses available with 12,120 participants enrolled in at least one course.

## **NATIONAL AGRICULTURAL LAW CENTER**

Housed within the Division of Agriculture, the **National Agricultural Law Center (NALC)** serves as the nation's leading source of non-partisan agricultural and food law research and information in partnership with the USDA Agricultural Research Service and National Agricultural Library. NALC leads the Agricultural & Food Law Consortium, a first-of-its-kind four-university partnership designed to expand and enhance the delivery of objective and relevant agricultural and food law research and information to the nation's agricultural community. The newest partner is the Southern University Law Center, one of six HBCU law schools in the United States. In FY2023, NALC delivered timely and responsive distance education webinars (n = 18) on emerging issues including legal updates and latest developments on federal crop insurance, impact of the 2022 elections on ag law and policy, carbon leasing, foreign ownership of agricultural land, civil rights developments, water law and estate planning. Further, the NALC started the "Growing Careers in Agriculture" series, facilitating outreach to socially disadvantaged students interested in pursuing careers in agricultural law. The National Center for Agricultural Law is not only an integrated effort between Research and Extension, but it is multistate in both the intended audience and contributors to the Center's efforts. NALC maintains a formal partnership with the National Association of State Departments of Agriculture (NASDA), and works closely with other state, regional and national organizations.



## **FOCUS AREAS**

The focus of work conducted by the Division of Agriculture continues to be guided annually by grassroots, community-based input from a diverse range of Arkansas citizens, mainly through the use of County Extension Councils and other local 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 emphasis areas to focus our efforts:

- **Agricultural and Forestry Production and Processing;**
- **Access to Safe and Nutritious Food;**
- **Strengthening Arkansas Families;**
- **Building Communities & Strengthening Economies; and**
- **Natural Resource Conservation and Management.**

These five emphasis areas helped to provide guidance for Division research and Extension programs and helped to support integrated research/extension efforts in these areas. These emphasis areas serve as the University of Arkansas System Division of Agriculture's Critical Issues for the purpose of Hatch and Smith-Lever 3(b) and 3(c) NIFA reporting.



# CRITICAL ISSUE: ACCESS TO SAFE AND NUTRITIOUS FOOD

Division of Agriculture faculty and staff developed, evaluated, and disseminated education programs and curricula, incorporating new research and emphasizing healthy lifestyles to prevent and/or reduce adult and childhood obesity and other diet-related diseases. Faculty participated in external review committee meetings regarding novel research to determine the impact of diet and food composition and functional food components on body weight and health. Key Extension programs included Supplemental Nutrition Assistance Program Education (SNAP-Ed) and Expanded Food and Nutrition Education Program (EFNEP).

Division of Agriculture researchers continue to work with UA Fayetteville, the University of Arkansas for Medical Sciences (UAMS), and the Arkansas Children's Research Institute examining the link between childhood obesity outcomes and features of the food, social, and built environment. The Arkansas Children's Research Institute and the UAMS Arkansas Center for Health Improvement (ACHI) provide access to a unique individual-level dataset on obesity outcomes. Access to this data allows research to be conducted at a level of detail and accuracy not possible with national-level datasets.

## CENTER FOR ARKANSAS FARMS AND FOOD

Faculty and staff at the **Center for Arkansas Farms and Food (CAFF)** have continued our apprentice program with mentor farms to provide real-world farm experience for first-time farmers and farm schools. The CAFF Farm Apprenticeship program lasts one to two seasons, depending on apprentice interests, and includes a core set of classes on topics such as basic business planning methods, marketing strategies and financial recordkeeping skills that complement the hands-on learning. CAFF works closely with the Northwest Arkansas

Land Trust and the Northwest Arkansas Food Conservancy to connect new farmers with land resources where they can grow food and help get the food to market in grocery stores and restaurants. In addition, the center provided 13 classes in 2023 focused on specific topics ranging from new/initial farm planning through on-farm sales and marketing basics and how to develop value added products or initiate an agritourism business.



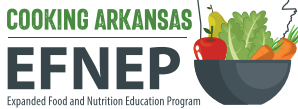
Adam Gifford of Gifford Gardens, a graduate of CAFF, is among those who have earned grants to expand the local food and farming system.

