



Pearls of Production



Thank A Farmer



Embryology



MO Beef Kids



Genetic Lockboxes

UNIVERSITY OF MISSOURI EXTENSION

Howard County

2024

Annual Report



600 W Morrison, Suite 17
Fayette, MO 65248
660-248-2272

**SERVE
MISSOURI.**

**DELIVER
MIZZOU.**



Extension
University of Missouri

an equal opportunity/ADA institution



Office of Extension
and Engagement
University of Missouri

Vice Chancellor's Office
108 Whitten Hall
Columbia, MO 65211
PHONE 573-882-2394
EMAIL cchiggins@missouri.edu

December 2024

Dear county commissioners, elected leaders and friends of MU Extension and Engagement,

As we reflect on the past year, I want to express my deep gratitude for your support of MU Extension and for your partnership in enhancing the lives of Missourians.

Your support for MU Extension fuels Missouri's agriculture, strengthens families, prepares our youth and promotes the health, well-being and vitality of our communities. Over the past year, our programs have focused on addressing key needs throughout the state:

- **Expanding access to 4-H:** To make 4-H more accessible, we've introduced more in-school and after-school clubs, reducing barriers and creating opportunities for young Missourians to develop essential skills and leadership abilities.
- **Supporting agriculture and land stewardship:** We're addressing critical issues such as succession planning for family farms, rural mental health, agricultural business management and land stewardship. These initiatives are helping Missouri's farmers plan for the future and preserve the health of our land for future generations.
- **Advancing health initiatives:** Our team of community health field specialists, covering every region of the state, works directly with local leaders to assess health needs and bring UM System resources and expertise to these communities, supporting healthier lives and stronger communities.
- **Promoting economic development:** MU Extension is helping to create economic opportunities by working with individuals, supporting businesses in their growth and collaborating with communities to enhance local vibrancy. Through these efforts, we help bring new jobs, skills and possibilities to Missourians across the state.
- **Providing essential training:** Our continuing education programs prepare Missouri's firefighters and health care workers to meet the demands of their roles with the latest skills and knowledge, ensuring they are well-prepared to serve our communities.

As you read through this annual report, I hope you feel as proud as I do of the accomplishments we've achieved together. The dedication and professionalism of MU Extension's faculty and staff are inspiring, and I am grateful to work alongside them—and each of you—as we make Missouri a stronger, healthier and more vibrant place. Thank you for your continued support and partnership. Together, we are serving Missouri by delivering the University *for* Missouri.

Warm regards,

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

Who we are

Faculty and staff



Heather Conrow

State 4-H
Animal Science
Educator; Field
Specialist in
Livestock



Dawn Shipp

4-H Youth
Development
Educator



Marilyn Dilts

County Office
Support Staff



Liz Harrison

Field
Specialist in
Nutrition
and Health
Education



Tina Edholm

Field
Specialist in
Human
Development



Jim Meyer

Extension
Engagement
Specialist



Tish Johnson

Field
Specialist in
Community
Economic
Development



Todd Lorenz

FIELD SPECIALIST IN AGRONOMY

Council members

Tim	Baker
Karissa	Boulden
Barbara	Cook
Jinger	Felten
Tracy	Johnmeyer
Mindy	Nation
Chris	Rohlfing
Theresa	Stevens
Jeff	Stockhorst
Amanda	Wies

Budget and more

Appropriations budget

We greatly appreciate the support from the county commission and look forward to their increasing support in 2025.

Income

County Appropriations	31,000
Total Income	31,000

Expenses

Salaries/Benefits	20,424
Travel	2,916
Telephone	1,555
Office Supplies/Service	3,286
Utilities	1,244
Insurance	815
Capital Repairs	800
Total Expenses	31,040



4-H Shooting Sports Activity

Commissioners

Presiding Commissioner
Jerimiah Johnmeyer

Eastern District Commissioner
Jeff Stockhorst

Western District Commissioner
Mathew Freese

Pearls of Production Break out Session



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



Local Support

Did you know you can donate directly to *Howard* 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.

Howard County



UM System Footprint in the county in 2024



FY24 county students

67 students

- 52 Undergraduates
- 15 Graduate and professional students
- 52 Full-time students
- 15 Part-time students
- 17 Pell grant recipients (aid year 2024)



County employees and retirees

267 people employed by UM

- 125 Campuses
- 136 MU Health Care (includes additional employees gained via the recent integration of Capital Region Medical Center)
- 6 UM System

168 UM retirees and beneficiaries

UM salary and retirement income: \$19.3 million

UM state tax revenue: \$591,209

UM federal tax revenue: \$2.7 million



County alumni

Selected school alumni

- 7 Medicine
- 26 Nursing
- 47 Health Professions
- 3 Dentistry
- 6 Pharmacy
- 10 Veterinary Medicine
- 147 Agriculture
- 41 Engineering
- 12 Law

Alumni teaching K-12

- 29 teachers
- 23.0% of all district teachers



County breakdown

MU

- 54 students
- 527 alumni
- 125 employees

UMKC

- 8 students
- 23 alumni
- 0 employees

Missouri S&T

- 3 students
- 15 alumni
- 0 employees

UMSL

- 2 students
- 16 alumni
- 0 employees



County population: 10,141



County services provided

Health care (FY24)

- 5,968 in-state patients seen at MU Health Care, with \$2.2 million of uncompensated care
- 3 in-state patients seen at UMKC School of Dentistry with a statewide average of \$52.57 per patient in uncompensated care
- MU Health Care's Missouri Telehealth Network recorded 1,173 visits to 751 patients having ZIP codes associated with the county

Extension (2023)

- 1,482 Total educational contacts from MU Extension to residents of the county, including:
- 513 contacts related to productive farming, better gardening, and managing natural resources
- 859 contacts related to healthy eating and aging, strengthening families, personal finance, or youth development
- 38 contacts related to starting businesses, developing community leaders, or renewing the local economy



Construction projects

- \$7,768 remitted to 1 county vendor, for 1 project



County properties and offices

Horticulture and Agroforestry Research Center

MU Extension in: Howard County

Howard County



University of Missouri System

COLUMBIA | KANSAS CITY | ROLLA | ST. LOUIS

UM System Statewide Footprint

Economic and Community Development Highlights

- In FY23, Business Development Specialists worked with small businesses and entrepreneurs statewide to create or retain 98,527 jobs.

\$3.1
billion

For every dollar invested from 2019 to 2021, the MU Extension Business Development Program has returned \$133 in economic impact for its clients by increasing sales more than \$1.6 billion. For a total impact of \$3.1 billion, the program has generated more than 37,000 jobs and attracted nearly \$451 million in capital investments and \$1.5 billion in government contracts.

