



UNIVERSITY OF MISSOURI EXTENSION

# Maries County

# 2023 Annual Report

211 4<sup>th</sup> Street  
Vienna, MO 65582

SERVE  
MISSOURI.

DELIVER  
MIZZOU.



**Extension**  
*University of Missouri*

an equal opportunity/ADA institution



Office of Extension  
and Engagement  
*University of Missouri*

**OFFICE OF THE VICE CHANCELLOR  
FOR EXTENSION AND ENGAGEMENT**  
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Columbia, MO 65211  
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December 2023

Dear county commissioners and friends of MU Extension and Engagement,

Thank you for your important partnership with the University of Missouri Extension this past year.

I want to highlight three areas that address needs you helped us identify.

You may recall that the FY 23 state budget provided a one-time \$5 million infusion to MU Extension for growth. Of that, we allocated about \$3 million for field faculty in the areas of agriculture, 4-H, health/human development and business and community development.

Through a dedicated hiring effort, and thanks to that allocation, we have hired 168 new employees since November 2022. That includes 72 academic/faculty members, most of whom are field specialists in a priority area noted above, and 96 staff members (e.g., office administrators, youth and food and nutrition associates, etc.).

We also returned more faculty to local program delivery that best serves your county's needs, while preserving the partnership and relationship building work you value. Our extension and engagement specialists focus full-time on that work as they serve their assigned multi-county groups. Currently, 19 have been hired, with two more in the pipeline.

Finally, we are prioritizing our work with county extension councils. In the new role of partnership and council development director, Lorin Fahrmeier focuses on strengthening council representation and governance. This role will build stronger links with regional, educational and campus leadership to better identify and address local priorities.

At the UM System level, our engagement work across four universities and with leaders across the state makes a difference in areas of greatest need: broadband, workforce development, health access, food security and healthy futures for our youth.

Your county annual report shows what we are accomplishing together as we Serve Missouri and Deliver Mizzou. We look forward to strengthening that partnership with county commissioners and community stakeholders in the coming year.

Sincerely,

Chad Higgins, PhD  
Interim Vice Chancellor, MU Extension and Engagement  
Chief Engagement Officer, UM System



# Who we are

## Faculty and staff



*Our commitment*

Brandi Richardson  
Extension Engagement Specialist  
Dawn Hicks  
Nutrition Program Associate  
Sarah Higgins  
Field Specialist in Natural Resources  
Bethany Prenger  
4H Youth Development Field Specialist  
Rudra Baral  
Agronomy Specialist  
Gatlin Bunton  
Livestock Specialist  
Rachel O'Halloran  
Nutrition and Health

## Council members

Sarah Stratman  
Brenda Johnson  
Ray Schwartze  
Steve Vogt  
Rodney Southard  
Larry Gillispie  
Austin Henderson  
Vic Stratman– (Commissioner)



## County commissioners

Presiding Commissioner: Vic Stratman  
Western District Commissioner: Ed Fagre  
Eastern District Commission: Doug Drewel

# Budget and more

## Appropriations budget

### Income

County Appropriations 18,500.00

**Total Income 18,500.00**

### Expenses

Salaries/Benefits 15,630.70

Travel 1522.95

Office Supplies/Service 655.96

Insurance 200.00

Misc 481.68

**Total Expenses 18491.29**

## Maries County partners

- Cattlemens
- Farm Bureau
- Belle Fair Board
- Vienna Fair Board
- Public School Systems
- Senior Centers



## MU Extension is a unique funding partnership.

Extension funding is a three-way partnership of federal, state and county government. Federal and state money, through the University of Missouri system, pay professional staff salaries, training costs, computers and communication equipment. County funds support the local office, secretarial and youth assistant salaries, staff mileage and council expenses.

The *Phelps* County Extension Council, faculty and staff would like to express our appreciation to the *Phelps* County Commissioners for their continued support of extension programs.



## Local Support

Did you know you can donate directly to Maries County Extension with a gift to be used immediately or as an endowment contribution for long term efforts. Monies put into the endowment are left forever to earn interest with the county office benefiting each year. You can also direct your donation to a specific program such as 4-H or Master Gardeners.