## EFNEP & SNAP-ED IMPACTS

This reporting year, the UADA Extension nutrition program made a total of 1,577,864 educational contacts including online educational contacts and social media and web contacts with its serving population. Our largest nutrition program, **UADA SNAP-Ed**, partnered with 555 locations throughout Arkansas, where Arkansans live, learn, play, shop, and work, totaling 279,187 educational contacts throughout the year. **EFNEP** reached 4,717 adults, youth, and families with an average monthly family food cost savings of \$29.76 following completion of the program. Working with community partners toward common goals and meeting Arkansans where they are creates opportunities to build health together. Survey results from adult SNAP-Ed participants showed the following improvements: 79% reported eating more fruit, 66% reported eating more vegetables, 60% improved food preparation skills, 59% reported increasing physical activity, and 50% adopted one or more food resource management practices. UADA SNAP-Ed partnered

## ARKANSAS SNAP-ED

Partnered with **555 locations** in Arkansas  
Reached **279,187** educational contacts  
Increased **healthy eating** in adults & youth  
**59%** of adults increased **physical activity**



## EFNEP

Reached **4,717** adults, youth, and families  
Average monthly food cost savings of **\$29.76**  
**93%** of graduates reported **healthier eating**  
**64%** of graduates increased **physical activity**

with schools across Arkansas to teach youth nutrition education. Survey results from SNAP-Ed youth participants showed improvements in dietary and physical activity habits: 88% improved food preparation skills, 35% reported eating more fruit, 33% reported eating more vegetables, and 21% reported increasing physical activity. Parents of school-based participants returned surveys with the following results: 78% indicated their child talked about healthy foods, 72% indicated their child was more willing to try new foods, 71% indicated their child talked about physical activity, 61% indicated their family increased physical activity, and 56% indicated their family made positive dietary changes. Nine EFNEP Educators partnered with 107 sites across eight counties to graduate 552 adults and 1,438 youth from the Expanded Food and Nutrition Education Program. Among adult EFNEP graduates, 93% adopted healthier nutrition practices, 90% improved food resource management practices, 74% improved food safety skills, 64% improved physical activity practices, and 42% improved food security. Among youth EFNEP graduates, 72% improved their abilities to choose foods according to Federal Dietary Recommendations or gained knowledge, 50% improved their ability to prepare simple, nutritious, and affordable food or gained knowledge, 60% improved their physical activity practices or gained knowledge, and 43% use safe food handling practices more often or gained knowledge.

## FOOD SAFETY

Food safety is an important topic within EFNEP, SNAP-Ed and other Extension programs targeting consumers. In FY2023, there were over 2,943 direct contacts and over 205,585 educational contacts

through social media related to food safety and food preservation. ServSafe is a food safety certification program for individuals who work in food handling or food service and related industries. In FY2023, 511 program participants received their manager's certification and 179

individuals received their food handler's certification.



## GENERAL NUTRITION PROGRAMS

General nutrition programs build skills among Arkansans who may not be eligible for EFNEP or SNAP-Ed. To reduce the risk of lifestyle-related chronic disease and obesity among Arkansans, Extension professionals delivered programs to help participants maintain or achieve a healthy weight through ReNew You and ReShape Yourself Without Shame. Cooking schools based on the Mediterranean Diet and the Dietary Approaches to Stop Hypertension Diet allowed participants to practice food preparation techniques using vegetables, fruits, whole grains, and healthy fats while reducing sodium, saturated fat, and sugar. Arkansans with existing conditions learned strategies to stick to diabetes self-management goals in the Living Well with Diabetes program and the Get a Jump Start on Diabetes program. These multi-session classes behavior-change and skill-building programs reached 2,463 Arkansans. Special interest programs designed to meet emerging needs, such as energy drink use in teenagers, allowed Agents to reach into new communities and schools. These 1-session education sessions reached 7,417 Arkansas adults and youth.

# CRITICAL ISSUE: AGRICULTURAL AND FORESTRY PRODUCTION AND PROCESSING

The Division of Agriculture conducts research and educational programs to promote sustainable and efficient agricultural and forestry production and processing. We continue to develop decision support software for both crop and livestock producers in the state of Arkansas. We currently support twenty tools developed in-house for use by producers.

## PROMOTIONAL CAMPAIGNS

Programs utilized several methods to reach producers and other stakeholders throughout FY2023. The Division of Agriculture collaborated with one of the state's leading farmers' market entrepreneurs and social influencers to launch a promotional campaign to promote resources and opportunities for consumers to connect with Arkansas agricultural producers and value-added entrepreneurs. These campaign products were aired on local television, as well as utilized for social media campaigns on multiple Extension accounts. Building



on work initiated in FY2021, the Division of Agriculture continued to convey timely information to row crop producers through the highly popular “Arkansas Row Crops Radio” podcast. The Arkansas Row Crops Radio podcast also has a sub-podcast called “Weeds AR Wild” focusing on the continually changing weed problems. The Weeds AR Wild podcast has been downloaded over 25,000 times since commercialization.