- Between FY18 and FY23, UM System brought Missouri more than \$1.58 billion in federal and private research funds, funded primarily from outside the state, but spent within the state.



In FY24, UM System was issued 29 patents and filed 69 new U.S. patent applications.

- In FY24, the UM System awarded 707 design and construction project contracts throughout Missouri, for a total investment of \$287.3 million in the state.



In FY24, to improve access to medical and health related services, MU Health Care's Missouri Telehealth Network's Show-Me ECHO program provided 16,687 hours of case-based instruction to 3,113 learners located in 105 of 114 Missouri counties and the city of St. Louis.

Education and Training Provided



40,542 police, fire fighters, and medical professionals attending continuing education (2023)



Agriculture and natural resource programs served 369,077 farmers and related businesses (2023)

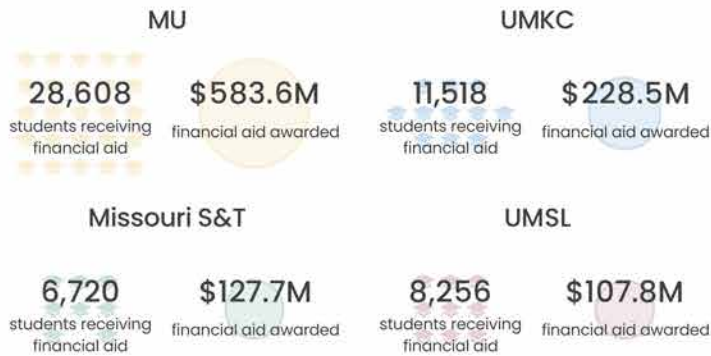


210,577 youth and stakeholder educational contacts in 4-H clubs, schools, camps and other programs (2023)

Education Highlights

FY24 Financial Aid Awards

In FY24, 69.7% of the UM System's 79,014 students received financial aid totaling \$1.048 billion



UM System's MOREnet (Missouri Research and Education Network) provides internet connectivity, access, support and training to 58 higher education institutions (230,000 students), 484 K-12 school districts (830,000 students) and 134 public libraries (serving nearly 3 million Missourians) in 2023.

- UM System awarded 50.5% of the 31,689 Bachelor's or higher degrees awarded by Missouri four-year public institutions in 2023-24.
- UM System awarded 35.0% of the 1,776 research doctorates and 26.8% of the 3,796 professional doctorates awarded by Missouri public and not-for-profit private institutions in 2023-24.
- In FY24, UM System's \$30.7 million in National Science Foundation (NSF) grants represented 96.9% of all NSF grants made to Missouri public colleges and universities.
- In 2024, over 12,400 Missourians accessed mobroadband.org, part of the UM System Broadband Initiative which helped the statewide build-out of high-speed internet infrastructure.

Supporting the University of Missouri is an investment in the future of Missouri.

The university advances Missouri citizens and communities through its mission of teaching, research, public service, and economic development across our four campuses and University of Missouri Extension.

Prepared in December 2024, based on the best available and most recent data. Data Sources include: Missouri Office of Administration • UM IR • MU Institute for Public Policy • Center for Applied Research and Engagement Systems (CARES) • MU • UMKC • Missouri S&T • UMSL • UM System • UM Health Care • MU Extension • US Census Bureau • US Dept. of Health and Human Services • National Science Foundation



Missouri Grand Challenges: Local Solutions



HOWARD COUNTY

Knowing Missouri's Needs

MU Extension asked Missourians to share the greatest challenges they and their communities face.

We heard that feedback and made big changes in the way we work with council and local partners to improve lives. Locally, a network of county engagement and subject matter specialists now share MU's knowledge, research and engagement, targeting programs, information and assistance in:

- agriculture and environment
- youth and family
- business and community
- health and safety

For each grand challenge, MU Extension and Engagement targets a specific gain by 2023:



Economic opportunity

Increase MU Extension and Engagement's economic impact to the State of Missouri from \$1 billion to \$1.5 billion overall, and from \$88 billion to \$100 billion in agriculture, the top economic sector



Educational access and excellence

Increase participation in postsecondary education from 66% to 70%



Health and well-being

Improve Missouri's health ranking from 40th to 35th in the nation

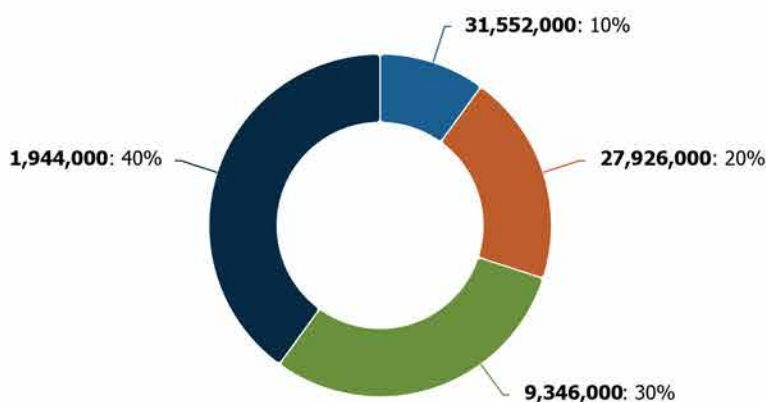
Knowing Local Challenges



CHALLENGE 1: Economic Opportunity: *Agricultural Economics*

Leading Agricultural Products

Total Rank (Sales): \$10



Data Source: US Department of Agriculture, National Agricultural Statistics Service, [Census of Agriculture](#). 2022.

Net Farm Income

Net farm income (total sales, government payments, and other farm-related income minus total farm expenses) reflects the strength of the local agricultural community and can be an important measure for lenders and policy makers. The report area had a combined net farm income of \$28,219,000 in 2017, an average of \$48,321 per farm. This is below the statewide average farm income of \$56,606.

Report Area	Total Farms	Average Farm Income
Howard	584	\$48,321
Missouri	87,887	\$56,606

Data Source: US Department of Agriculture, National Agricultural Statistics Service, [Census of Agriculture](#). 2022.



CHALLENGE 2: Educational Access and Excellence: *Early Childhood Education*

Access to Early Childhood Education

Head Start is an early childhood education program for at-risk children through age 5. Families utilizing Head Start have better success meeting developmental goals and achieving economic stability. In 2018, there were 2 Head Start programs in the report area, or 37.59 per 10,000 population. Access to head start is higher in this area than in the state.