# Our Services...

## **At Maries Co. Extension We provide....**

- Soil Testing for both Pasture & Garden
- Water Testing (Excluding Drinking Water)
- Hay Testing
- Private Pesticide Training courses
- Job search assistance
- Health & Nutrition Classes
- Pest & insect Identification
- Livestock Support
- Housing Assistance
- Family Education
- Business Development
- Pressure Canner Testing

## **Publication Resources Available:**

- NCBA Red Book for Livestock Record Keeping
- Farmer's Tax Guide Booklet
- Private Pesticide Manuals
- Farm Tax Record Books





# Family Nutrition Education Program

The Supplemental Nutrition Assistance Program Education (SNAP-Education or SNAP-Ed) brought \$10,874,798 in federal funds to Missouri. During FY2023, Missouri's SNAP-Ed program reached over 78,000 Missourians through direct classroom education. Each person participated in an average of 6 hours of education totaling over 15,000 hours. In addition, an additional 760,135 persons participated in indirect education. Direct and indirect education resulted in over 1.8 million total contacts with Missourians.

Participants in SNAP-Ed learn the importance of making healthier meals and snack choices, eating breakfast more often, are more willing to try new foods, increasing their physical activity, and make healthier food choices. Those who practice healthy eating and are physically active are more likely to contribute to a healthy labor force and enjoy a high quality of life throughout their lifespan.

This vital programming effort also reduces healthcare costs over the participant's lifetime, saving taxpayer money in reduced public healthcare benefits and insurance premiums.

A total of 597 Direct Education participants were from Maries County.

Our Nutrition Program Associates (NPAs) are also continuing to provide information about the SNAP benefits program and offer assistance with SNAP benefits applications.

In addition to the numbers, **Dawn Hicks** shared this success story demonstrating local impact:

***I was teaching the Live It! curricula to 9<sup>th</sup>-grade boys and we talked about the portion sizes lesson. The teacher at the next lesson, during the review, stated that he had been working on portion control and noticed that he had lost about 2-3 pounds in just that week by following portion sizes of foods. He also to the students that he noticed that he also feels better! Some of the boys stated that they too had been trying to watch portion sizes and that it was a big difference from what they were eating to what they are trying to eat now.***



## Livestock

Serving Dent, Phelps, Crawford, Pulaski, Shannon Reynolds, Carter, and Texas Counties

Eric Meusch  
Livestock Specialist  
573-729-3196  
meusche@missouri.edu



### 2023 AT A GLANCE

- Drought was one of the main topics working with beef producers. This included programming on herd management and nutrition.
- Show Me Select Heifer development activities expanded as I took over coordination of Central Missouri, working with producers and assisting with the Spring Sale in Vienna.
- Poultry programs including backyard chickens and home butchering of chickens were in demand in many counties.
- Show Me Quality Assurance events held in Dent, Phelps and Crawford Counties trained youth on proper care of livestock. Other youth-oriented activities included Ozark Cattlemen's Beef Day in Salem and the Wurdack Education Day event.
- The Value-Added Meats (VAM) team collaborated with Feedlot School team to develop the Direct Marketing Beef School. VAM also worked through the 2501 Program to conduct a hands-on chicken processing workshop for urban farmers in the St. Louis area



A Livestock producer shares her experience in developing and managing her grazing system at a Grazing School in Texas County

### KEY SUCCESSES

- ✓ 94 Show Me Select Heifers were sold at Central Region Sale in Vienna in May totaling \$199,450 in sales. Statewide a total of 1647 Show Me Select heifers were sold for \$4,180,575 in 2023.
- ✓ Over 200 youth in 3 counties received Show Me Quality Assurance training, learning industry standards for food animal care and husbandry. This training is required for youth exhibiting livestock at county fairs and Livestock Expos.
- ✓ Participants in Missouri Grazing schools learned the basics in management intensive grazing, including soil and forage management, grazing system layout, livestock management and infrastructure development..
- ✓ Socially Disadvantaged and Veteran Farmers and Ranchers participated in livestock related programs such as backyard poultry, sheep and goat production, and small-scale chicken processing. This was part of the grant funded 2501 program. This program also supported farm visits, learning circles and team to one coaching.



Producers learned how to add value to their cattle by finishing animals and marketing beef direct to consumers. They also toured a confinement beef feeding operation and learned from local processors.



## 2023 Livestock Highlights



Discussing herd management during a drought at the Wurdack Extension Farm Field Day.



Show Me Quality Assurance training for youth that will be exhibiting livestock in Phelps county.



Presenting on Direct Marketing Meat at the Ag Connect Conference in Poplar Bluff as part of the Value-Added Meats Team



A Show Me Select Heifer sold at the Central Regional Heifer sale.



Small-scale chicken processing is a popular hands-on training. This event was hosted by the 2501 Program.



Ozarks Cattlemen's Beef Day is a collaboration between Extension, Cattlemen's Association, FFA and others in the community targeting grade-schoolers in Dent County.

