



Multistate Research Fund **IMPACTS**

Sara Delheimer, Program Coordinator

sara.delheimer@colostate.edu





Collaboration.



Innovation.



Communication.

As part of NRSP-1, the Multistate Research Fund Impacts Program (MRF Impacts) communicates the innovations and impacts of Hatch Multistate collaborations.

THE NEED

Decision-makers seek stories about impact & ROI.

Publicly-funded projects are accountable to the *public*.

But reports in NIMSS are *technical*, NIMSS has *internal* audience.

OUR SOLUTION

Integrated professional communicator & strategy

Cohesive brand, *focused* materials & training to communicate Hatch Multistate project IMPACTS

➡ Provide accountability

➡ Generate positive exposure & support

250

Impact Statements

80+

Infographics/Videos

65+

Impact Trainings

STRENGTHS & SUCCESES





**A BRANDED,
EASY-TO-USE
WEBSITE**

mrfimpacts.org

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Collaboration. Innovation. Impact.

The [Hatch Multistate Research Fund \(MRF\)](#) supports agricultural innovation and resilience by providing federal capacity funds to collaborative projects that address high-priority regional and national issues in agriculture. Projects are led by researchers at [land-grant universities](#) and [agInnovation](#), a nationwide network of agricultural experiment stations. The Multistate Research Fund is administered by the U.S. Department of Agriculture's National Institute of Food and Agriculture.

The Multistate Research Fund Impacts Program (MRF Impacts) communicates the impacts of these projects.

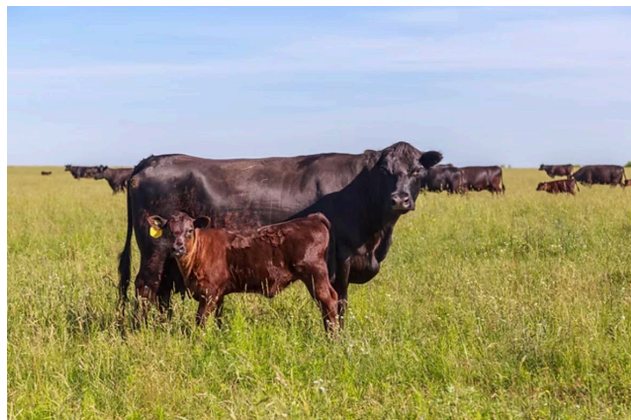
[Learn more about us](#) —>

SEARCH BY PROJECT NUMBER

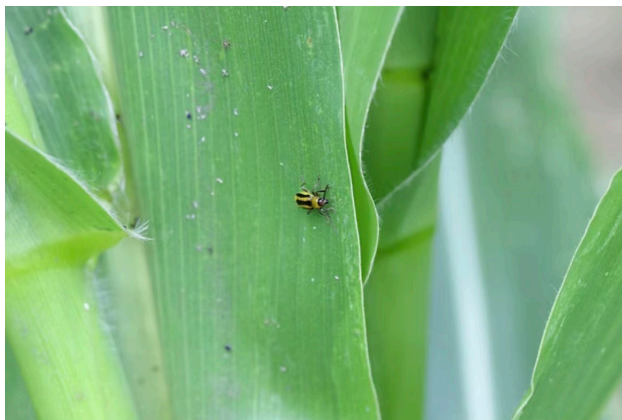
Visit our [Archive](#) for a complete list of impact statements available by project number.

FILTER BY TOPIC

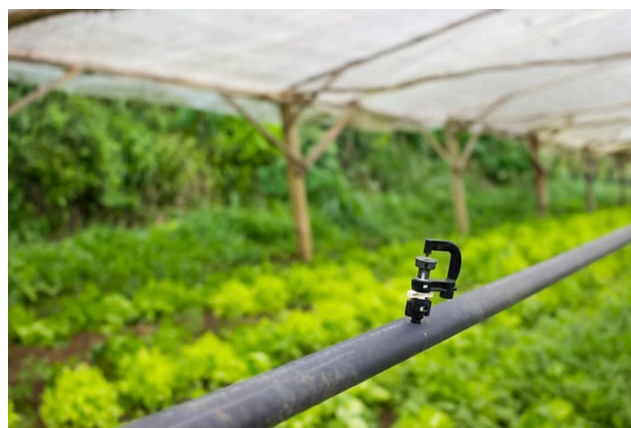
All Posts
Air Quality
Animal Health/Welfare
Automation
Beef
Biodiversity
Biofuels/Bioproducts/Biotechnology
Cattle
Crop Yield/Quality
Dairy
Emergency Response
Economic Resilience
Energy
Environmental Health
Fisheries/Aquaculture
Food Safety
Food Security
Forestry
Fruits/Vegetables
Goats
Grains



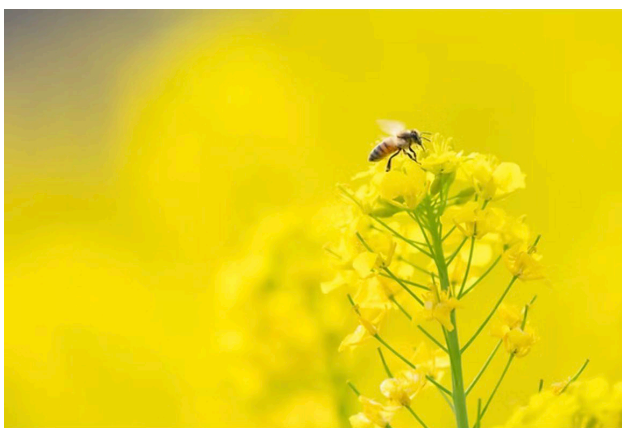
Improving Reproduction in Cattle & Sheep