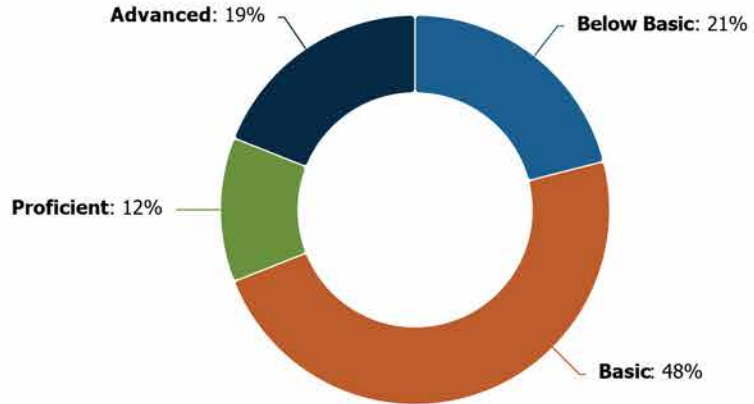
Head Start Programs, Rate (Per 10,000 Children Under Age 5)



Data Source: US Department of Health & Human Services, [HRSA - Administration for Children and Families](#). 2024.

English Language Arts Proficiency

Starting in the 4th grade, public schools emphasize proficiency in reading and reading comprehension. The ability to comprehend becomes the foundation to find and process information in later years and it is important to prevent children from falling behind. Of the 118.00 fourth graders tested in 2018, the known total number of students who had a basic level of English Language Arts was 48.00. The number tested as below basic was 21.00, basic was 48.00, proficient was 12.00, and advanced was 19.00.



Data Source: [Missouri Department of Elementary & Secondary Education](#). 2022.



CHALLENGE 3: Healthy Futures: *Mental Health*

Deaths of Despair

Untreated mental health conditions, substance abuse, and stress have caused an epidemic of "deaths of despair" across the United States. Research shows that deaths due to suicide, alcohol-related disease, and drug overdose have caused the first decreases in U.S. life expectancy in the 21st century. Within the report area there were an estimated 35 deaths of despair, or 49.55 deaths per 100,000 population between 2011 and 2017. This rate is lower than the state rate of 52.01 per 100,000, and represents an increase of 60.2% since the 2001-2007 report period.

Mortality Rate, 2014-2020



Data Source: Centers for Disease Control and Prevention, [CDC - National Vital Statistics System](#). Accessed via [CDC WONDER](#). 2014-20.

Poor Mental Health Days

Self-reported mental health status is a widely used measure of health-related quality of life. In 2018, adults in the report area averaged of 5.2 mentally unhealthy days per month, which is lower than the state average of 5.3. This measure of mental health status has worsened since 2014, when adults in the report area averaged 4.4 mentally unhealthy days per month.

Average Poor Mental Health Days per Month, 2018



Data Source: Centers for Disease Control and Prevention, [Behavioral Risk Factor Surveillance System](#). Accessed via [County Health Rankings](#). 2021.



CHALLENGE 4: Agricultural Growth & Stewardship: *Agricultural Economy*

Jobs Derived

Missouri has a diverse agriculture industry, strong in crops and livestock, as well as food and forestry processing industries. These industries remain a significant part of Missouri's economy, supporting more than 1 in every 10 jobs, on average. In 2021, agriculture, forestry, and related industries in Missouri were estimated to contribute: 456,618 jobs, \$93.7 billion in output and \$31.8 billion in household income. [Learn more about Missouri Agriculture's Economic Impact.](#)

Percent of Jobs Derived from Agriculture

27.7%

Howard

Missouri

23.55%

Data Source: Missouri Department of Agriculture, [Missouri Agricultural and Small Business Development Authority](#). 2021.

Value Added

Value-added agriculture refers to production, manufacturing, marketing or other services that increase the value of primary agricultural commodities. In 2021, the total value-added derived from agriculture, forestry and related economic activity was an estimated \$34.9 billion. Meat processing, food processing, animal and pet food manufacturing, and crop production and related industries are Missouri's top value-added products: \$9.5 billion and 155,425 jobs from livestock production and related industries alone. [Learn more about Missouri Agriculture's Economic Impact.](#)

Percent of Total Value Added from Agriculture

18.3%

Howard

Missouri

21.98%

Data Source: Missouri Department of Agriculture, [Missouri Agricultural and Small Business Development Authority](#). 2021.



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

Missouri 4-H for ages 8 – 18



4-H Natural Resources programs employ hands-on activities in climate science, environmental sustainability, renewable energy, sportfishing and wildlife conservation. The **Shooting Sports program**, which teaches marksmanship, safe firearm use, hunting and archery principles, is a prime illustration of how 4-H programs promote holistic youth development and responsible citizenship. Supported by caring adult leaders, these programs offer opportunities to cultivate life skills, self-worth and conservation ethics.



Afterschool clubs These clubs meet after school for periods ranging from a few weeks to a full 4-H program year. These clubs typically focus on a single project at a time but can rotate through more than 100 different project topic areas. Members can elect officers and plan learning activities with options of public speaking, community service and links to career readiness.



Missouri 4-H Agriculture and STEM programs employ hands-on activities that foster problem-solving, creativity, critical thinking and exploration in engineering and technology. Agriculture programming emphasizes biology, environmental science, agri-science, veterinary science and engaging activities such as animal care and agronomy. STEM programs delve into computer science, robotics, aerospace, physics, chemistry and veterinary science.



Legend



Agricultural Growth & Stewardship



Economic Opportunity



Educational Access & Excellence



Health & Well-Being

Howard County

Missouri 4-H

Local Impact



Stem Activity with Falcon Club



Heather Conrow teaching the Embryology Class



"In the Ring" at the HOCO Fair



4-H showing HOCO Fair projects at Retirement Center

Howard County

Missouri 4-H

Profiles and Stories



HoCo Fashion Revue

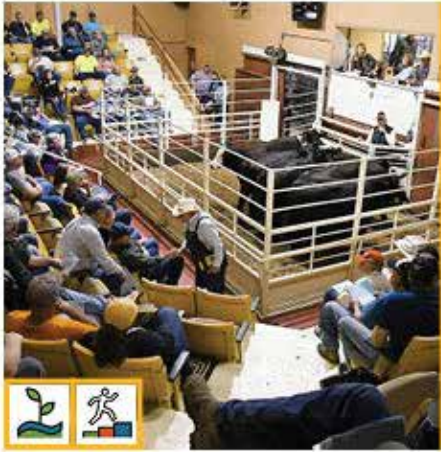
Dawn Shipp is our new 4-H Educator. She is involved with the day to day of Howard County 4-H. She attended the HOCO Fair and has been to Falcon Club afterschool and they studied about space and planets. She has training in On My Own and Youth Futures, two programs MU offers for 4-H educators. We are so happy to have Dawn. We are looking forward to more education opportunities in Howard County.