## RESEARCH VERIFICATION PROGRAMS

In the area of row crops, the Division of Agriculture has continued to conduct Research Verification Programs in the areas of corn, rice, soybeans, grain sorghum, wheat, and cotton. Each program conducted on-farm demonstrations of research-based recommendations on commercial fields across Arkansas. Since the inception of the **Soybean Research Verification Program (SRVP)**, over 700 commercial soybean fields in 41 of the 75 counties in Arkansas have been enrolled in the program. In 2023, 15 fields were enrolled in the SRVP. These fields averaged greater than 63 bushels per acre compared to the State average of 54 bushels per acre. Many producers who have participated in the SRVP have indicated that the program has made them more aware of the need for timely production











practices. Some of these practices include timely irrigations and the use of new technologies to improve irrigation efficiency, timely pesticide applications to control weeds, insects, and diseases, and proper variety selection. Due to reduced disease pressure and scouting, no field enrolled in the 2023 SRVP was treated with a foliar fungicide which saved these produces as much as \$25 per acre in unneeded fungicide cost.

The University of Arkansas **Rice Research Verification Program** enrolled 9 fields totaling 615 acres in 2023. The average rice yield across 9 verification fields was 190 bushels per acre, 23 bushels per acre higher than the state average in 2023. Average returns above costs for rice verification fields in 2023 was \$429.92 per acre. Only 2 fields required an insecticide application resulting in a savings of over \$15 per acre compared to standard practices.

Production of the new jasmine-type aromatic rice called ARoma 22 was increased in 2023. Developed by the Division of Agriculture and approved for release for the 2022 growing season, ARoma 22 offers increased aromatics and color consistency over its predecessor, and equals several qualities looked for by consumers of imported Asian aromatic rice, according to sensory tests. Aroma 22 averaged 167 bushels per acre with high milling yields in five Arkansas Rice Variety Advancement Trials. The rice breeding program also released a herbicide tolerant, high-yielding line designated CLM-05 and a high-yielding medium grain line designated 19AR165.

Other programs such as the cotton breeding program and the wheat breeding program developed improved breeding lines with different targeted traits. The cotton breeding program developed four lines (Arkot 0902, Arkot 1005, Arkot 1015, and Arkot 1019) for release as germplasm.

Italian ryegrass is quickly becoming the most troublesome spring weed across all major field crops grown in Arkansas. Based on previous research, rice

Soybean Research Verification Program	Rice Research Verification Program
 <b>15</b> fields enrolled	 <b>9</b> fields enrolled
 <b>63</b> bushels per acre	 <b>190</b> bushels per acre
 <b>0</b> use of fungicide or insecticide	 <b>2</b> users of fungicide or insecticide
 <b>\$25</b> saved per acre	 <b>\$15</b> saved per acre

seedling stand was reduced by 25%, plant height was reduced by 33%, maturity was delayed 7 to 12 days, and yield was decreased by 15% due to Italian ryegrass competition in the spring. Numerous trials were conducted over a three-year period (FY2021-FY2023) to determine if Command herbicide would be effective in providing residual control of Italian ryegrass. Results indicated that Command herbicide applied at 16 oz/A (silt loam soil) was highly effective in controlling Italian ryegrass through early April when applications were made by October 15th or later the previous fall. Furthermore, the residual activity of Command more effectively controlled other winter annuals such as annual bluegrass, hairy vetch, and henbit. Based on these results, a Section 24C Special Local Needs label was requested through the EPA and Arkansas State Plant Board for Command herbicide applications in the fall to control Italian ryegrass. The label was granted, and the adoption rate was high in 2022-2023 on fields heavily infested with Italian ryegrass, approximately 25% of the total Arkansas rice crop, or 350,000 acres.

## HOPS PRODUCTION

The Division of Agriculture has initiated research and demonstration of hops production aimed to give local brewers access to local-grown hops. A three-year evaluation project has shown there are two varieties of hops that can be grown successfully in Arkansas. Building from the September 2021 Arkansas Hops



Webinar ([bit.ly/ArkHopsWebinar21](https://bit.ly/ArkHopsWebinar21)), a Little Rock brewery developed Papa Geyer's Imperial Pilsner from hops cultivated at the Fruit Research Station in Clarksville, part of the Arkansas Agricultural Experiment Station. This project was made possible by a Specialty Crop Block Grant from the Arkansas Department of Agriculture.

### **IRRIGATION WATER MANAGEMENT**

Extension educational efforts on Irrigation Water Management (IWM) practices continued in FY2023 and included collaborative efforts with other county, state, and national agencies. Demonstrations of various irrigation technology and tools, development of irrigation field designs, and many field visits/consultations were employed to improve the sustainability and efficiency of producers' irrigation efforts.