Managing Insect Pests in Corn



Smart Irrigation

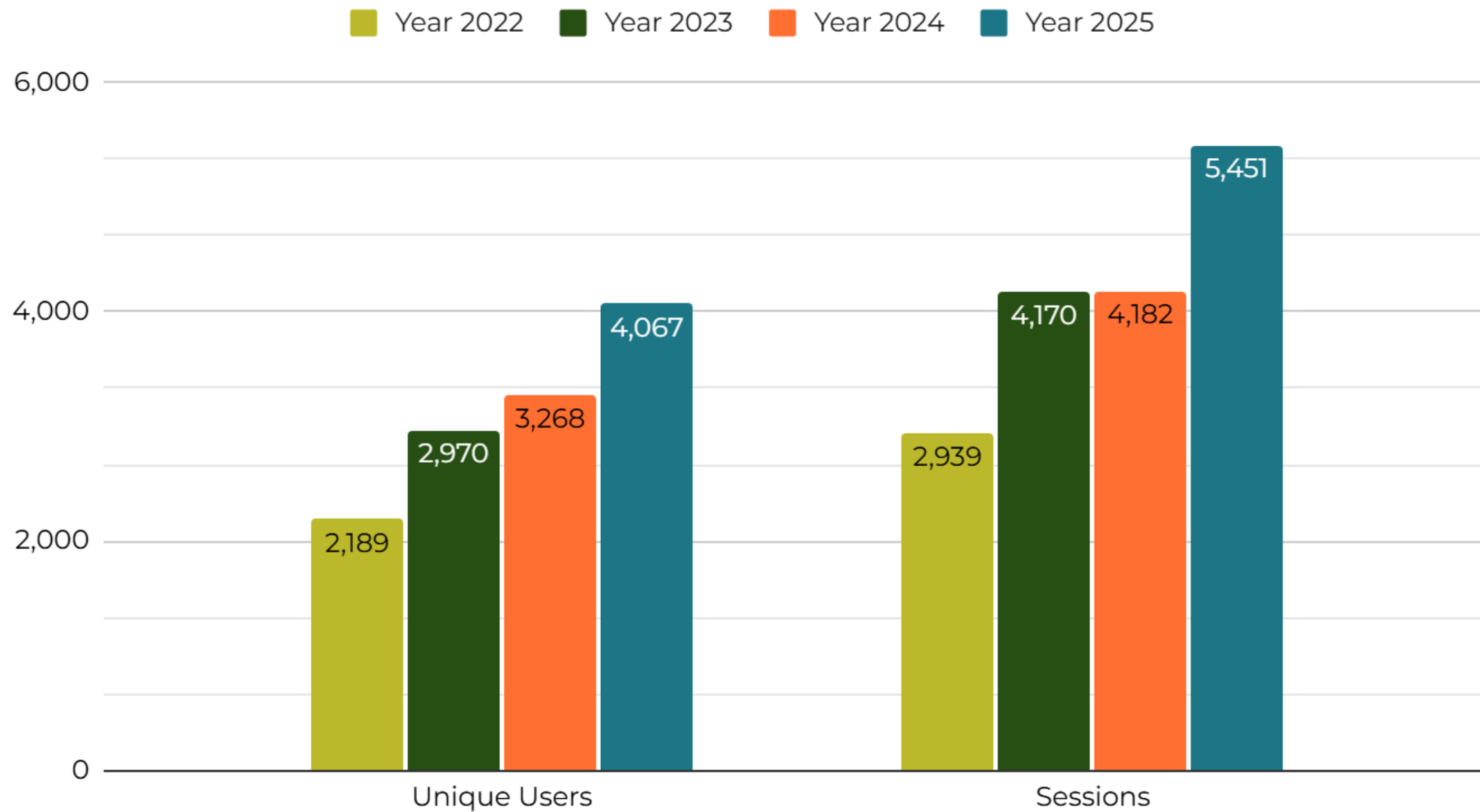


Supporting & Sustaining Bee Health

FILTER BY INSTITUTION

Alabama A&M University
American Samoa Community College
Auburn University
Central State University
Clemson University
Colorado State University
Cornell University
Delaware State University
Florida A&M University
Fort Valley State University
Iowa State University
Kansas State University
Kentucky State University
Langston University
Lincoln University
Louisiana State University
Michigan State University
Mississippi State University
Montana State University
New Mexico State University
North Carolina A&T University
North Carolina State University
North Dakota State University
Ohio State University
Oklahoma State University
Oregon State University
Pennsylvania State University
Purdue University

Website Performance





**MANY, MANY,
HIGH-QUALITY
IMPACT STORIES**

Strengthening the Future of Plant Breeding

Since the advent of agriculture, human societies have bred plants. Breeding is responsible for plant varieties with stronger resistance to pests, diseases, and environmental stressors, higher yields, better flavor, more nutrients, greater ornamental impact, and greater economic value. Plant breeding is essential to supplying a growing global population with food, fiber, fuel, medicine, landscaping, and ecosystem services.

Future advances in plant breeding require continued investment in capacity—the people, education, infrastructure, resources, and programmatic support.

The Plant Breeding Coordinating Committee brings together plant breeders at land-grant institutions and the USDA to address plant breeding issues and strengthen public plant breeding programs.

Highly trained plant breeders with access to robust infrastructure and the latest technology will support resilient agriculture, healthy communities, and thriving environments and economies.

Strong public plant breeding programs are key to the success and sustainability of public and commercial efforts. They provide foundational knowledge, broadly beneficial innovations, and a long-term safety net for agricultural production and national security.



What does the Plant Breeding Coordinating Committee do?

Provide leadership on priorities

The committee alerts decision makers and stakeholders about strengths, weaknesses, and threats to agricultural security that can be addressed with plant breeding.

Increase awareness and support

The committee facilitates communication among plant breeders, government agencies, university administrators, and the industry.

Public speaking guidelines for plant scientists improve communication between plant breeders and non-technical audiences.

Videos, podcasts, white papers, popular press articles, and other materials have raised awareness of the practice and impacts of plant breeding.

Assess capacity in the U.S.

The committee collects, analyzes, and shares data about plant breeding capacity and critical gaps. Federal agencies use this information to develop policies, grants, and programs.

Address education and training needs

Recently developed core concepts for graduate-level plant breeding education help ensure students receive the knowledge and skills they need to succeed in plant breeding careers.

Committee members host and update an online library of e-books, webinars, articles, videos, and other materials about plant breeding so users can train themselves on various topics.

Sustain plant breeding programs

The committee has raised awareness about the importance of succession planning for plant breeding programs and developed best practices for hiring and onboarding new plant breeders, documenting methods and operational knowledge, and managing data and intellectual property.

Enhance access to plant genetic resources

The committee reviews methods for conserving, characterizing, sharing, and using plant genetic resources. Committee members also contribute to a database of high-quality genomics, genetics, and breeding data for a wide variety of crops.

Why is the multistate committee structure important?