4-H float for the parade





MU EXTENSION **Serves MISSOURI and Delivers MIZZOU** through credible statewide programs **Agriculture and Environment**



The Missouri Show-Me-Select Replacement Heifer Program

strives to enhance beef herd reproductive efficiency, boost farm income and establish dependable sources of quality replacement cows in Missouri. The program brings in the power of animal genomics through an enhanced DNA-option, Show-Me-PLUS.



Since its inception more than **900 FARMS** have enrolled, with an estimated statewide impact of **\$200 MILLION.**



“A lot of veterans come right out of the service and may feel disconnected and may be struggling with finding job opportunities. The Heroes to Hives program offers a diversion as well as opportunities.”

Eric Work, Heroes to Hives participant



Heroes to Hives offers free professional training in beekeeping to veterans, promoting financial and personal wellness through community development. Missouri’s Heroes to Hives group has trained more than 1,200 veterans since 2021. It is the nation’s largest agriculture training program for U.S. military service members.



The Missouri Agriculture, Food and Forestry Innovation Center

(MAFFIC) provides dedicated technical assistance to help value-added agricultural producers launch or expand their businesses. Through personalized support in marketing, product development, business planning and financial analysis, MAFFIC business counselors equip producers with the knowledge and tools needed for success. Each year, these free services reach more than 150 producers, driving innovation and growth in Missouri agriculture.



Legend



Agricultural Growth & Stewardship



Economic Opportunity



Educational Access & Excellence



Health & Well-Being



Heather Conrow
Livestock Specialist
State 4-H Animal Science Educator

Backyard Laying Hen Workshops

The number of backyard flocks continues to increase across the state. Over **40** participants attended these workshops, representing **10** counties.

Participants learned basic management practices to ensure a healthy backyard flock, in addition to biosecurity, licensing and labeling requirements, processing, washing, and grading eggs.

Hands-on opportunities included equipment demonstrations and processing, candling, and grading of eggs.

100% of participants said they would recommend the workshop to others for the following reasons, “lots of good information, great basis to start,” “very informative and fun.”



Participants increased their knowledge on the following topics with the percent increase following:

- Getting started with chickens: **38%**
- Caring for laying hens: **58%**
- Protecting your flock and family: **68%**
- Washing and storing eggs: **42%**
- Grading eggs: **72%**



Program Feedback

- “I’ve personally shown 4-H chickens for 10 years and I didn’t know some of this.”
 - “Showing equipment that does and doesn’t work is very helpful.”
 - “Now I know how to actually evaluate a hen rather than just guessing.”
 - “Some of the best hands-on info I have been to.”
 - “I didn’t even think of these things (biosecurity) before.
- Being aware of these procedures is very helpful.”
 - “I learned a lot about grading eggs. I had no prior knowledge of how it worked.”
 - “I previously thought candling was only for crack checking.”
 - “Perfect for all ages.”
 - “Great workshop! I would love to attend more.”
 - “Well worth my time.”



Heather Conrow
Livestock Specialist
State 4-H Animal Science Educator

MO Beef Kids - Howard County

The MO Beef Kids program connects schools and their food service professionals to cattle farmers and ranchers to “beef” up school lunches. The goal is to provide more beef, more often in the lunchroom, while implementing food and nutrition education in the classroom. This powerful partnership highlights the important message and journey of food and nutrition, while adding important protein to a student’s diet.

MO Beef Kids is a partnership between Fayette, Glasgow, and New Franklin school districts, the Howard County Cattlemen’s Association, MU Extension in Howard County, the Missouri Beef Industry Council, and the Missouri Department of Agriculture’s Missouri Grown program.

In 2024, Howard County producers donated **2,814** pounds of ground beef equaling **6,181** servings. Using **\$3.66**/pound of ground beef as the estimated commodity price, the three Howard County public school districts saved approximately **\$6,924** with these donations.

To date, Howard County producers have donated a total of **8,896** pounds of beef (**62,272** servings) giving an estimated savings to all three schools of approximately **\$20,700**.

All beef is produced and donated by local cattle producers and processed through Mizzou Meat Market in Columbia.



Donation to Fayette by the Howard County Cattlemen’s Association.

Animal donations in 2024 were provided by Randy and Sondra Conklin with Running C Ranch, Steve Diehls with Moniteau Valley Cattle Co. (2 animals), John Howell, and the Howard County Cattlemen’s Association.





Heather Conrow
Livestock Specialist
State 4-H Animal Science Educator

Show-Me-Quality Assurance (SMQA)

Objective: "To increase the knowledge and awareness of Missouri youth about food quality issues related to animal production."

Perceived safety, wholesomeness, and nutritional value of food products influence consumer-buying decisions. If consumers are not confident a product is of the highest quality they have come to expect, they will not purchase it.

- ❖ To date, I have conducted **40** trainings, with over **1,900** certifications
- ❖ Statewide, more than **36,500** youth have been certified
- ❖ Resulted in an average savings of **\$3.00** to **\$5.00** per head by reducing herd health expenses and providing a safe food product
- ❖ Participants have increased their knowledge about food quality and animal well-being by **2.5** points on a 1-5 scale
- ❖ Drug residues have dropped to **nearly zero** since the start of the program



A group of youth learn about biosecurity. Biosecurity measures are used to prevent the introduction and/or spread of harmful organisms. The **3 routes of transmission** are **direct, indirect, and aerosol**. Using glogerm and black lights, youth can see how a handshake can transfer germs (direct). The youth then hand a glogermed sponge around (indirect). Aerosol transmission is demonstrated using bubbles.



Banimal Injections: Producers give injections for two main reasons 1. Because our animals are sick, and we want them to feel better. 2. We want to prevent them from getting sick to begin with. These are called vaccinations.

The two types of injections commonly given by producers are 1. **Intramuscular** (into the muscle) shown in red above. 2. **Subcutaneous** (under the skin) shown in green above.

Program Outcomes & Impacts

- ❖ Youth participants are better equipped with the knowledge needed to produce a safe food product
- ❖ Youth participants provide a positive representation to the public regarding animal welfare
- ❖ Youth produce a safe, high quality meat product
- ❖ The public is becoming further and further removed from the farm and knowledge of agricultural practices
- ❖ Youth livestock exhibitors represent to people who are not well acquainted with agriculture where their food originates. In some cases, providing the only contact the public has with agriculture through the fair setting
- ❖ This program has allowed the industry to maintain open markets for show animals to be processed
- ❖ Overall, the number of positive drug residue tests in show animals has decreased



Heather Conrow
Livestock Specialist
State 4-H Animal Science Educator

Embryology

The embryology program utilizes resources from the National 4-H Cooperative Curriculum System, INC. A 15-minute presentation is provided which covers the daily development of the chick embryo through a series of pictures. A video is included of the first heartbeat of the chick embryo still inside the shell. Youth then transitioned into the “Egg-sploration” activity where they breakout into groups of 3-4 students to explore the parts and their function of an unfertilized egg, while labeling each on a worksheet. Youth were introduced to key terms including air cell, chalaza, germinal disk, shell, shell membrane, thick albumen, thin albumen, yolk, and vitelline membrane. Additionally, an egg, which has had its outer shell dissolved is presented, allowing students to see inside the egg without breaking it.