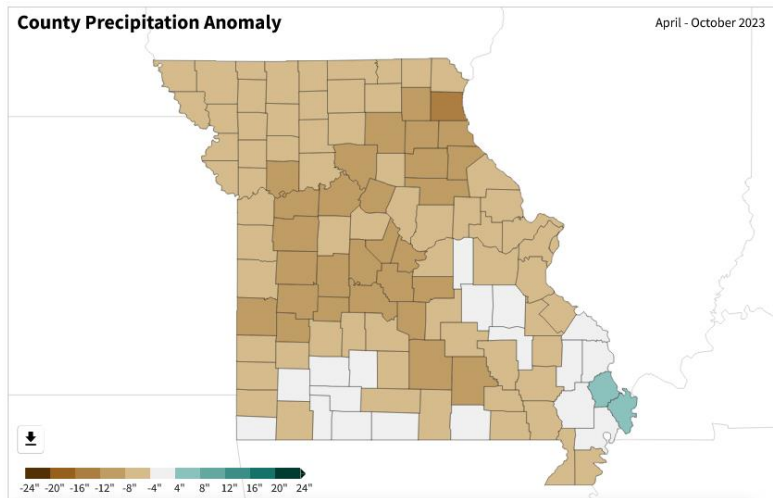


# Maries County

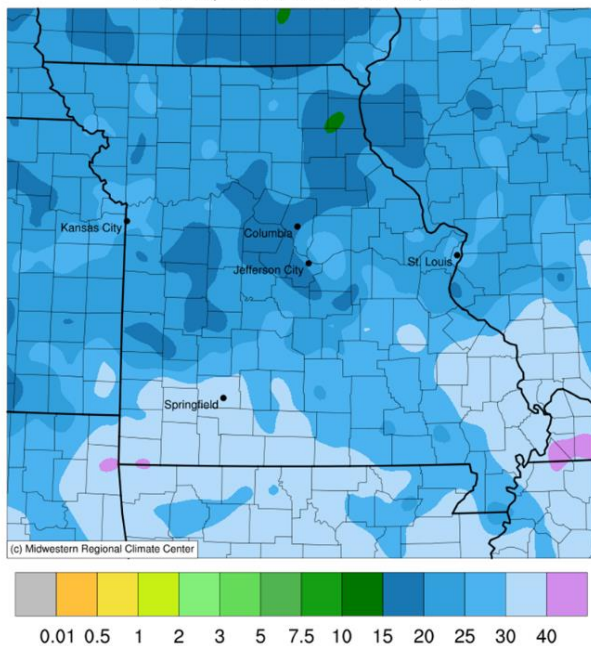
## Agriculture and Environment

### Local Impact

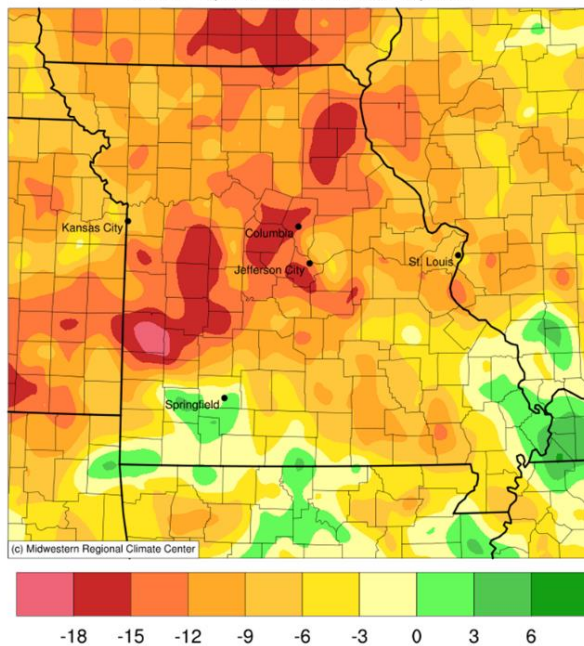
The 2023 forage production season featured a prominent drought event that continues to impact the State. Drought conditions first emerged in April (Figure 1) when the state recorded its 4<sup>th</sup> driest April (- 2.17") dating back to 1895. Precipitation totals remained below average in May (-1.87") and June (-2.72") with average monthly temperatures running 1 to 2 °F above normal (Figure 2). Several rounds of heavy rainfall in late July and early August helped to bring temporary drought relief, but dry conditions returned in September and October. Overall, the seven-month period from April to October has been the 14<sup>th</sup> driest (-6.02") for Missouri and 2023 is currently the 7<sup>th</sup> warmest year on record through October (Figure 3). The largest precipitation deficits and areas most impacted by drought are approximately located along an axis from southwest to northeast Missouri.