With support from federal capacity grants, the committee brings together plant breeders from land-grant institutions in almost every state. This structure helps the committee:

Share data, tools, and genetic resources, improving **efficiency** and **productivity**

Spur innovation by sharing **expertise** from different crops and environments and experience with various technologies

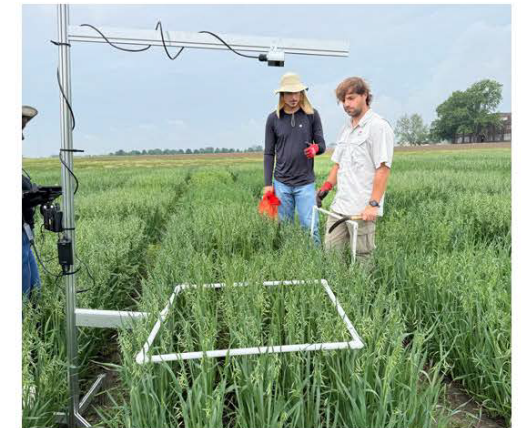
Test new tools, methods, and varieties at multiple locations and scales, generating **consensus** and **unbiased perspectives**

Coordinate breeding efforts no one state or institution has the capacity to perform

Support long-term continuity needed for plant breeding

Develop **shared goals** to guide policy

Use **teaching and Extension** roles to provide plant breeding outreach, training, and education nationwide



Committee Funding & Participation

SCC80: Strengthening the Public Plant Breeding Community is supported in part by USDA NIFA through Hatch Multistate Research Fund capacity grant allocations to State Agricultural Experiment Stations at participating land-grant institutions, including: University of Alaska Fairbanks, University of Arizona, University of Arkansas, Auburn University, University of California, Davis, Clemson University, Colorado State University, Cornell University, University of Florida, University of Georgia, University of Hawaii, University of Idaho, University of Illinois, Iowa State University, Kansas State University, University of Kentucky, LSU AgCenter, University of Maine, University of Maryland, University of Massachusetts, Michigan State University, University of Minnesota, Mississippi State University, Montana State University, University of Nebraska, University of New Hampshire, New Mexico State University, North Carolina State University, North Dakota State University, Ohio State University, Oklahoma State University, Oregon State University, University of Puerto Rico, Rutgers University, South Dakota State University, Texas A&M University, Tuskegee University, Utah State University, University of Vermont, Virginia Tech, Washington State University, West Virginia State University, University of Wisconsin, University of Wyoming. **Learn more: nimsa.org/projects/19248**

This Impact Statement was produced in 2026 by the Multistate Research Fund Impacts Program, which is supported by agInnovation, the State Agricultural Experiment Stations, and the Hatch Multistate Research Fund provided by USDA NIFA. **Learn more: mrfimpacts.org**

RESEARCHERS ACROSS AMERICA ARE ADVANCING NUTRITION.

Collaborative research by land-grant universities plays an important role in advancing our understanding of human health and nutrition and improving access to and consumption of safe, high-quality, nutritious foods nationwide.

Researchers tackle nutrition issues in many ways.

DISCOVERING compounds that are beneficial to human health and understanding the role they play in preventing chronic diseases

BREEDING fruit and vegetable varieties with enhanced nutrients

UNDERSTANDING how marketing and policy affect nutrition

How do these projects impact you?

They prevent **DISEASE** and promote **WELLNESS**.

They reduce **HEALTHCARE COSTS** and strain on the system.

They help communities **thrive**.

Research has informed policies and programs that improve the availability and consumption of nutritious foods in under-served communities. Research has influenced the creation of mobile food markets and pantries and influenced decisions that allowed food stamp spending at CSAs and farmers markets and allowed food banks to accept imperfect produce. In addition to providing fresh produce to more communities, these efforts reduce food waste, lower food bank operating costs, and give farmers new sales outlets.



HEALTHY VARIETIES

Various multistate projects are breeding fruits and vegetables with enhanced nutrients. For example, scientists bred potatoes with high levels of potassium, which reduces hypertension, folate, which protects against birth defects and heart disease, antidiabetic properties that could help fight diabetes, and antioxidants that have numerous health benefits. New bean varieties with modified sugar content and higher zinc are suitable for people with certain dietary needs and restrictions.

SALT

Studies revealed a way to reduce the particle size of salt so it transfers to taste buds more efficiently, which means less salt can be used without affecting taste (Louisiana).

FAT

Scientists developed new tools that reduce the amount of oil foods soak up during frying, making them less fatty (Illinois & Virginia Tech)

PHYTONUTRIENTS

Research suggests compounds in green tea could help regulate bad cholesterol, fight inflammation (Connecticut), prevent fatty liver disease (Ohio), and promote bone health (Oklahoma). A chemical in vegetables like broccoli and cauliflower leads to prostate cancer cell death (Arizona, Oregon), and compounds in green leafy vegetables and eggs can reduce the risk of macular degeneration (California).



FOOD SAFETY

Research has led to innovative ways to enhance the safety and shelf life of fresh produce, including electron beam irradiation for sanitizing complex-shaped fresh fruits and vegetables (Texas), chemicals that delay ripening (California, Florida & Michigan), and high pressure processing that kills bacteria without additives and leaves nutrients intact (Ohio & Minnesota). Researchers also developed a method that helps nutrients in milled rice sustain washing, making milled rice more nutritious (Mississippi). Other scientists designed antimicrobial and anti-moisture packaging for pre-cut fresh produce.

NANOTECHNOLOGY

Using nanotechnology, researchers designed tiny carriers that can deliver nutrients and antimicrobials directly into cells (Illinois, Louisiana, Maryland, Tennessee, Texas & Virginia Tech)

A team of researchers from 25+ land-grant universities is illuminating how consumer preferences, marketing strategies, food labels, and trade and retail policies affect consumer behavior. This information helps design effective programs and policies that enhance consumption of nutritious foods. Effective marketing and informative labels also help consumers choose desirable fruits and vegetables.



Multistate research projects are brewing big impacts.

Researchers across the U.S. are working together to find ways to control coffee pests and diseases, increase coffee yields, and make coffee production more efficient. For example, **University of Hawaii** scientists developed handheld devices that optimize irrigation and automated technology that dries coffee beans using less energy, and **University of Missouri** scientists assessed how policies, consumer preferences, and the economy affect coffee trade. Studies at **Colorado State University** revealed the effects of coffee on the human gut microbiome and overall health.



Supporting Rural Communities

Rural areas face many challenges, but they also have many strengths. Hatch Multistate research projects are amplifying the voices of rural families, showcasing their strengths, and addressing their needs. Scientists are studying changes in rural areas and finding ways to address major economic, environmental, and health crises. Research and Extension have helped increase access to utilities, healthcare, jobs, and food in rural areas and improved emergency response to hurricanes, wildfires, and COVID-19.



Science puts the cherry on top!

Sweet cherry acreage has increased partly due to dwarfing rootstocks developed by land-grant university researchers. These rootstocks allow more trees per acre.

Other studies found packaging films that extend the shelf life and protect the quality of cherries during shipping. Using these films, growers are able to ship cherries by boat, which is slower, but cheaper than shipping by air.

Research also showed that cooling cherries with chilled water and added calcium salts can extend shelf life.



Blueberry research has juicy impacts!

Researchers at land-grant universities developed new blueberry varieties with desirable qualities, like cold hardiness and pest tolerance.

Michigan State University, **Oregon State University**, **Washington State University**, and the **University of Florida** are improving pollination.

Washington State University developed organic, biodegradable mulch.