Missouri 4-H promotes the experiential learning model, which allows youth to experience the activity, share results and reactions, and process the information.

Youth dissect the egg by looking at each part and discovering their functions with a worksheet. Once all parts are labeled, youth can break the vitelline membrane, which surrounds the yolk.



Program Feedback

- ❖ Love the visuals and the handout-very informative.”
- ❖ “Hands-on and you knew how to interact with the kids.”
- ❖ “Very engaging-great pace!”
- ❖ “Great depth of information; not too deep, not too simple.”
- ❖ “You were excellent with expectations and directions for our students.”
- ❖ “Explanation, student engagement and management were terrific.”



Heather Conrow
Livestock Specialist
State 4-H Animal Science Educator

Thank a Farmer

March 3-9 was "Celebrate Agriculture: Thank a Farmer Week."

Students in Falcon Club and New Franklin Elementary School celebrated Howard County farmers by making "Thank You Plates." An educational program over commodities of agriculture was provided. "Agriculture provides us with everything we need to survive and thrive. They not only produce food, but provide us with baseballs, shampoos, fuel, crayons, clothes, medicines, and the list goes on."

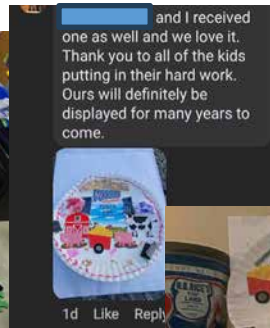
The center of the plate read, "Thank you for filling my plate and my world." Students then glued different commodities of agriculture around the plate.

Missouri has **87,000** farms, the second-most in the nation. Students learned fun facts about products produced on those farms, such as corn, oats, cotton, and wool.



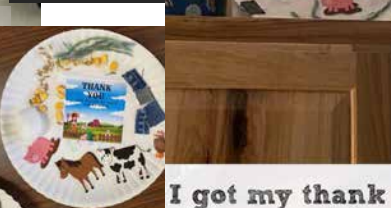
Today's Missouri farmers and farmers across the country produce **262%** more food compared to **1950**, while using fewer natural resources.

"It's amazing to know that only **2%** of the country's population produces enough food to feed the other **98%** of the population and still have products to export to other countries."

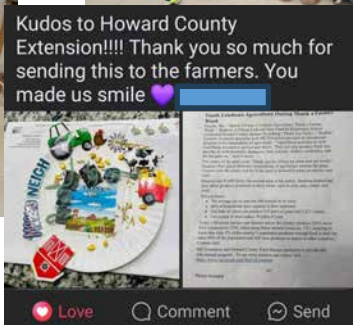


Did you know...

- ❖ The average ear of corn has **800** kernels in **16** rows
- ❖ **80%** of households have oatmeal in their cupboard
- ❖ **One** bale of cotton can produce **215** pairs of jeans AND **1,217** t-shirts
- ❖ **One** pound of wool makes **10** miles of yarn



I got my thank a farmer plate. That was nice. Thanks





Heather Conrow
 Livestock Specialist
 State 4-H Animal Science Educator

Pixels & Pearls of Production

Objective: "To provide a leadership and hands-on training opportunity for women in Missouri involved in livestock production."

Women in agriculture have long played a pivotal role, particularly in the management and care of livestock. Their contributions are often undervalued, yet their expertise and knowledge are indispensable to the sustainability and productivity of agricultural systems worldwide.

Women in agriculture not only tend to the daily needs of livestock, ensuring their health and well-being, but also bring innovation and resilience to farming practices. Their involvement is crucial in advancing food security, enhancing biodiversity, and fostering sustainable development.

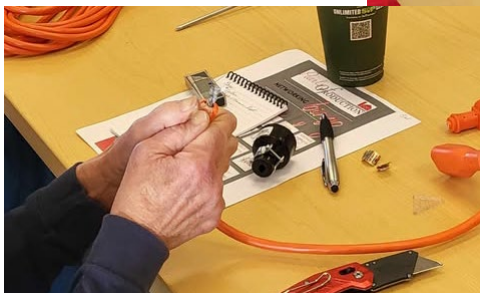
By empowering women through access to resources, education, and equal opportunities, we can bolster the agricultural sector, leading to a more equitable and prosperous future for all.



Program Outcomes & Impacts

Participants increased their knowledge on the following topics with the percent increase following:

- ❖ Beef genetics on the farm: **107%**
- ❖ Backyard laying hen management: **55%**
- ❖ Forages and pasture management: **73%**
- ❖ Farm headaches: **52%**





Ge • net • ics (/jə'nediks/) the science of genes and how traits are passed on from one generation to the next

Heather Conrow

Livestock Specialist

State 4-H Animal Science Educator

Genetic Lockbox

Objectives: "Obtain a basic understanding of genetics. Distinguish genotype and phenotype. Define dominant and recessive alleles and how they are represented."

Genetic Lockboxes are an innovative and interactive means to educate the public about genetics. Participants exercise communication techniques as they work together to solve the puzzles. The puzzles are designed to make participants think through and apply problem-solving skills to genetic concepts. Participants will struggle, make mistakes, and rely on teammates.

Through a partnership with Ellis Fischel Cancer Center, the Genetic Lockbox has gone statewide with **64 boxes** located across the state. Teachers, 4-H volunteers, FFA advisors, Boy and Girl Scout leaders, etc. can reserve box(s) free of charge. It comes with all the puzzles, hint cards, answer sheets, and a 25-page Facilitator's Guide.