Accumulated Precipitation (in)  
March 15, 2023 to November 15, 2023



Accumulated Precipitation (in): Departure from 1991-2020 Normals  
March 15, 2023 to November 15, 2023

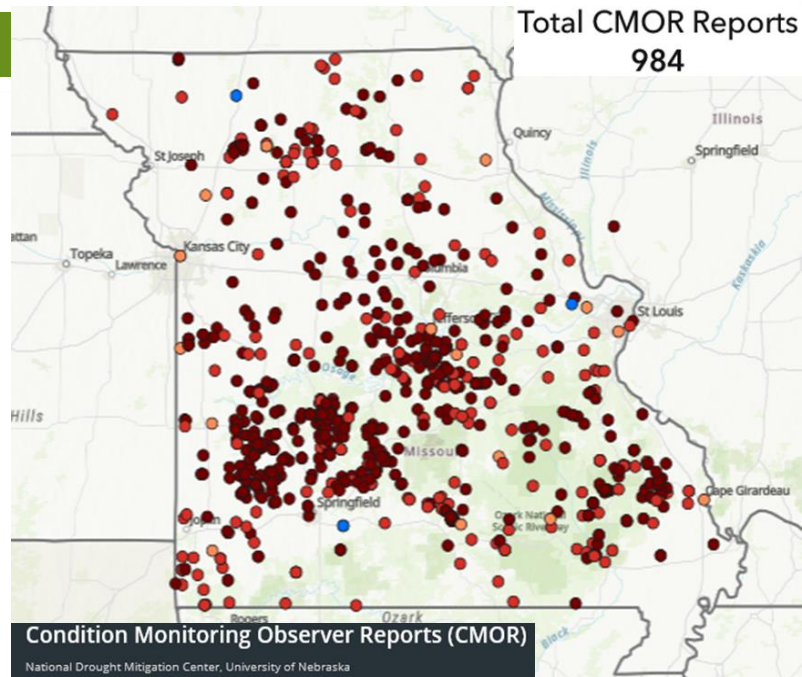


# Maries County

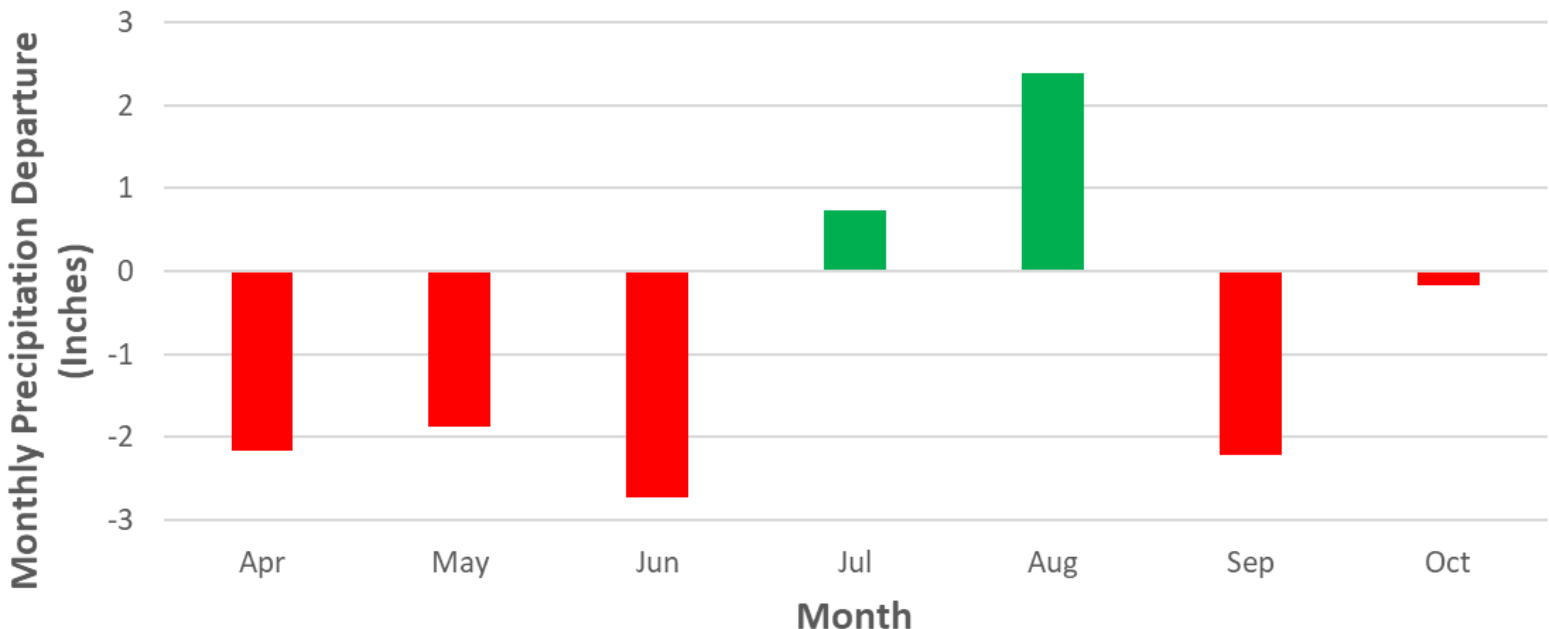
## Agriculture and Environment

### Local Profiles and Stories

This year's drought occurred during the growing season, resulting in widespread negative impacts to the agricultural sector. Depleted soil moisture has led to poor pasture and crop conditions along with mature tree stress. Timely rainfall in July and August provided some relief to crops, but the return of hot and dry conditions in September and October limited fall pasture growth. Agricultural water supply has also been a persistent issue with many pond levels low or dry. Larger streams and rivers have also been dry, with up to 40% of the state's monitoring gauges measuring streamflow that is well below normal since April. Hydrological drought has also contributed to commercial navigation impacts along the Mississippi River, especially south of St. Louis. Altogether, there have been 984 community drought impact reports through the Condition Monitoring Observer Reports (CMOR) program this year.



### 2023 Missouri Statewide Monthly Precipitation Departures





# Natural Resources

## 2023 Update

Sarah J. Higgins  
Field Specialist in Natural  
Resources  
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Covering Bollinger, Butler, Cape Girardeau, Carter, Crawford, Dent, Dunklin, Howell, Iron, Jefferson, Madison, Maries, Mississippi, New Madrid, Oregon, Pemiscot, Perry, Phelps, Pulaski, Reynolds, Ripley, Scott, Shannon, St. Francois, Ste Genevieve, Stoddard, Texas, Washington, and Wayne Counties

### About me & 2023 in review

Hello all! I started my position as a Natural Resources Specialist on July 5<sup>th</sup>, 2023. I am based out of Phelps County in Rolla, and I serve 28 other counties in southeast Missouri. I got the opportunity to work in this part of the Ozarks while pursuing my undergraduate degree Environmental Science from Mizzou and loved getting to explore the beautiful landscapes in this region. I moved back to Missouri after receiving my master's in Environmental, Soil, & Water Science from West Virginia University, and I feel so grateful to be back. I'm excited to work with the people in this region to conserve our beautiful natural resources.