Rutgers University and **Cornell University** are testing tools to reduce herbicide use.

University of Maine, **University of Delaware**, and **University of Vermont** identified routes of preharvest pathogen contamination in wild blueberries grown in the Northeast.

Oregon State University is using UV light to reduce fungal loads.

University of Georgia developed affordable automated technologies that could improve harvest efficiency.

University of Florida found ways to minimize shipping damage.





**PARTNERS ARE
AMPLIFYING
OUR CONTENT**



WHO WE ARE

OUR TOP PRIORITY

OUR WORK IN ACTION

 EN 

Curious about where this innovative work is being done?

Check out our interactive map below to learn more about an experiment station near you. Click a star (representing each state's Land-grant institution) and discover the latest research highlights and impact stories happening now!

[View All Stations & Branches](#)

[See the Impact of Multistate Research](#)

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AgInnovation
Jun 8, 2025 · 6 min read



Controlled Environment Technology and Use

For over 40 years, a committee of land-grant university researchers, Extension specialists, and industry and international partners has worked to advance the design...

AMERICA'S PUBLIC & LAND-GRANT UNIVERSITIES

Leveraging Discovery, Education, and Engagement for Climate-Smart Solutions



Multistate Research Fund Impacts

Managing Antimicrobial Resistance

Scientists at land-grant universities have teamed up to tackle the complex problem of antimicrobial resistance in agriculture. This interdisciplinary, multistate team is uniquely positioned to develop and implement comprehensive solutions as well as targeted strategies for different types of animals, environmental conditions, and management styles.



RESEARCHERS STUDYING AVIAN DISEASE RESISTANCE AND IMMUNITY WIN NATIONAL AWARD FOR OUTSTANDING COLLABORATION AND IMPACT

In [Food Security](#) by AgIsAmerica / September 17, 2025

ST LOUIS, Mo., Sept. 16. — At the Joint agInnovation and Extension Awards Ceremony, Dr. Chris Ashwell at Hubbard received the 2025 Excellence in Multistate Research Award on behalf of a multistate team working understand the genetic bases of immunity and resistance to avian diseases.

agisamerica.org

LAND-GRANT UNIVERSITIES: Advancing Soil Health And Conservation To Build Resilient Lands

JULY 2026 TOOLKIT

- [Improving soil surveys](#)
University of Illinois, Iowa State University, Kansas State University, Michigan State University, University of Minnesota, University of Missouri, University of Nebraska, North Dakota State University, Ohio State University, Oregon State University, Purdue University, South Dakota State University.
Supported by Hatch Multistate Capacity Funds.



PHOTO: Edwin Remsburg, University of Maryland

Research and Extension make agricultural systems more efficient, profitable, competitive and resilient.

Strategies and tools for managing crop pests and diseases have increased productivity and profitability.

- Extension units nationwide diagnose pest problems. In **New Mexico**, free diagnoses saved producers an estimated \$36,000 in testing fees in 2025, while also supporting biosecurity and export compliance. In **Indiana**, lab results and recommendations saved clients \$890,000 in reduced crop loss and pesticide use. In **Maine**, diagnoses saved the potato industry over \$6 million in 2024. *New Mexico State University Cooperative Extension Service, Purdue Extension, University of Maine Cooperative Extension; funded by Smith-Lever (3b&c) Capacity Funds, Other USDA Capacity – Extension, State Appropriations.*
- Extension professionals in **North Dakota** lead a national coalition to raise awareness of soybean cyst nematode and adoption of management practices, resulting in average yield gains worth nearly \$58 per acre nationwide. *NDSU Extension Service.*
- A corn rootworm monitoring network creates an estimated \$160 million benefit for **Iowa's** farmers. *Iowa State University; funded by Hatch Multistate Capacity Funds.*
- Integrated pest management practices prevented yield losses of 10% to 40% while also reducing insecticide applications across major crops in **Louisiana** for estimated annual savings up to \$10 million in rice, \$11 million in sugarcane, \$20 million in soybean, \$9 million in corn and \$3 million in cotton. *LSU Ag Center; funded by Smith-Lever (3b&c) Capacity Funds, State Appropriations.*

Continued

landgrantimpacts.org

The National Land-grant Impacts Database (NIDB) documents the impacts of land-grant universities' (LGU) research, education and Cooperative Extension. The featured projects and programs are supported by a variety of funding sources and partners. Much of this work is supported by USDA's National Institute of Food and Agriculture capacity and competitive grants programs. Capacity funding forms the foundation for the LGU's agricultural research and Extension system.

This document was prepared by the NIDB communications team. The Association of Public and Land-grant Universities' Board on Agriculture Assembly manages the NIDB.

Research and Extension help growers select the best varieties for their needs.

- Crop varieties developed by plant breeders in **North Carolina** boost farmers' profitability, enable new value chains and foster agricultural resilience, generating billions in economic impact. *North Carolina Agricultural Research Service; funded by Private Grants & Contracts, Hatch Capacity Funds.*
- In **North Dakota**, guidance on wheat varieties, pest and weed management, fertilizers and marketing will yield an estimated \$1 million economic impact. *NDSU Extension Service; funded by State Appropriations, Smith-Lever (3b&c) Capacity Funds.*
- Texas** trials show growers the top-performing hybrids of cotton and grain sorghum. Using top performing hybrids on just 10% of the state's planted acres would result in \$18.5 million in additional revenue for corn producers and \$15.6 million for sorghum growers. *Texas A&M AgriLife Extension; funded by Private Grants & Contracts.*
- To improve soil health and protect farm productivity and profitability, a **multistate team** identified the best cover crop options for southern farmers and ranchers. A new cover crop selector tool and seeding rate calculator facilitate successful adoption. *Auburn University, Arkansas Cooperative Extension, Clemson University, University of Florida, University of Georgia, University of Kentucky, Lincoln University, Louisiana State University, Mississippi State University, University of Missouri, University of Puerto Rico, University of Tennessee, Texas A&M AgriLife Research, Virginia Tech, Virginia State University; funded by Hatch Multistate Capacity Funds.*

Pollination is essential for agriculture.

- A **multistate team** developed new bee monitoring tools, pest management strategies, breeding techniques and forage improvements to support roughly 2 million managed honey bee colonies and other bees. In **Oregon**, beekeepers save about \$5 million each year through reduced colony losses and lower costs for medications and hive maintenance. *Multiple institutions; Hatch Multistate Capacity Funds. Oregon State University Extension Services; funded by State Appropriations, Other USDA Capacity - Research.*

Research has led to automated, smart technology for precision agriculture.