### **PESTICIDE APPLICATOR TRAINING**

Through Extension education efforts, the Division of Agriculture has trained over 26,000 pesticide applicators through in-person and online applicator trainings, as well as numerous demonstrations and testing. The Division of Agriculture has continued efforts to help producers make other decisions in pesticide and herbicide application and crop variety selection with continued success.

### **LIVESTOCK & POULTRY**

Livestock and animal products account for 45% of Arkansas' agricultural cash receipts. Activities to advance the livestock industry in Arkansas include research, on-farm demonstrations, producer meetings, and educational material development. Focus areas include grazing efficiency and forage management, health and disease, alternative finishing systems, and management effects on carcass quality.

The poultry industry contributes over \$4.0 billion in cash receipts in Arkansas, with the state ranking second nationally in broiler production. Division of Agriculture researchers have continued studies to

understand and improve poultry meat quality. With the continued outbreaks of Highly Pathogenic Avian Influenza (HPAI), the Division of Agriculture has continued efforts to educate producers and small flock owners on proper biosecurity steps to ensure these outbreaks do not occur in Arkansas.

Division of Agriculture scientists developed bacterial cultivation methods to isolate different bacteria from pigs, resulting in beneficial bacteria in swine intestinal microbiomes that can serve as probiotics to protect or improve the health of pigs.

### **FOREST MANAGEMENT**

The Forest Management Program for Extension Forestry encompasses multiple education efforts aimed to further advance the overall health and productivity of forest and timber lands in the state and region. The Division of Agriculture has continued research and Extension work in this area through the Arkansas Forestry Resource Center (AFRC). AFRC enhances and ensures the sustainability of forest-based natural resources through the interdisciplinary partnership of the Division of Agriculture and UA-Monticello. Research programs in forestry encompassed work in cellulosic nano-technology development, determining the invasion potential of emerald ash borer, enhancing the resiliency of forests to climate change, enhancing bottom land hardwood restoration for carbon sequestration and wildlife conservation, increasing problem-solving efficiency through better communication among natural resource professionals, estimating the economic contributions of forest management to the state's economy, and revealing how wildlife management affects forest health and productivity.

# CRITICAL ISSUE: BUILDING COMMUNITIES AND STRENGTHENING ECONOMIES

Division of Agriculture faculty and staff are conducting cutting edge research and education programs to support economic and community development across the state and beyond. With broad programs and a presence in all 75 counties, the Division is uniquely positioned to support communities and local economies. Aligned with the Division's current strategic plan, these efforts are focused in four areas: economic viability and sustainability; entrepreneurship in evolving economies; leadership and civic engagement; and quality of life and place. In many instances, federal capacity funds are leveraged to secure additional resources to expand programming to achieve greater impact.

## TECHNOLOGY COMMERCIALIZATION OFFICE

Inventors can help make the environment cleaner, workplaces safer, crops more abundant, foods tastier, and humans and animals healthier. The **Technology Commercialization Office (TCO)** contributes to economic viability and sustainability by facilitating commercialization of innovation for a return on the investments the public, the Division of Agriculture, and individual scientists and engineers have made in advancing knowledge. In FY2023, research resulted in 9 U.S. patents issued, 315 active licenses, 30 invention disclosures and \$3.7 million in licensing revenue.



## SOUTHERN RISK MANAGEMENT EDUCATION CENTER

The **Southern Risk Management Education Center (SRMEC)**, in conjunction with three other regional Centers, delivers the national Extension Risk Management Education (ERME) Program throughout the country. The Center's goals are to empower producers to better understand and manage risks associated with farm and ranch businesses: production, price/market, financial, legal, and human risks. SRMEC awarded 24 projects in 2022-2023. The Center was awarded \$734,592 to fund projects for producers underserved by crop insurance and \$651,677 for education and exploratory projects. Projects of Excellence recognized in 2023 focused on economic and legal considerations for direct beef sales; risk management education for socially disadvantaged, veteran, and beginning farmers and ranchers in Virginia; and farmer risk management rebound from COVID-19 in Southern Appalachia/Western North Carolina.



**24** projects awarded  
**\$734,592** awarded to fund underserved producers  
**\$651,677** awarded for education and projects

## VEGGIE TO VALUE

Veggie to Value (V2): A Food Entrepreneur Bootcamp pilot program was established in FY2023 to provide intensive, hands on training and technical assistance to clients interested in launching a value-added food manufacturing business. A total of 12 clients participated in the initial program launch. All food products developed used predominantly



vegetable-based ingredients with the primary ingredients being onions and cucumbers. The V2V team purchased 430 pounds of produce, sweet onions, and cucumbers at a market value of \$850 to develop three recipes. A total of 376 jars of vegetable-based value-added products (Sweet Vidalia Heat Sauce, Birthday Brew Syrup, and Mock Apple Butter) were developed with an estimated market value of \$2,500.