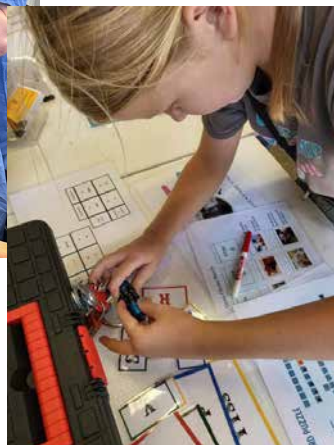


*Crack the codes to open the locks to get the *prize* in the box.*

*Prize not included

Fun Facts

- ❖ If all DNA strands in all the cells of **ONE** person were stretched out, it would reach to the sun and back more than **600** times
- ❖ Scientists can never clone a dinosaur because DNA has a half-life of **521** years
- ❖ Humans are **80%** genetically similar to cows
- ❖ Bone marrow transplant patients end up with **2** different DNA profiles
- ❖ All humans receive **3** feet of DNA from Dad and **3** feet from Mom
- ❖ Heart, eye, and brain cells never replicate; therefore, they can never be replaced if damaged
- ❖ Less than **2%** of our DNA codes for proteins - the rest is called "junk DNA," but is still useful
- ❖ A mouse uses more DNA from its father than its mother
- ❖ Almost all tortoiseshell cats are female, only **ONE** in **3,000** calico cats is male



Learn More





Heather Conrow
 Livestock Specialist
 State 4-H Animal Science Educator

Using Ultrasound to Evaluate Carcass Traits

Objective: "To provide objective and quantitative carcass data through ultrasound on livestock for the purpose of genetic improvement for carcass traits."

Real-time ultrasound uses high frequency sound waves to "see inside" while the animal is still alive. This technology allows for a fast and objective prediction of the carcass composition of the market animal.

Carcass traits are moderately heritable and are a good indicator of lean and fat in live animals. Ultrasound allows county fairs to have a carcass class without having to harvest the animals.

Benefits of using real-time ultrasound includes:

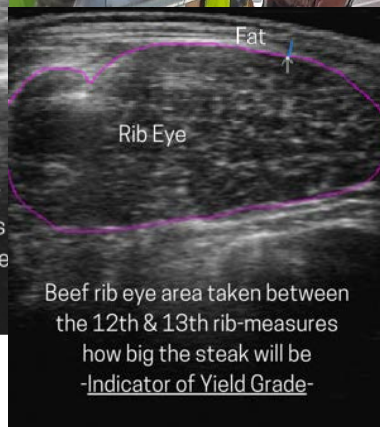
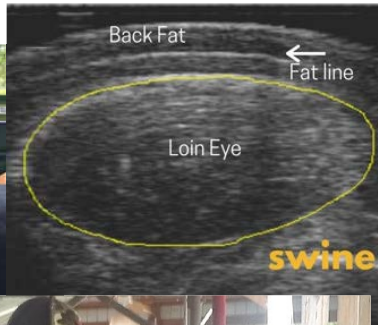
- ❖ Objective prediction of carcass lean (muscle) and fat in live animals
- ❖ Objective measure of percent intramuscular fat (marbling) on live cattle
- ❖ Eliminates the expense and time required by progeny testing for carcass merit



"Think of the animal as a Christmas present. The fancy wrapping and pretty bows is the 'show' or how good they look. The real present is the meat we eat inside. Ultrasound allows us to see inside at the gift without unwrapping the present."

2024 Ultrasound by the Numbers

- ❖ Over **5,700** miles traveled
- ❖ **273** head of cattle scanned
- ❖ **568** pigs scanned
- ❖ **164** head of sheep scanned
- ❖ **83** head of goats scanned
- ❖ Fat-free lean gain has improved from **0.31** kilograms per day to **0.375** kilograms per day in swine
- ❖ Loin eye area has increased from **8.0** to **8.3** square inches in swine
- ❖ Back fat has decreased from **0.9** to **0.79** inches in swine



Howard County

Agriculture and Environment

Local Impact

2024 Agronomy Report

**Todd Lorenz, Field Specialist in
Agronomy**

**510 Jackson Rd, Boonville Mo,
65233; 660-882-5661**

Missouri sets in a transitional climate zone where we can have the same winters as Michigan and the same summers as Georgia. The impact of 2024 weather extremes were both good and flawed. After almost 3 years of drought in the central Missouri area, spring rains seemed to offset moisture deficiencies in livestock and row crop production. Water sources seemed to replenish, spring forage production was up, and crop producers were optimistic about the year's production.

By June, central Missouri was showing no drought, but it was creeping back. By mid to late season, producers were already wanting two more inches of rain to finish filling soybeans. The silver lining was that there was adequate rainfall during the season to produce above average corn yields in much of the area. July and August rainfall was below the 30-year average and temperatures were above average. While soybean yields in the area were an improvement over previous droughty years, a few more late season rains would have improved yield significantly. The USDA Drought Monitor maps show growing season variations across the state (Figure 1). There were areas where rain showers were spotty at best and the maps may not reflect individual locations.

Howard County

Agriculture and Environment

Local Impact

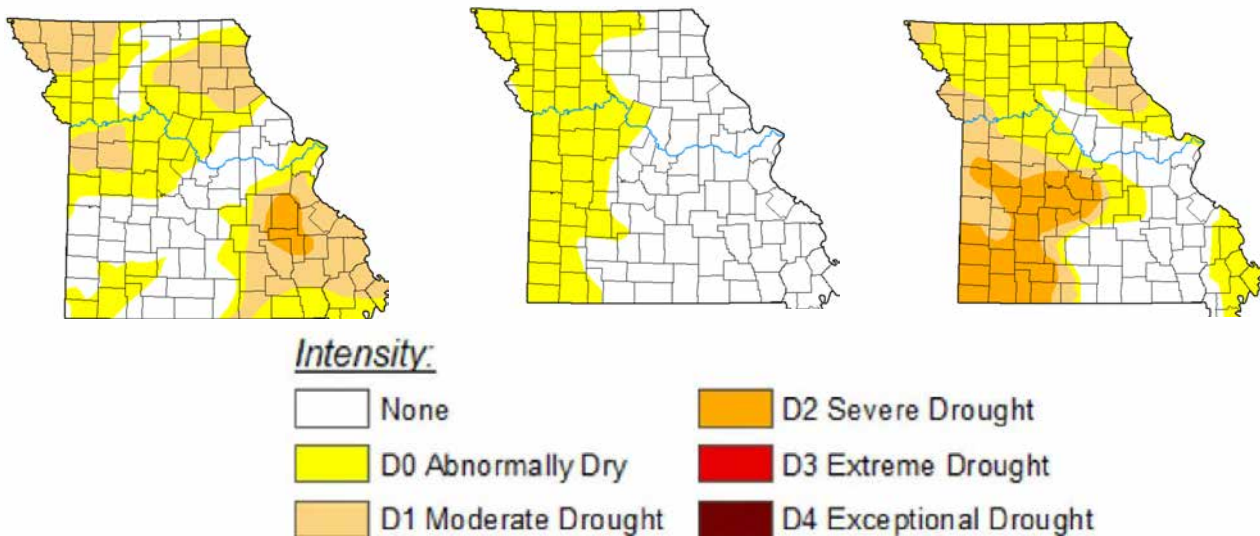


Figure 1: April, August, and November Drought Monitor

As a result of our Private Pesticide Applicator Trainings crop producers and their advisers will not only be aware of the latest research related to pests and pesticide management but will also learn appropriate techniques of using that information to build efficient integrated pest management systems. The main goal is to improve awareness of aspects of the rapidly changing labels, potential personal injury, environmental degradation, and economic impacts from proper use of pesticides. The goal is to sustain an economically viable crop production industry in Missouri while diminishing potential negative impacts of crop production systems on the environment. This will enhance the economic and social viability of rural and urban Missouri while protecting the environment. #2xAg2030; #ExtendMU

Howard County

Agriculture and Environment

Local Impact

Those who chose to fill out a survey at the Private Pesticide Applicator Trainings in counties that I serve represented over 70,000 acres from in and around central Missouri. Of those reporting, 100% believe Extension educational programs are important in their community. Also, 100% stated that the information provided will make them a better applicator. There were 18 of producers from Howard County who attended the Pesticide Applicator Program this year.