- As part of a **multistate team** developing automated systems for specialty crops, **Tennessee** scientists showed drones could help pollinate crops. **Washington** scientists developed an operator-assisted apple harvest system that reduces labor needs and prevents ladder-related injuries. A **Florida** system uses machine vision and deep learning to detect strawberry bruises and size in packinghouses. **Arizona** researchers designed an energy-efficient mechanized system that improves weed control by over 85% while reducing hand weeding labor by about 30%. After adopting automated thinning and weeding systems, growers and companies estimated saving 114,000 hours of labor and \$1.4 million per year. *University of Arizona, University of Florida, University of Tennessee, Washington State University and other institutions; funded by Hatch Multistate Capacity Funds.*
- Mississippi** scientists developed a robotic system that removes plastic debris from cotton fields and could significantly reduce related losses, which can be up to \$750 million per year. Cleaner cotton also supports mill efficiency and strengthens international market competitiveness. *Mississippi Agricultural and Forestry Experiment Station; funded by Other USDA Competitive, Non-Profit Grants & Contracts.*
- New Mexico** studies showed combining soil moisture sensors with remote sensing can help growers reduce irrigation inputs and pumping energy by 25%. *New Mexico Agricultural Experiment Station; funded by Other USDA Competitive.*

Continued





HOME > ABOUT NIFA

Land-grant Scientists' Work Safeguards Livestock

January 15, 2026



GUEST AUTHOR

Sara Delheimer, Program Coordinator, Multistate Research Fund Impacts Program

Flies, ticks and other arthropods are serious pests in animal agriculture.

They can damage skin, cause inflammation and allergic reactions and transmit disease-causing pathogens. Flies, in particular, are responsible for billions of dollars in damage and control costs each year in the United States. Losses and costs experienced by producers are often passed along to consumers as higher prices. In addition, movement of these pests from agricultural settings to nearby communities has resulted in lawsuits, zoning limitations and animosity between farmers and residents. Controlling arthropod pests is increasingly challenging due to emerging pests, insecticide resistance, environmental changes and changing livestock management practices.

20+

projects shared
on NIFA website

42,523

page views
on NIFA website

20+

projects shared
in NIFA Update

100,000+

subscribers
to NIFA Update



**Farm
Progress**
by informa

BEEF



Land-grant scientists' work safeguards livestock

Sara Delheimer, Program Coordinator, Multistate Research Fund Impacts Program



FoodSafety
magazine™

January 15, 2026



**Institutions Nationwide Collaborate in USDA-Funded
Project to Improve Microbial Food Safety**



Drones in agriculture research propels multistate award

The University of Arkansas was among the institutions recently recognized for drone research and outreach.



Arkansas Democrat  Gazette

Drones aid in farm efficiency across Arkansas, U.S.



Texas A&M AgriLife involved in multistate and international seedling improvement project

Object is to provide high-quality, better-performing seedlings for vegetable nurseries, growers

JUNE 16, 2020



The [Texas A&M AgriLife Research and Extension Center in Uvalde](#) is one among several institutions throughout the nation involved in a multi-year, multi-state seedling improvement project.



"The goal of vegetable nurseries is to provide high-quality, dependable transplants for growers," said Daniel Leskovar, Ph.D., director of the Uvalde center as well as a [Texas A&M](#)

Iowa State researchers investigate ways to support changing wine industry in Iowa and the Midwest

July 14, 2025

AMES, Iowa — The wine industry continues to change. New grapes are being introduced, and updated growing methods are improving fruit quality, sustainability and financial returns for producers.

A 2024 report on the [Economic Impact of the Wine Industry in Iowa](#) estimated that Iowa wine and winery-related tourism represented a value of \$374 million in 2022, with a workforce of more than 1,590.

Iowa State University researchers Suzanne Slack, assistant professor of horticulture, and Aude Watrelot, assistant professor of food science and human nutrition, are working with colleagues at several north-



HORTICULTURE & LANDSCAPE ARCHITECTURE

NCERA-101 receives 2024 National Excellence in Multistate Research Award



WSU's Lav Khot, colleagues receive multi-state award for ag drone research, extension



Colorado State University College of Agricultural Sciences

August 19 at 2:57 PM · 🌐

Did you know Colorado is one of the top potato-producing states in the US? The [San Luis Valley Research Center](#) works with local growers and industry experts to research diseases like potato dry rot and develop climate-stress and disease-resistant potato varieties, directly benefiting Colorado potato growers 🥔

Learn more about the San Luis Valley Research Center ➡ col.st/itru3

[Multistate Research Fund Impacts](#) #NationalPotatoDay



APLU Board on Agriculture Assembly (BAA) reposted this



Multistate Research Fund Impacts Program ✓ • You

Communicating the importance of agricultural research & Extension projects supporte...

3w • 🌐

As part of a multistate project, researchers at [Nebraska Institute of Agriculture and Natural Resources](#) and [University of Hawaii at Manoa](#) showed that biochar made from combusted biosolids can be a valuable soil amendment, providing nutrients and absorbing or filtering pollutants.

Learn more: bit.ly/MRF-biosolids



Irrigation Association reposted this



Multistate Research Fund Impacts Program ✓ • You

Communicating the importance of agricultural research & Extension projects supporte...

3w • 🌐

Wrap up [#SmartIrrigationMonth](#) with a look at how multistate research projects are helping producers improve crops, conserve water, cut costs, and reduce environmental impacts: <https://lnkd.in/eUvJK7j2>

These projects are supported in part by the [USDA National Institute of Food and Agriculture](#).



Multistate Research Fund
IMPACTS

Smart irrigation helps producers improve crops, conserve water, cut costs, and reduce environmental impacts.

Researchers at land-grant institutions:

- Developed **data, maps, models, sensors, emitters, and apps** that schedule and fine-tune irrigation, *wasting less water.*
- Identified **water-wise plants** that help the nursery, greenhouse, and landscaping industries *reduce strain on state water budgets.*
- Created **substrates and containers** that *lower water requirements* of nursery and greenhouse plants.
- Shared **automated systems** that *reduce irrigation time and labor 25%.*



557

posts by NIFA with
MRF Impacts content
Jan 2022 – June 2026

319,895

Impressions/views



NIFA  @USDA_NIFA · Jan 13

It's [#NationalOatmealMonth](#)! Browse our impact statements on grains, produce & nuts to see how research is improving oats & your favorite oatmeal toppings:



From mrfimpacts.org

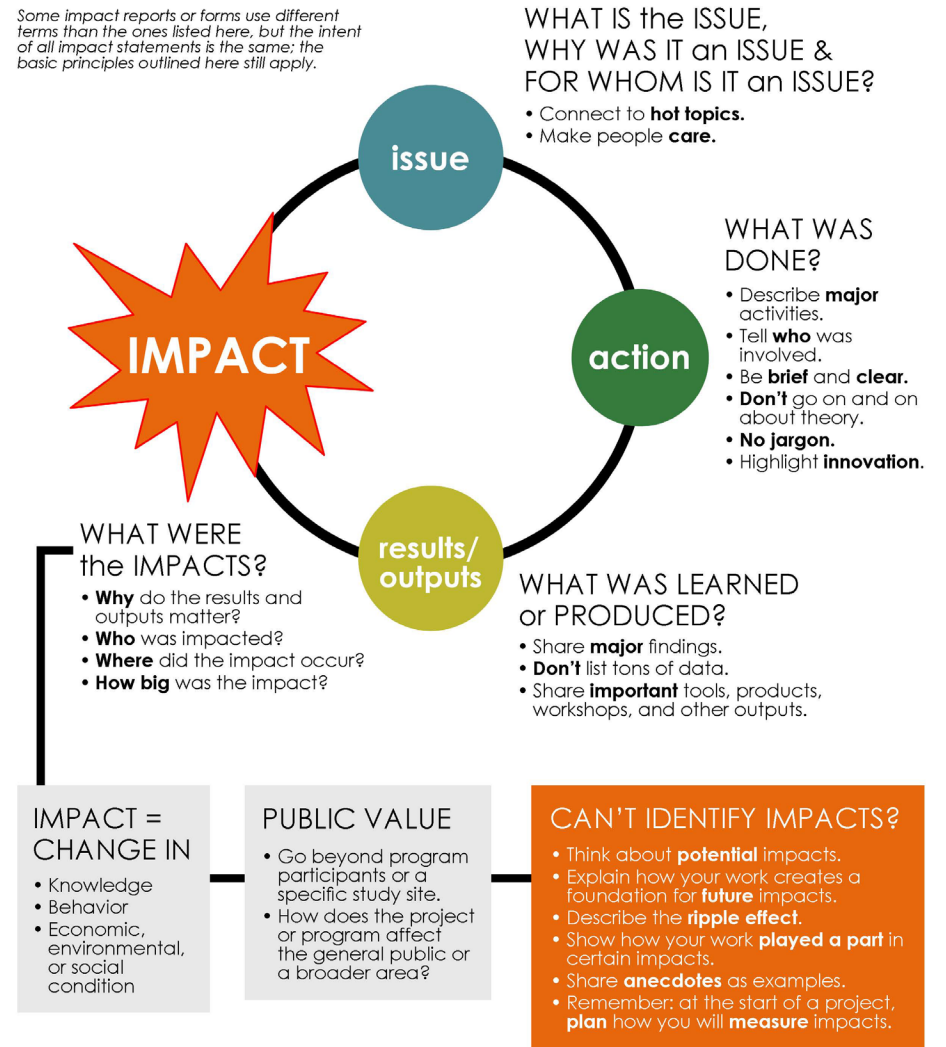


IMPROVING CAPACITY TO REPORT IMPACTS

“Your handouts are the best resources I’ve found on impact reporting...”

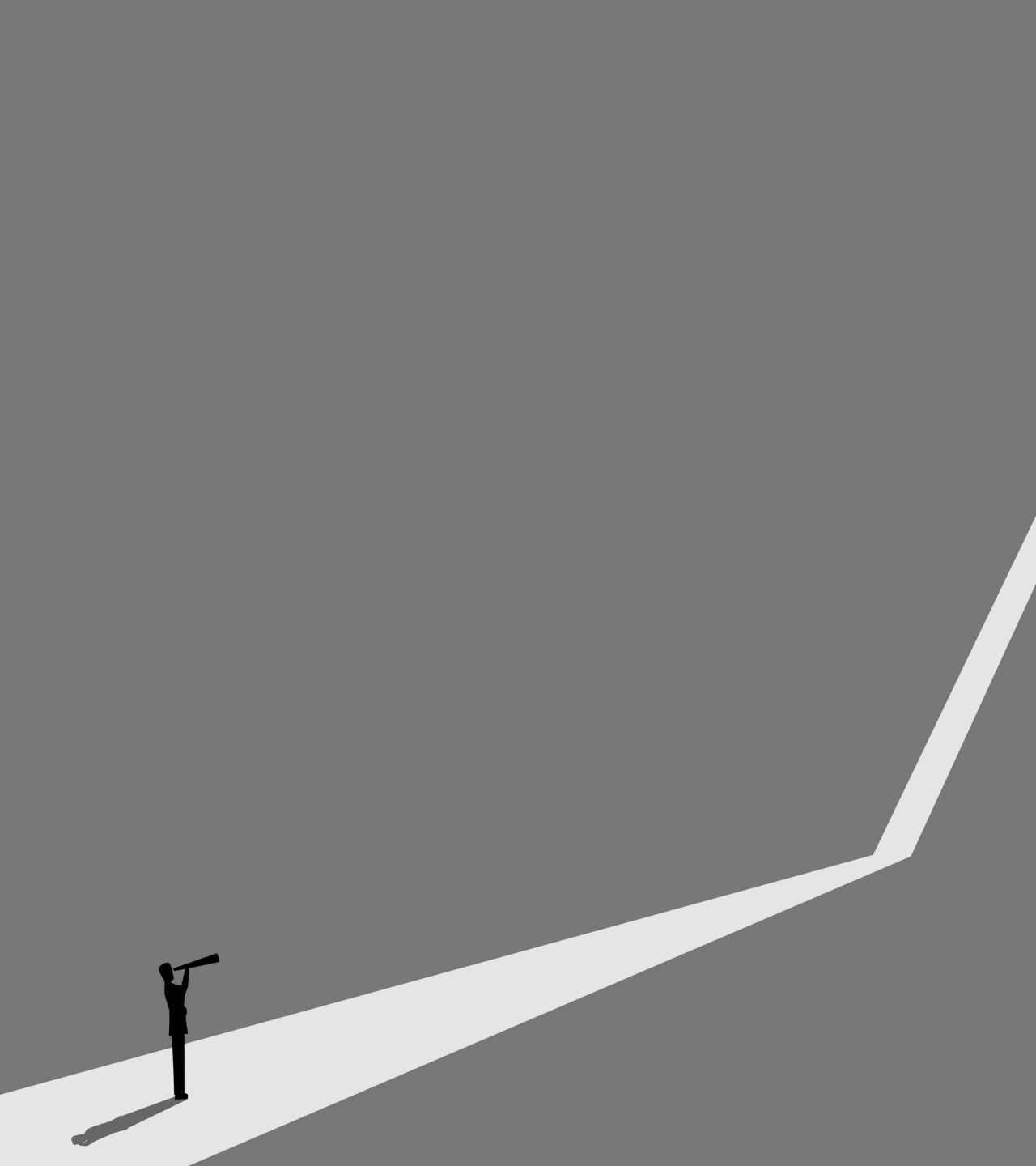
LEARN THE PARTS OF AN IMPACT STORY.