All clients developed or expanded their businesses following the program including two creating farm and food business names (Farindale Farms, Ten Mile Mercantile). Southern Twisted Tea was an established beverage business. All clients identified as beginning farmers and food entrepreneurs and are interested in pursuing additional diversified fruit and vegetable production.



Veggie to Value client Loretta Smith pours her mock apple butter mixture into a sanitized jar. Loretta and her husband recently purchased 50 acres of land with plans to create a farm and orchard, and she said she applied for the program to learn more about expanding their future revenue options.

## CPED PROGRAMS

Community, Professional, and Economic Development's programs offer training, technical assistance and other resources to entrepreneurs, businesses and communities to support economics development. Two examples in 2023 are the Arkansas Business Navigator Program and Arkansas APEX Accelerator.

Supported by funding through the U.S. Small Business Administration (SBA), the **Arkansas Business Navigator program** was designed to address challenges faced by entrepreneurs in rural, marginalized communities across Arkansas in accessing technical assistance, training, and resources offered in the entrepreneurial ecosystem. The team provided education to 51 unique clients through 278 hours of counseling and 28 training events. They also supported clients in applying for over \$1.4 million in loans with \$556,384 being approved.

Funded in part through a cooperative agreement with the Department of Defense, the **Arkansas APEX Accelerator** (formerly called Arkansas Procurement Technical Assistance Center) provides training and technical assistance to Arkansas businesses in finding and obtaining government contracts. In FY2023, nearly 200 clients received over \$137 million in contracts resulting in over 2,700 jobs created or retained.

Engaged citizens and skilled leaders are essential to ensuring strong communities. Collectively, Extension leadership programs had 3,702 direct contacts through 281 educational events with over



**200** clients received contracts  
**\$137m** contract dollars received by clients  
**200** jobs created or retained



The Arkansas APEX Accelerator team provides training and technical assistance to Arkansas businesses in finding and obtaining government contracts.

92,000 additional direct and indirect contacts through social media and other non-face-to-face outreach methods. There were 90 participants who reported conducting programs, community service projects, adopting new skills or accepting new leadership roles as a result of these programs.

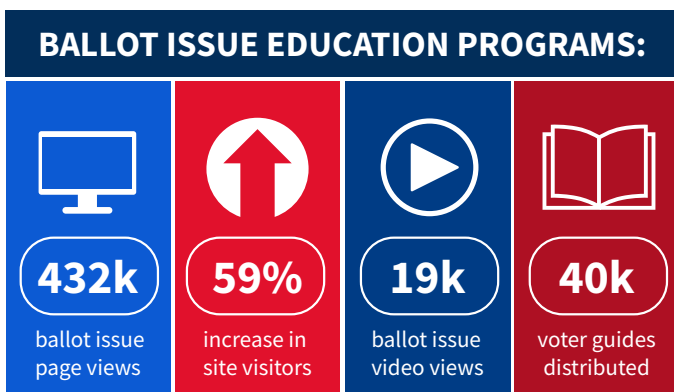
### VOTER EDUCATION

Voter education is a flagship program of the Division of Agriculture’s Public Policy Center. During the 2022 General Election, the ballot issue education web pages attracted 346,972 unique visitors who recorded 432,615 page views between Sept. 1-Nov. 11, 2022. This represents a 59% increase in unique visitors over 2020 web traffic. Videos about the ballot issues attracted 19,094 views

combined on YouTube between Oct. 6 and Nov. 14, 2022. County agents distributed nearly 40,000 voter guides to residents across the state. Media releases, presentations to civic groups, display boards and yard signs are just a few of other methods used to reach voters.

### THE CENTER FOR AGRICULTURAL AND RURAL SUSTAINABILITY

Sustainability of environmental and natural resources is another important element of quality of life and place. The Division **Center for Agricultural and Rural Sustainability (CARS)** is a state-wide center, largely self-funded, with a broad responsibility for integrated research, teaching, and extension activities related to different aspects of agricultural and rural sustainability. Projects carried out by the Center faculty are diverse covering all major areas of agricultural production including animal and livestock, rice, forestry and timber, soybeans, specialty crops, local foods and other topics.