Since starting in July, I've gotten the opportunity to meet many others in the area involved in natural resources, including private landowners, Missouri Department of Conservation employees, and Natural Resources Conservation Service employees, people involved in the timber industry, and other Extension professionals. I'm looking forward to developing these partnerships more in 2024 and collaborating on programs to deliver in southeast Missouri. Please contact me to talk more about what kinds of natural resource programming you'd like to see in your county. Looking forward to working more with you all in 2024!



Field site demonstrating the need for timber management at the MO Tree Farm Conference.



Invasive bush honeysuckle from an invasive species workshop in Versailles, MO. Other invasive species discussed included autumn olive, multiflora rose, wintercreeper, sericea lespedeza, princess tree, and eastern redcedar (a native field invader).

### Looking at 2024

Here are a few programs to keep an eye out for in 2024. I also hope to visit more counties and attend some Extension council meetings, so please reach out if you'd like me to come!

- Restarting Women Owning Woodlands program. We hope to have social hikes and monthly virtual meetings.
- White Oak, Whiskey, and Wine webinar series at 12 pm on Mondays in January.
- Hybrid (virtual & in-person) Succession Planning workshop on February 29<sup>th</sup>.
- Invasive Species workshop in March.
- Forest health webinar series in early April, followed by a forest health field day on April 13<sup>th</sup>.

Please contact me for any details related to the programs above. I will send more information and updates on programs throughout the year. I'm eager to work with you all next year!





# MU EXTENSION **Serves MISSOURI and Delivers MIZZOU** through credible statewide programs **Business and Community**



Missourians from all walks of life celebrated the **2023 Missouri Good Neighbor Week**, Sept. 28 to Oct. 4, by completing and reporting neighboring acts and nominating others as the most engaged neighbors in their counties.