Some impact reports or forms use different terms than the ones listed here, but the intent of all impact statements is the same; the basic principles outlined here still apply.

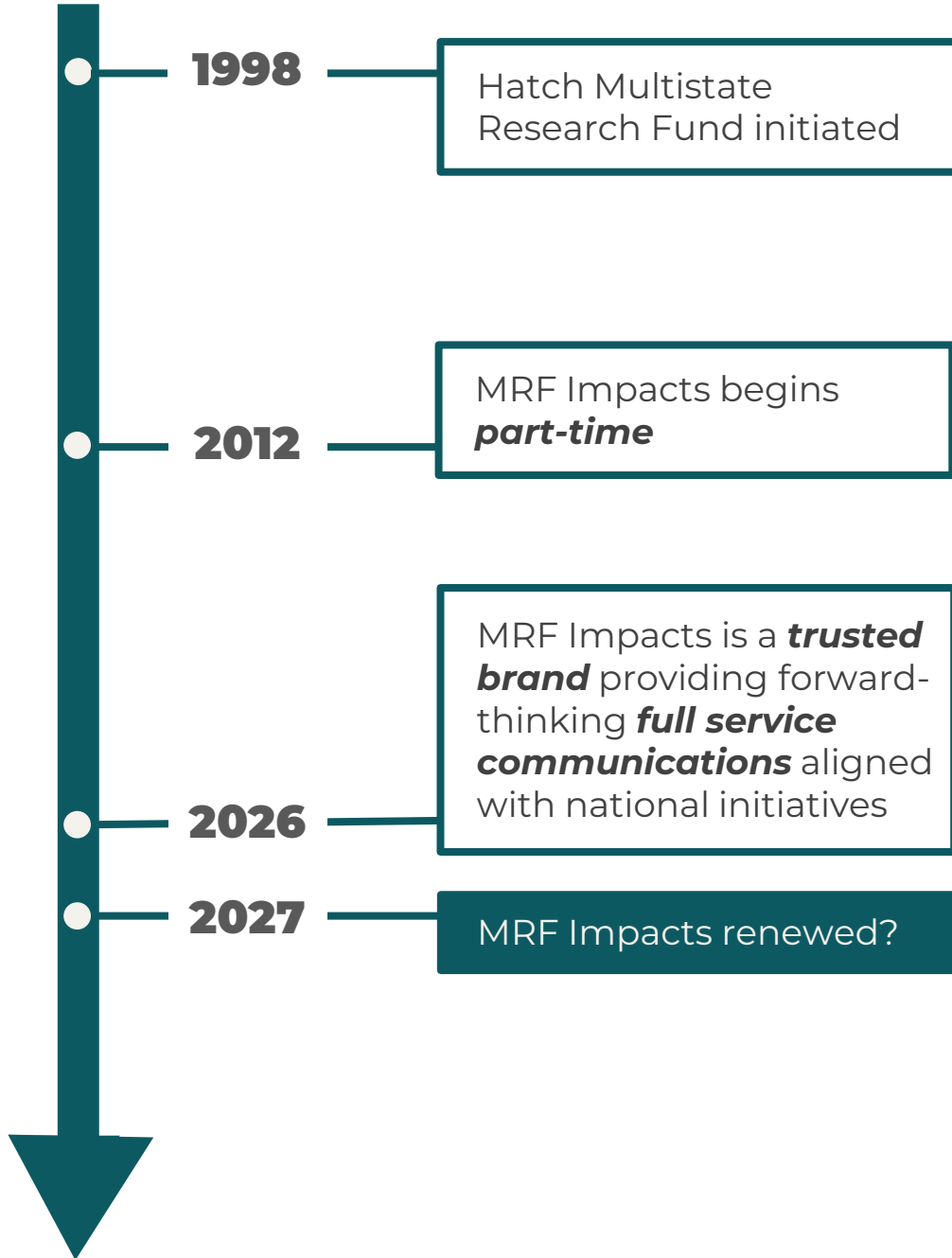


“Our faculty found the training useful, and the training video is getting views. You are making a difference for us here at Nebraska.”

“Based on your workshop and suggestions, we received the Southern Region Excellence in Multistate Research Award!”



WHAT'S NEXT



KEY OPPORTUNITIES FY2027-2032

- LGU communicators
- agInnovation Call to Action
- USDA priorities
- APLU capacity funding campaign
- Hatch anniversaries

“trust and shared language”

“*complementary* expertise”

“a platform for staying *current*
and *forward-looking*”

“*standardized* approaches”

“accelerates innovation”

“large-scale, multi-institutional collaboration
allowed us to compete for extramural funding”

“once a practice/tool shows promise in one state,
the multistate network helps it spread quickly”

**“a collective approach increases
confidence that the recommendations
are relevant to real-world conditions”**

“The Hatch Multistate framework is one of the few mechanisms that allows scientists to work *across political, institutional, and hydrologic boundaries* to solve this problem at scale. This project demonstrates how capacity funding enables **long-term, high-impact science** that *directly benefits* farmers, communities, and ecosystems.”

“Multistate projects offer a rare kind of **continuity**...they maintain momentum even when faced with budget and time constraints, changing institutional priorities, or local disruptions...they keep a topic alive long enough for **meaningful progress.**”

MULTISTATE RESEARCH FUND IMPACTS

Improving
Reproduction in
Cattle & Sheep



Researchers in 23 states.



Project area includes 70% of breeding ewes, 56% of breeding cows in the U.S.



Gains in calf or lamb production worth at least \$1 billion per year to U.S. producers.

THE CHALLENGE

Reproductive inefficiency is the greatest constraint on the profitability of U.S. livestock systems. Early pregnancy loss alone costs U.S. livestock producers up to \$3.7 billion each year. If reproductive efficiency is not improved, producers will continue to face serious losses, and consumers may experience lower supplies and higher prices for meat, dairy, and other goods from cattle and sheep.



THE MULTISTATE APPROACH

Since 1970, researchers at land-grant institutions have worked together to shed light on factors that influence the reproductive performance of cattle and sheep and provide data-driven solutions. Their discoveries and recommendations have reshaped livestock industry practices, delivering measurable gains in productivity and resilience.

Using federal capacity funding to bring researchers together, this Hatch Multistate project is able to:

- **Address complex issues** more thoroughly than a single researcher, facility, or state.
- **Share expertise across disciplines**, including physiology, molecular biology, immunology, nutrition, biostatistics, and livestock management.
- **Span multiple species and regions.** Over 56% of U.S. breeding cows and 70% of breeding ewes are in states represented by project scientists. A wide reach allows more comprehensive data collection and testing of solutions.
- **Provide continuity** that facilitates long-term research and impact.
- **Collaborate effectively** with federal agencies and international organizations.
- **Leverage competitive grants** by demonstrating established teams with track records of productivity.