# CRITICAL ISSUE: NATURAL RESOURCE CONSERVATION AND MANAGEMENT

The Division of Agriculture conducted research and educational programs on the environment to ensure sustainable use of soil, water, and air. Research and educational efforts were targeted at all citizens of Arkansas, but emphasis was placed on agricultural producers, private landowners, youth, homeowners, and land management professionals. Research was conducted on Experiment Stations as well as on private farms through programs such as **Arkansas Discovery Farms** and **Research Verification Trials**. Critical issues addressed included:

1. Meeting competing water needs,
2. Protecting and improving water quality,
3. Protecting and improving soil health,
4. Protecting air quality,
5. Enhancing the ecological services provided by forested lands, riparian zones, and wildlife,
6. Protecting the health of aquaculture and aquatic wildlife, and
7. Environmental Sustainability.

## ARKANSAS DISCOVERY FARMS

One integrated effort being conducted by Division of Agriculture researchers and Extension staff is the Arkansas Discovery Farms. The Arkansas Discovery Farms Program is on its 13th year of successful on-farm water quality research. In FY2023, there were 7 active Arkansas Discovery Farms established throughout the state consisting of 40,840 acres using best water quality and nutrient management practices. The Arkansas Discovery Farms program continues to assess the need for and effectiveness of on-farm conservation practices, document nutrient and sediment loss reductions, and promote soil health and water conservation in support of nutrient management planning and sound environmental farm stewardship. In FY2023, Discovery Farms sustained wildlife habitat practices that were originally incorporated in 2021 on one of the locations to improve wildlife habitat while



Steve Green, Arkansas State University, professor, talks about what comprises healthy soil during the Arkansas Discovery Farms field day at NE Rice Research and Extension Center in Poinsett County

increasing financial gains through waterfowl and deer hunting leases. The program continued work comparing nutrient concentrations in runoff from the major crops grown in Arkansas on working farms and determine the relationship between seasonal runoff volume and nutrient losses. Results confirm intuitive thoughts that seasonal nutrient loss may increase with increases in seasonal runoff volume. The practical application is that one way of reducing nutrient losses based on this study is finding ways to reduce runoff. Soil and water conservation practices can alter runoff hydrology. For example, land leveling can create a small but uniform slope that can help reduce runoff velocity by reducing slope and the gravitational gradient. Improving soil health through cover crops such as cereal rye that can increase infiltration by creating larger pores such as root channels that can conduct water through restrictive pans can reduce runoff, increase water holding capacity and depth of water penetration in the soil. Cover crops coupled with minimum tillage can create greater soil structure to increase infiltration rates.

## SOIL HEALTH

In FY2023, Division of Agriculture Extension and researchers continued to support the **Arkansas Soil Health Alliance (ASHA)**, working to educate farmers on practices to improve soil health. Demonstrations were conducted on best practices for preventing erosion and tools available to assist in improving plant nutrient use. Complimentary to this work is the **Soil and Water Conservation Virtual Field Trips (VFTs) Series**. Although the last VFT was conducted in July 2021, the recordings, along with lesson guides meeting the Arkansas Department of Education's Next Generation Science Standards (NGSS) framework, are posted on our website and continue to be viewed today. This work has led to a continuing project, initially launched in 2022 in collaboration



The Northwest Arkansas Urban Stormwater Education Program, an ongoing effort of the Division of Agriculture's Cooperative Extension Service, promotes stormwater pollution prevention with public art projects such as UpStream Art and Follow the Flow whiskers, as well as litter clean-ups, promotion of low-impact development and more.

with USDA's Natural Resources Conservation Service. The **Arkansas Conservation Partnership** is a virtual webinar and podcast series designed to provide information about conservation programs to encourage best practices related to water quality, irrigation water use, climate change, soil health, profitability, and sustainability.

## WATER CONSERVATION

With water conservation in mind, Division of Agriculture researchers continued decades of research in 2023 to fine tune a method of direct-cooling chickens with low-pressure sprinklers in tandem with traditional cool-cell pad systems and ventilation fans. The trial's aim is to determine the effect of sprinkler technology in combination with cool cell systems on achieving broiler performance during

hot weather. Water is a crucial component for poultry production, not only for bird consumption but also to alleviate heat stress in tunnel ventilated broiler houses. Sprinkler adoption has been slow due to misconception that chicken sprinklers make poultry litter too wet to sell as fertilizer, but studies have shown that average litter moisture content in houses using sprinklers with tunnel ventilation was 34 percent, 2 percent lower than the average moisture content of litter from chicken houses with cool-cell pad systems and tunnel ventilation.