Soil testing is utilized by both gardeners and homeowners as well as agriculture forage and livestock production. Any production, from back yard gardens and lawn to full scale agriculture, that is attempted with insufficient information may result in crop failure and wasted money. Through our offices, the University of Missouri Soil Testing Laboratory provide accurate analysis of your soil and provides research-based recommendations on the crop that you are producing. There were 62 submitted soil samples through our laboratory this 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.



AMERICA'S **SBDC** MISSOURI **CLIENT HIGHLIGHT**

LOGS OF GLORY

The **Missouri Small Business Development Centers** (SBDC) provide professional training and customized one-on-one counseling to small businesses across the state. Working with the Missouri SBDC helps business owners make confident decisions.

FY2020-2022, Missouri SBDC ASSISTED 878 STARTUPS and helped Missouri small businesses earn more than \$440 MILLION.



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

Local Impact

Agriculture Lender Seminar

Mary Sobba

Seventy-two lenders from 20 Missouri counties and Illinois attended an ag lender seminar in Mexico. Lenders learned about crop and livestock outlook, agriculture policy, rental rates & land values, MU budgets, wind and solar leasing, input costs and enterprise budgets, Missouri farm business management summary and Missouri Agricultural and Small Business Development Authority (MASBDA) programs.

By attending University of Missouri's Agricultural Lenders' seminars, lenders gain knowledge to help their clients make better decisions based on objective education and resources. More information and better decisions benefit their portfolio of producers, landowners, and agribusinesses through enhanced understanding of enterprise budgets, market expectations, and other decision influencing factors affecting families' and businesses' financial health. Lenders in attendance manage farm loans totaling \$155,250,000.

(Audrain-8; Boone-6; Callaway-4; Clark-7; Cooper-1; Gasconade-2; Howard-1; Knox-1; Lincoln-6; Macon-2; Marion-6; Monroe-9; Montgomery-4; Pike-2; Randolph-1; Schuyler-2; Scotland-3; Shelby-4; Warren-1; and Illinois-3)



Howard County

Business and Community

Local Impact

Extension Tax Schools

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 one online school. 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, related party issues, real estate rental activity issues, limited liability company issues, and international tax 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 3,776 hours.

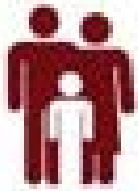
The teaching teams included CPAs, a former IRS stakeholder liaison, an IRS certified retired ag economics professor, an attorney, a certified financial planner, Missouri Department of Revenue and extension ag business specialists.

The evaluations had many positive comments and helpful suggestions. Planning is underway to offer trainings in 2025. Local county residents benefit when local tax preparers have the opportunity to gain knowledge, which benefits their clients and communities. The tax schools are a program of the ag business and policy program of MU Extension, coordinated by Mary Sobba with help from a team of ag business specialists throughout the state.

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 2024 school attendance totaled three hundred fifty people. The participants were from throughout Missouri.





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



Stay Strong, Stay Healthy teaches older adults basic exercises to boost strength, balance and overall daily functionality. Participants also gain insights into nutrition and wellness for healthy aging and active living.

After eight weeks, **Stay Strong, Stay Healthy** participants significantly **IMPROVED** their **STRENGTH, BALANCE** and **SLEEP QUALITY.**



Policy, Systems, and Environmental (PSE) changes encourage residents to improve community health by making healthy choices easier and more accessible. Residents design strategies around local needs, assets, and interests.

HELPING HANDS FOOD PANTRY leaders decided pantry clients needed access to healthier foods. Review of food procurement and display practices led to a new policy allocating **\$1,000** of pantry discretionary spending for **LOW-FAT DAIRY OR FRESH PRODUCE.**



Show-Me Nutrition

Programming for preschool through junior high

An engaging way to demonstrate the benefits of food safety, nutrition and physical activity. Meets Missouri's Show-Me Health and Physical Education standards 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

Legend



Agricultural Growth & Stewardship



Economic Opportunity



Educational Access & Excellence

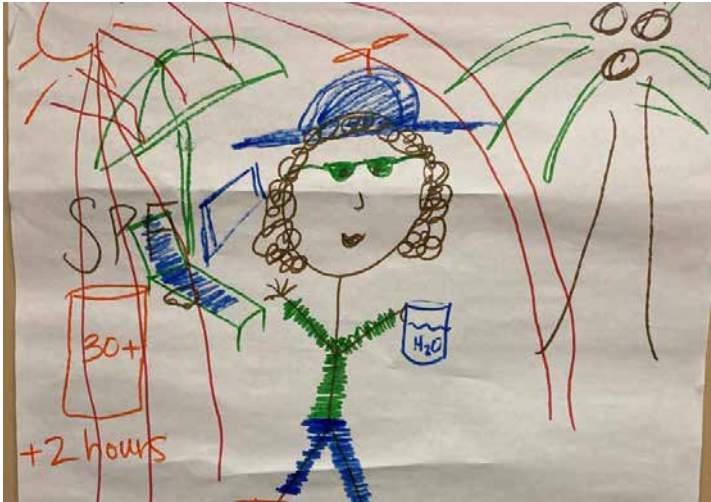


Health & Well-Being

Howard County

Health and Human Sciences

Profiles and Stories



Provided **SunWise** (National Environmental Education Foundation) sun safety and health education to 20 youth (K-5) through **Falcon Club** (Fayette Schools).

Image: Sunny goes to the beach! Youth identified sun protection strategies to protect our skin.

Stay Strong, Stay Healthy



In 2024, three Stay Strong, Stay Healthy – Level 1 courses were provided in Howard County. Over half of participants completed at least 75% of the course sessions. 26 participants received 314 educational contact hours.