Led by land-grant institutions, this project:

- **Integrates research and Extension** to ensure knowledge flows both ways between labs and farms.
- **Educates and trains the next generation** of scientists and producers, supporting the workforce pipeline.

PROJECT HIGHLIGHTS

Discoveries are reshaping industry practices and delivered **directly to stakeholders.**

- Bull screening programs can now screen for the mutation that causes HH2, a genetic condition in Holstein dairy cows linked to early embryonic loss. Screening is enabling phaseout of HH2 from Holstein bull pools, reducing embryonic loss across the nation's most popular dairy breed.
- SLICK-genotype bulls, which have greater tolerance to heat, are now commercially available to producers in warm regions worldwide.
- The Open Cow Test is now deployed across beef and dairy systems nationally. The test detects non-pregnancy early, enabling producers to re-breed open cows 2 to 3 weeks sooner than conventional methods. Shortening the time between calving improves herd productivity.
- Research on the genetics of puberty status may allow easier identification of heifers with genetically delayed puberty, allowing producers to cull these heifers sooner and save up to \$2,500 per heifer in development costs.
- Using validated artificial insemination synchronization protocols, producers can increase pregnancy rates and yield up to 25% more calves.
- Commercial artificial insemination laboratories are piloting deep-learning algorithms that analyze sperm images for specific biomarkers in order to improve sire selection and reduce embryonic loss due to subfertile sires.
- Research identified new molecular targets for improving reproductive longevity.
- Findings have changed gestational nutrition guidelines for livestock.

Research results and recommendations are delivered **directly to stakeholders.**

Project members share research findings to producers, veterinarians, and other stakeholders through Extension publications, workshops, webinars, and meetings. Hands-on reproductive management workshops in multiple states have led to annual returns of \$1,000 to \$5,000 per ranch.

Project members are advancing the field.

Methodological tools developed by project members are now publicly accessible resources for the global research community. Project members have authored over 340 peer-reviewed journal articles and multiple book chapters in recent years.

Education and training sustain a national pipeline of scientists.

Project members taught and trained more than 120 graduate students and postdoctoral scholars and helped students secure fellowships with federal agencies and industry associations. Project members also developed artificial insemination tools that have benefited instructor lesson plans and students in Kansas, Kentucky, and Nebraska.

ECONOMIC IMPACT

A 1% improvement in calf or lamb production due to this project's innovations (a conservative estimate) would be worth over \$1 billion annually to U.S. producers. Thriving beef, dairy, and sheep industries are important for the economy. These industries generate about \$243 billion in total production value and support 2.3 million jobs.



BEYOND LIVESTOCK

Many discoveries have broader relevance. This project has attracted over \$4 million in National Institutes of Health funding, forming a bridge between federally funded agricultural research and human biomedical science. Findings have informed perinatal medicine, revealed links to endometrial cancer suppression, and improved understanding of and possible therapies for PCOS (formerly called PCOS), a leading cause of infertility in women).

This project is supported in part by USDA NIFA through Hatch Multistate Research Fund capacity grant allocations to State Agricultural Experiment Stations at participating land-grant institutions, including: University of Arizona, University of California, Davis, Colorado State University, University of Connecticut, University of Florida, University of Idaho, University of Illinois, Iowa State University, Kansas State University, University of Kentucky, Mississippi State University, University of Missouri, Montana State University, University of Nebraska-Lincoln, New Mexico State University, The Ohio State University, Pennsylvania State University, South Dakota State University, Texas A&M University, Utah State University, Washington State University, University of Wisconsin-Madison, University of Wyoming. [Learn more: nims.org/projects/10789](https://nims.org/projects/10789)

This Impact Statement was produced in 2026 by the Multistate Research Fund Impacts Program, which is supported by agInnovation, the State Agricultural Experiment Stations, and the Hatch Multistate Research Fund provided by USDA NIFA. [Learn more: nims.org/projects/10789](https://nims.org/projects/10789)

Multistate Research Fund
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Improving Reproduction
Efficiency in Cattle & Sheep

Improving Reproduction in Cattle & Sheep

Reproductive inefficiency costs cattle and sheep producers billions of dollars each year. Working together across multiple states and disciplines, researchers at land-grant institutions have made discoveries and data-driven recommendations that have reshaped livestock industry practices, delivering measurable gains in reproductive performance.

- Breeding programs can now screen for a mutation that causes embryonic loss in Holstein cows and phase it out of bull pools, reducing embryonic loss across the nation's most popular dairy breed.
- SLICK genotype bulls, which have greater tolerance to heat, are now commercially available to producers in warm regions worldwide.
- The Open Cow Test is used nationally, enabling producers to re-breed open cows 2 to 3 weeks sooner than conventional methods.
- Findings may help producers identify and cull heifers with genetically delayed puberty, saving \$2,500 per heifer in development costs.
- Using validated artificial insemination synchronization protocols, producers can increase pregnancy rates and yield up to 25% more calves.
- Artificial insemination laboratories are piloting deep-learning algorithms that analyze sperm images in order to improve sire selection.
- Findings have changed gestational nutrition guidelines for livestock.
- Reproductive management workshops have led to annual returns of \$1,000 to \$5,000 per ranch.
- New educational tools are helping train the next generation of scientists and producers.
- Findings informed human perinatal medicine, revealed links to endometrial cancer suppression, and improved understanding of and possible therapies for one of the leading causes of infertility in women.

Even just a 1% improvement in calf or lamb production due to this project's innovations would be worth over \$1 billion annually to U.S. producers. Thriving beef, dairy, and sheep industries help meet consumer demand and are vital to the economy, generating about \$243 billion in total production value each year and supporting 2.3 million jobs.



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NEWS RELEASE

Embargoed until 10 AM MT September 24, 2026

Researchers Studying Reproductive Performance in Sheep and Cattle
Win National Award for Outstanding Collaboration and Impact

Grand Junction, Colo., Sept. 24. — At the [agInnovation](#) Annual Meeting, Dr. Andrea Cupp received the [2026 Excellence in Multistate Research Award](#) on behalf of an interdisciplinary team enhancing the reproductive performance of cattle and sheep. Over its 56-year legacy, Hatch Multistate project [W4112: Reproductive Performance in Domestic Ruminants](#) has made discoveries and data-driven solutions that have reshaped industry practices, delivering measurable gains in productivity and



Multistate Research Fund **IMPACTS**

Sara Delheimer, Program Coordinator

sara.delheimer@colostate.edu