### STORMWATER EDUCATION

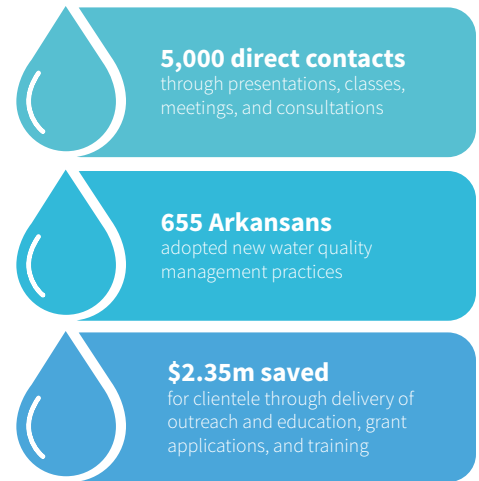
The UADA Division of Agriculture has established partnerships in two urbanized areas to meet public education and public participation of minimum control measures, along with annual municipal employee training, to meet U.S. Environmental Protection Agency stormwater runoff permit requirements. The **Northwest Arkansas Stormwater Education Program** is a partnership involving 17 cities to promote healthy watersheds, increase understanding of potential causes of water resource degradation and give citizens the knowledge and tools they need to identify, prevent, and/or resolve water quality problems. Education and outreach from this program resulted in over 5,400 direct contacts through presentations, classes, meetings,

and consultations. A follow up evaluation found that 655 clientele adopted and/or implemented new water quality management practices in FY2023. In

addition, Extension water quality education saved and/or delivered \$2.35 million dollars for clientele through delivery of outreach and education, consultation, grant applications and municipal employee training relating to water quality management.

### GREEN TECHNOLOGY

A Division of Agriculture food scientist has developed a method of removing volatile compounds from white whole-grain sorghum flour via a novel green method to replace the traditional use of solvents based on supercritical carbon dioxide (SC-CO<sub>2</sub>). In addition to being more environmentally friendly, this method enhances the flavor of gluten-free sorghum flour.

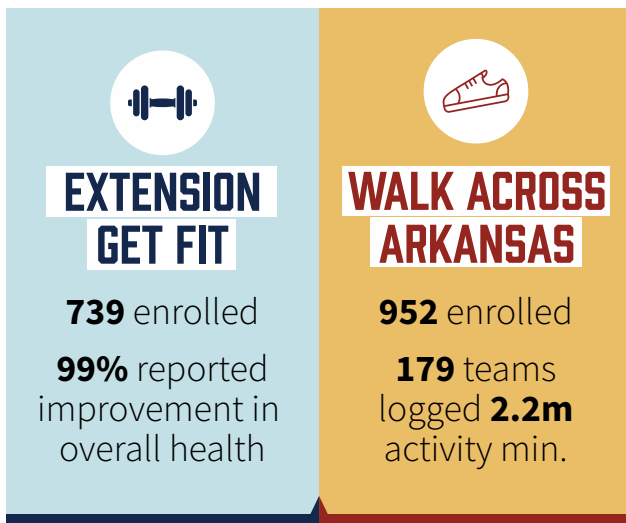


# CRITICAL ISSUE: STRENGTHENING ARKANSAS FAMILIES

Division of Agriculture faculty and staff developed, evaluated, and disseminated education related to strengthening Arkansas families through the Family & Consumer Science (FCS) and 4-H Youth Development program areas.

## IMPROVING HEALTH

In the health area, FCS programs are offered to improve health at every stage of life by educating and engaging Arkansans to address locally relevant health issues. Programs like **Extension Get Fit** and **Walk Across Arkansas** helped young and mature Arkansans increase physical activity, improve health, and improve quality of life. The Extension Get Fit (EGF) Program enrolled 653 active members; 86 EGF volunteers completed over 522 hours of training at a volunteer time value of \$15,534. Ninety-nine (99%) of EGF participants reported improvement in their overall health, including 98% who reported becoming more active because of program participation. The Walk Across Arkansas program had a total of 952 participants who were a part of 179 teams that logged 2,222,828 activity minutes.



Howard County Seniors with Spatulas took first place at the Arkansas 4-H Food Challenge.

The Division of Agriculture continues to collaborate with USDA and CDC (Centers for Disease Control) in the **EXCITE (Extension Collaborative on Immunization Teaching & Engagement) Program**, targeting twenty-two counties across the state. Additionally, our partnership with ARcare, a Federally Qualified Health Center, has continued to expand, including the creation of a provider training program for health literacy related to immunizations and how to talk to patients about vaccines. This will be delivered to ARcare providers in all 22 target counties.

## ARKANSAS 4-H FOOD CHALLENGE

Arkansas Extension's proactive response to the frequent food insecurity issue is demonstrated through the growth of the **Arkansas 4-H Food Challenge**. This program has been tailored and adapted from the Texas 4-H Food & Nutrition: Exploring the Food Challenge curriculum. The adaptation aims to equip participating teams of youth with comprehensive skills necessary for excelling at the National level competition.



Family and Consumer Science agents from Ashley, Chicot, Desha and Lincoln counties staff a booth about managing stress on the farm at the 2023 Tri-State Soybean Conference.