**In 2023, the goal was to document 15,000 acts of neighboring. That goal was surpassed with 19,752 Missourians being positively affected during MISSOURI GOOD NEIGHBOR WEEK.**



## **DEMOGRAPHIC, ECONOMIC AND WORKFORCE DATA TRAINING**

**MU Exceed** offers customized data training. Participants learn how to use public data through hands-on exercises and demonstrations.

**In 2022, Exceed provided data training to MORE THAN 200 MISSOURIANS. 95% of the attendees said that the information they learned was useful to their work.**



The annual **Connecting Entrepreneurial Communities** conference is designed for stakeholders, economic developers, businesses, local government, educators and nonprofits interested in increasing their communities' potential for entrepreneurship. In 2023, the conference offered breakout sessions in Benton County's shops and businesses, providing firsthand insight into the world of entrepreneurial communities.

**The 2023 conference drew 104 ATTENDEES, generating an estimated initial economic impact of around \$33,000 FOR BENTON COUNTY.**

## Legend



Agricultural Growth & Stewardship



Economic Opportunity



Educational Access & Excellence



Health & Well-Being



UNIVERSITY OF MISSOURI EXTENSION

## Community Development

Ray Walden  
Community Development Specialist  
573-729-3196  
waldene@missouri.edu



Serving Crawford, Dent, Maries, Phelps, Pulaski, and Washington Counties

### At a Glance

I started my position as a Community Development Specialist on June 12, 2023. I am based out of Salem in Dent County and also serve the counties of Crawford, Maries, Phelps, Pulaski and Washington in the East Central Region. I previously served Extension as Coordinator for the Salem Telecommunications Community Resource Center (TCRC) from 2000 through 2011 and also served as Salem's City Administrator and Economic Development Director.

Since June, I have had the opportunity to meet people from the counties I serve along with other Community Development and Extension staff. I have also been on-boarding with various Community Development programs and their use to meet different types of community needs.

### Looking at 2024

Plans for 2024 include:

- Work with counties to identify community development priorities and potential partners in support of community development programs and services
- Provide regular updates on community development programs and formal presentations to county councils and other stakeholders as requested

Other projects I am assisting with include:

- Collaboration to offer a Public Manager Certification
- Rural Infrastructure Challenge Grant with Missouri S&T
- Multi-State Housing Survey

Please contact me with any questions about community development programs or services. I am glad to be serving the East Central Region and look forward to working with your county!



## COMMUNITY DEVELOPMENT PROGRAM

### BUILDING CIVIC CAPACITY FOR

### THRIVING COMMUNITIES

#### What is Civic Capacity?

The collective strength of people in a place to respond to challenges and pursue thriving communities.

#### What we do

Experienced community development specialists provide research-based programming and resources to individuals, organizations and local governments based on their unique issues and assets.

#### How we do it

Through statewide programming, we empower residents, organizations and governments to build:

##### BELONGING

Building social capital and inclusivity

##### COLLECTIVE LEADERSHIP

Guiding collaborations with diverse community leaders

Engaging residents in civic life and decision-making

Creating conditions for equitable, thriving, resourceful places

##### CONTRIBUTION

##### VITALITY



#### Why it's important:

When people feel belonging within the community, they are more likely to contribute to cultivating strong, equitable, prosperous places.

Community-led change is more likely to meet the needs of all residents and make enduring progress toward local vitality.



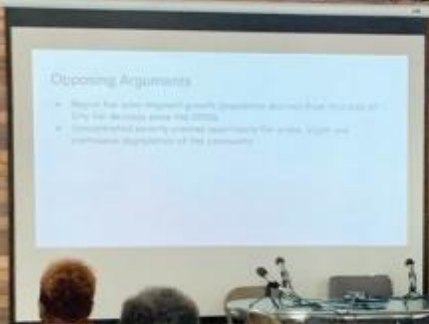
### Testimonial

"I have learned that my voice is very important, and I am a force to be listened to. I had many ideas but didn't have the courage to pursue all avenues and to make things better for my community, but I now feel that my voice is very important and should be heard."

- Community Development program participant

### Programs and Services

- Asset Mapping
- Community Arts Programming
- Community Assessment
- Community Engagement
- Community Planning Support/Coaching
- Community Resource Development
- Facilitation
- Neighborhood and Leadership Classes
- Strategic Doing
- Youth Civic Engagement Programs



### About us

The University of Missouri Extension and the University of Missouri-St. Louis have a history of successful partnerships building capacity for thriving communities.

Contact us to discuss how we can work with you to build civic capacity for YOUR thriving community.