In the fall, one Stay Strong, Stay Healthy – Level 2 course was provided to community members ready to advance their exercise level. Eight participants received 109 educational contact hours and six completed at least 75% of the course sessions.

Participants in both levels maintained or improved endurance, flexibility and balance.

- “I feel more confident in my balance. Not perfect, but has greatly improved.”
- “The class keeps me motivated to stay active.”
- “I can step up and down off a curb and notice that I feel stronger and have better balance.”

113 staff at Fayette School District received six weeks of asynchronous education at the end of the school year for **Well-Being Wednesdays**.

Topics included:

- Goal setting
- Budgeting and planning for healthy eating
- Sleep health
- Stress and mindfulness
- MyPlate
- Walking and physical activity

The Well-Being Wednesdays “were well done and easy to understand and attain.”

Well-Being Wednesdays participant



The **Well-Being Wednesdays** program included marketing for the statewide 100 Miles, 100 Days program. This program encourages regular movement throughout the 100 days of summer. One individual from Howard County participated in 2024.

Local Impact

SNAP-Ed Public Value Statement 2024

The Supplemental Nutrition Assistance Program Education (SNAP-Education or SNAP-Ed) brought \$11,145,237 in federal funds to Missouri. The funds support engagement with 74,864 Supplemental Nutrition Assistance Program (SNAP) recipients and eligible citizens of Missouri who learned about being active and healthy eating on a budget. This year we had 1,164,143 indirect educational contacts through newsletters, health fairs, food pantries, and the Show Me Nutrition helpline.

1,086 direct and indirect contacts were made in Howard County.

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, increase 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 the 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.

Nutrition Program Associate currently serving Howard County include:



Brittney Ames and Emily Blaue

Pictured Brittney programming with pre-K students:

Howard County

Health and Human Sciences

Profiles and Stories

Supporting Families Through Education: Building Strong Families

Tina Edholm delivered the **Building Strong Families** program to **564 participants** statewide, focusing on improving parenting skills. A memorable activity used paper dolls to explore how life experiences, such as bullying or neglect, can harm a child's self-esteem. Participants brainstormed ways to repair self-esteem, such as giving praise and setting achievable goals, symbolized by taping the doll back together.



*"I didn't know I had so many good things about me. This activity made me feel proud of myself."
-third-grader YMCA, Kids and Self-Esteem 2024*

"This program taught me how to communicate with my teenage son. For the first time in months, we had a calm and meaningful conversation. – *anonymous Building Strong Families Howard County 2024*

Empowering Youth Through Resilience

Across Missouri, **713 youth** developed leadership and life skills through programs like Heit's Point Summer Camp and YMCA activities. A camp counselor noted, *"The kids learned how to work together and express their emotions constructively. It's amazing to see their growth."* These programs not only teach valuable skills but also foster resilience and teamwork, preparing youth for future success.



Promoting Mental Wellness

By equipping 190 participants with skills to recognize and respond to mental health crises, **Mental Health First Aid (MHFA)** strengthened workplaces and community support systems across Missouri. One participant shared, *"This training gave me the confidence to help someone in need."* These efforts created a ripple effect of resilience and well-being, with an estimated economic impact of **\$32,300**, fostering healthier, more connected communities.

"This training gave me the tools to support a colleague during a mental health emergency. I feel more confident in my ability to help."
– anonymous MHFA participant, Callaway County, 2024



A MATTER OF
BALANCE

MANAGING CONCERNS ABOUT FALLS

"I didn't realize how much fear of falling was holding me back. Now, I feel ready to enjoy activities I used to avoid."

- anonymous participant, MOB 2024

For older adults, maintaining independence is life-changing. Through A Matter of Balance, participants gained practical tools to reduce fall risks, build strength, and improve confidence. This program not only enhances quality of life but also generates an estimated economic impact of **\$37,520** by reducing fall-related medical costs

Howard County

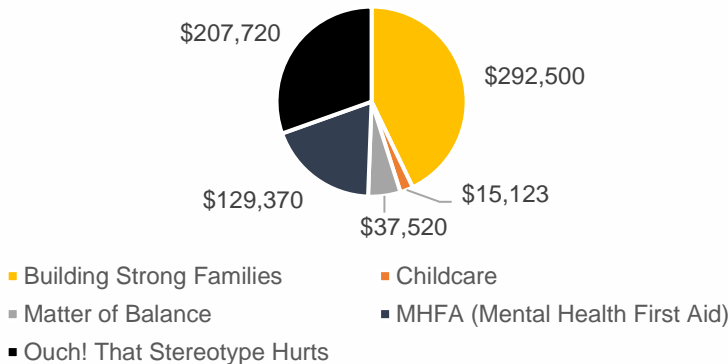
Health and Human Sciences

Local Impact

In 2024, a single Building Strong Families session helped a father reconnect with his teenage son after months of conflict. This is just one of the 3,257 lives impacted across Missouri through programs addressing mental health, youth resilience, and family communication, generating an economic impact of over \$682,232. From Saline County youth learning resilience at summer camp to Boone County families strengthening self-esteem, these programs create lasting positive change in Missouri communities. By fostering mental wellness, strengthening families, and empowering youth, these programs create long-term benefits for Missouri communities. Continued support ensures these efforts grow, transforming even more lives in the year ahead.



Economic Impact by Program 2024

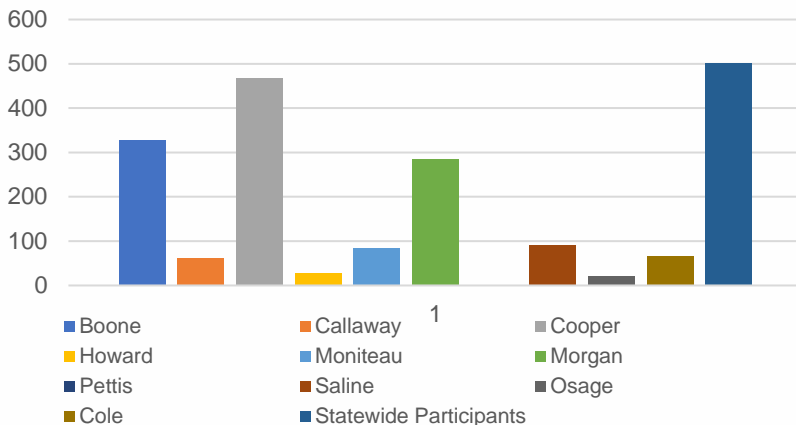


58%

of ag community members accessing teletherapy in 2024 were from Boone, Cooper, Howard, Moniteau, and Morgan counties. Free One-On-One Counseling Build coping skills with confidential counseling from a trusted source who knows ag.

573-882-4677

Participants By County 2024



Economic Impact Howard