Through this initiative, emphasis is placed on fostering competencies in food safety, effective food preparation techniques, and cultivating nutrition-conscious behaviors within budget constraints. Additionally, the program encourages the development of essential life skills, including goal setting, teamwork, and the promotion of nutritional well-being alongside financial literacy. Notably, participants are required to craft their culinary creations solely from ingredients sourced at a local corner store, thereby highlighting the importance of resourcefulness and adaptability. To support the effective implementation of this initiative, counties are encouraged to access state-level equipment kits, enhancing their capacity to deliver this vital programming to diverse audiences across Arkansas. This strategic approach not only addresses the immediate challenges faced by families reliant on corner stores but also empowers them with practical skills and knowledge crucial for improved dietary habits and overall well-being.

**FAMILY LIFE**

In Personal and Family Well-Being, the Division of Agriculture offers invaluable resources to parents, couples, and individuals who seek to improve their psychological and relationship

health and overall quality of life. This includes free, research-based professional development training for early childhood educators and out-of-school time educators to help them meet their annual state-required training hours, improve their job performance, and improve the quality of care given to our youngest citizens. In the 2023 program year, Division of Agriculture childcare courses, both in person and online reached over 5,500 individuals, awarding over 40,000 professional development hours. The Division of Agriculture parenting programs offer parents tools to improve relationships with their children and partners.

**MENTAL HEALTH RESOURCES**

A program need consistently cited by county Extension agents, county Extension councils, and other stakeholder groups is mental health. To meet these needs, grant funding from the FRSSAN-Southern Region and expansion funds have been



used to facilitate the growth of the **Farm Stress Management & Resilience Project**. The Division of Agriculture has equipped 21 trainers for the QPR (Question, Persuade, Refer) suicide prevention program and six trainers for **Mental Health First Aid**. These programs have reached 150 participants in FY2023 through direct mental health training, over 300 through other workshops related to mental health topics, and over 1,000 through conferences and vendor opportunities. Additionally, programs for parenting, stress management, and the Extension Homemakers **“EHC Cares” project** are delivered at the county level statewide.

## FAMILY RESOURCE MANAGEMENT

In the area of Family Resource Management, the Division of Agriculture provided practical, research-based information to Arkansans to increase financial well-being, equipped adults and youth with the skills needed for financial stability, and explored strategies that can be used to help Arkansans improve personal finance and consumer practices. In 2023, 650 programs were offered to teach personal finance and consumer economics to youth and adult audiences. Evaluation surveys indicate consistent positive results in knowledge gain and intended behavior change. Personal finance and consumer economics programs reached 84,278 through indirect contacts and 26,912 through direct contacts. Of those surveyed, 79% reported increased knowledge and 70% reported intention to implement at least one positive behavior change.



**650** personal finance programs offered



**79%** of participants reported increased knowledge



**70%** of participants reported positive behavior change

## 4-H YOUTH DEVELOPMENT

In the area of Empowering Youth, the Division of Agriculture has worked to expand access to quality 4-H programming in Arkansas. 4-H programs align with the National 4-H Mission Mandates in providing programs that involve youth in science, technology, engineering, and math; encourage healthy living for Arkansas youth; and engage youth in civic engagement and leadership development.

4-H youth development direct program contacts for

staff were 853,177 in FY2023. There were 192,350 youth participating in our programs with 11,136 club members. It was a record-breaking fundraising year in which \$530,498 was generated in program support, scholarships, and sponsorships. This amount helped send dozens of 4-H'ers to college to start their freshman year, National 4-H Congress, Western National Roundup, Southern Region Teen Leader Conference, and other events.

## VOLUNTEER IMPACT

Family & Consumer Science and 4-H & Youth Development support two of Extension's largest volunteer programs, **Arkansas Extension Homemakers Council** and **4-H**. EHC currently has 247 clubs with 2,803 members. In FY2023, EHC reported 6,804 volunteers who contributed 219,977 hours, valued at \$6,995,977.60. Survey results show that, because of EHC, individuals are more active as volunteers (87%). The 10,150 4-H Volunteers in Arkansas assisted with all aspects of the 4-H program and contributed 56,509 hours in 2023. 4-H volunteers also made more than 253,000 direct educational contacts.



Hundreds of 4-H members from more than 50 counties across Arkansas visited the Arkansas Capitol Building in Little Rock for Arkansas 4-H Day at the Capitol.





*The University of Arkansas System Division of Agriculture offers all its Extension and Research programs to all eligible persons without regard to race, color, sex, gender identity, sexual orientation, national origin, religion, age, disability, marital or veteran status, genetic information, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.*