[extension.missouri.edu/topics/community-development](http://extension.missouri.edu/topics/community-development)

# Maries County

University of Missouri Extension ag economics department and ag business specialists worked together to coordinate one summer and three fall tax schools. The summer school was in person and live online. Fall schools were in Columbia and Springfield and in addition a was online. The schools were designed for those who prepare taxes including enrolled agents, tax preparers, CPAs, individuals, and attorneys.

The training included updates on legislation, rulings and cases, individual taxpayer issues, agricultural and natural resources topics, ethics, trusts and estates, agriculture and natural resource tax issues, business tax issues, business entity tax issues, IRS issues, penalties and defenses, form 4797 sales of property, retirement tax issues, like-kind exchange issues. The schools were approved for 8 and 16 hours of continuing education credit by the IRS, Missouri Bar and for CFP continuing education. Total continuing education hours reported to IRS for the schools was 3,336 hours.

The teaching teams included a CPA and former IRS stakeholder liaison, an IRS certified retired ag economics professor, an attorney, Missouri Department of Revenue and extension ag business specialists.

The resources for the schools included the IRS, the National Income Tax Workbook from the Land Grant University Tax Education Foundation, and materials written by the instructors.

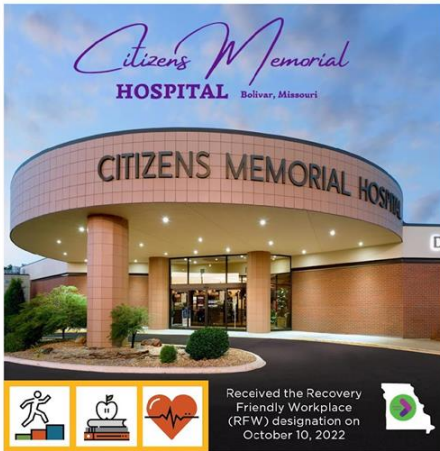
The 2023 school attendance totaled three hundred twenty-seven people. The participants were from throughout Missouri.







# MU EXTENSION **Serves MISSOURI and Delivers MIZZOU** through credible statewide programs **Community and Professional Health Education**



**Recovery Friendly Workplaces** (RFWs) foster a workplace culture that promotes employee safety, health and well-being through strategies that support managers and employees, including reducing stigma and providing recovery resources related to the challenges surrounding substance use disorders. The framework was developed in partnership with MU Extension's Labor and Workforce Development Program.

**As of 2023, 25 Missouri businesses have been designated recovery friendly workplaces, and 2,248 EMPLOYEES have been trained on addiction, stigma and naloxone distribution.**



**Strengthening Families Program: for Parents and Youth 10-14,** is a seven-session series for parents or caregivers and their young teens to attend together to improve family communication, resolve conflict and improve parental skills.

**A research study conducted by the Partnerships in Prevention Science Institute found a RETURN OF \$9.60 for every dollar spent implementing the Strengthening Families Program.**



**PROSPER** is a research-supported approach that promotes positive youth development and strong families through lifeskills education that increase protective factors and reduces risky behaviors among teens. Through a campus-community partnership, PROSPER Teams are created to support the implementation of two evidence-based programs with middle school students and their families.

**"They have the old saying it takes a village to raise a child, the more the community comes together the better off the children are going to be in that community."**

**Peggy Saphian PROSPER Model Participant in Fredericktown, MO**

## Legend



Agricultural Growth & Stewardship



Economic Opportunity



Educational Access & Excellence



Health & Well-Being





MU EXTENSION **Serves MISSOURI and Delivers MIZZOU**  
 through credible statewide programs  
**Health and Human Sciences**



Divorcing or separating parents encounter distinct challenges when living apart. **Focus on Kids** guides parents in fostering effective co-parenting strategies to support their children through this process.

**“Understanding that divorce doesn’t ruin children, but parents can significantly influence positive outcomes through good communication, was invaluable.”**



Preschool through junior high youths learn how to maintain healthy lifestyles through information about nutrition, food safety and physical activity. **Show-Me Nutrition** classes support Missouri’s Show-Me education standards for health and physical education and the state’s School Wellness Policy.

**“We have struggled with our daughter’s picky eating for years and have tried so many techniques to try and get her to eat new foods. Your influence on her has worked magic this year. She has come home so excited about trying new foods and has now become not only willing but excited to try new things.”**

**Parent of a Show-Me Nutrition participant**



**Cooking Matters** teaches shopping strategies, using nutrition information to make healthier choices and to learn how to cook delicious, affordable meals at home.

**“We prepared barley jambalaya in class and one participant mentioned she had never tried barley before. She tried the jambalaya and really enjoyed it. A few days later she excitedly said she made the recipe at home and her whole family enjoyed it!”**

**Cooking Matters facilitator about a class participant**

**Legend**



Agricultural Growth & Stewardship



Economic Opportunity



Educational Access & Excellence



Health & Well-Being



**Bethany Prenger**

4-H Field Specialist in Youth  
Development

O: (573) 369-2394 | C: (573) 821-3548

Covering Maries, Miller, and Pulaski Counties

## KEY SUCCESSSES

- ❖ United Way Grants were awarded in Maries County to fund 6 content and curriculum boxes that can be checked out. The curriculum and the content were put together by myself and will be available for approved club volunteers and project leaders to check out in at the beginning of the year.
- ❖ Newly formed clubs in Maries, Miller, and Pulaski counties have been created.
- ❖ Newly revised 4-H Council met in Maries County
- ❖ Grants filled out within the past 6 months:
  - ❖ Maries County: 2 BOAC Grants, and one United Way Grant
- ❖ Social Media Reach in the last 28 days via our social media pages. *We strive to create positive and educational moments to encourage growth and education about and within 4-H and our clubs.*
  - ❖ Maries: 284 individuals



## AT A GLANCE

All counties are working on educating, connecting and communicate, and growth.

Maries county's focus is on after school programs and they are working on a partnership with Kaleidoscope.

Camp Meetings have been taking place and we are starting to plan camp for Summer 2024. I serve as the camp chair for Camp Clover Point. We are working toward providing more valuable leadership and personal growth for both campers and counselors. Counselor training will take place in February.

Connect with the Youth in our Programs  
Through our social media pages!



Maries County  
4-H



Miller County  
4-H



Pulaski County  
4-H



## 2022-23 4-H Annual Report Information

### Common Measures

Findings from a 2021-22 evaluation study shows that Missouri 4-H:

#### *Missouri 4-H Inspires Kids to Do*

98% said they are willing to work hard on something difficult.

91% set personal goals.

97% said they try to learn from their mistakes.

98% said they treat others the way they want to be treated.

#### *Missouri 4-H Grows True Leaders*

97% said they like to learn about people who are different from them.

93% said they think about others feelings before they say something.

75% reported feeling comfortable being a leader.

#### *4-H Builds Leadership and Communication Skills*

95% help others reach their goals.

86% comfortable speaking in a group.

99% said they show respect for other's ideas.

85% Can work with someone who made them upset.

95% Look for ways to involve all members of a group.

#### *4-H Builds Social and Emotional Skills*

94% said they keep trying until they reach their goals.

89% Stop to think about their choices when making a decision.

97% reported that they like to learn new things.

91% of Missouri 4-H'ers surveyed said they are willing to try something they might get wrong.



# Maries County

## Agriculture and Environment

### Local Impact

#### Rudra Baral, MU Extension Field Specialist in Agronomy

Serving Counties: Cole, Gasconade, Maries, Miller, Osage and Pulaski

Activities/Engagement

Nitrate testing

The major field crops grown in the counties I serve consist of soybeans, corn, wheat, and hay, with a notable emphasis on livestock farming, especially cattle and poultry. Farmers in the region grow substantial amounts of johnson grass, sorghum sudan, tall fescue, and oats for hay purpose. During the summer of 2023, this region experienced moderate to severe drought, leading to a significant impact on summer annual forages. According to the 2023 crop loss assessment, forage production decreased up to 73% compared to previous years. The drought not only declined forage yield and overall production but also resulted in nitrate poisoning in the summer annual forages.

To address this issue, I obtained a diphenylamine solution from the MU Veterinary Medical Diagnostic Lab (VMDL) and established a free nitrate testing facility in Miller, Osage, and Maries counties. A total of 26 hay samples were tested, revealing that 11 of them had high nitrate content, indicating they were unsafe for feeding cattle. Further analysis was conducted on 3 samples sent to MU VMDL for quantitative nitrate testing, revealing that 2 samples had nitrate levels exceeding 10,000 ppm, which is highly toxic if fed to livestock. Additionally, 4 hay samples were shipped to Warl lab in Nebraska for NIRS plus nitrate quantitative testing. Besides testing, I also wrote an article titled "Nitrate Poisoning in Forage: Management and Prevention" and shared it through the local newspaper.

Fig 1. Drought map of Missouri during the forage growing season in 2023

Fig 2. Nitrate testing for summer annual forage in MU Extension Office in Miller County

