



DAIRY INNOVATION HUB



2024 Annual Report

Reflecting activities from July 1, 2023 - June 30, 2024





WELCOME TO OUR FISCAL YEAR 2024 ANNUAL REPORT

Harnessing research and development for Wisconsin's dairy community.

On the cover: Danielle Stroinski, a Spring 2024 graduate from UW–River Falls, makes Lactose-free ice cream at the UW–Madison Babcock Dairy Plant as part of a joint feasibility study with Grace Lewis at UW–River Falls and Scott Rankin at UW–Madison. See story on p. 32. Photo by Scott Rankin

Above: Tour participants view a multi-year experiment comparing dairy heifers on pasture with those in traditional housing systems. The mobile “Green Feed” unit in the background measures methane and other gases. See story on p. 18. Photo by Nguyen Tran/Dairy Innovation Hub

Back cover: Grace Larsen, graduate student at UW–Madison, shows a tour group ultrasound images of the underdeveloped udders from heat-stressed dairy calves. Photo by Nguyen Tran/Dairy Innovation Hub

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Scan QR code to access the fully searchable "Project Showcase" database with information on all 230+ Hub-funded awards to date!

OUR STORY

The Dairy Innovation Hub was first imagined during an informal meeting at Mitch Breunig's Mystic Valley Dairy in Sauk City. After the initial concept was developed, dairy groups and passionate dairy leaders partnered with the Universities of Wisconsin to bring this idea to reality.

The concept was brought to the State's special Dairy Taskforce 2.0 in December of 2018 and was followed by introduction of legislation by Senator Howard Marklein and Representative Travis Tranel in May 2019. The following months included approval of a spending plan set to guide the Hub's efforts and funding became available to campuses in late 2019.

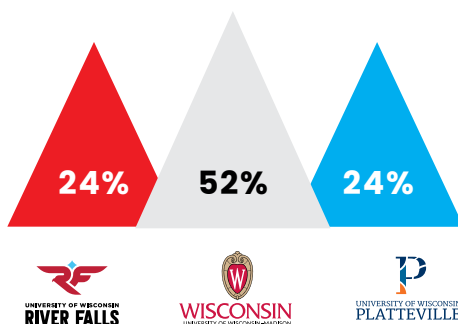
In five years, the Hub has created mechanisms to manage the investment, funded more than 230 proposals, and managed 21 faculty searches. The accomplishments listed herein are the result of data collected from funding recipients to track progress and accountability.

THE DAIRY INNOVATION HUB is supported by a \$7.8M annual state investment to drive research and development across the UW–Madison, UW–Platteville, and UW–River Falls campuses, ensuring that Wisconsin's \$45.6 billion dairy community remains a global pacesetter in producing nutritious dairy products. This is all accomplished with a keen focus on economic, environmental, and social sustainability.



STATE INVESTMENT

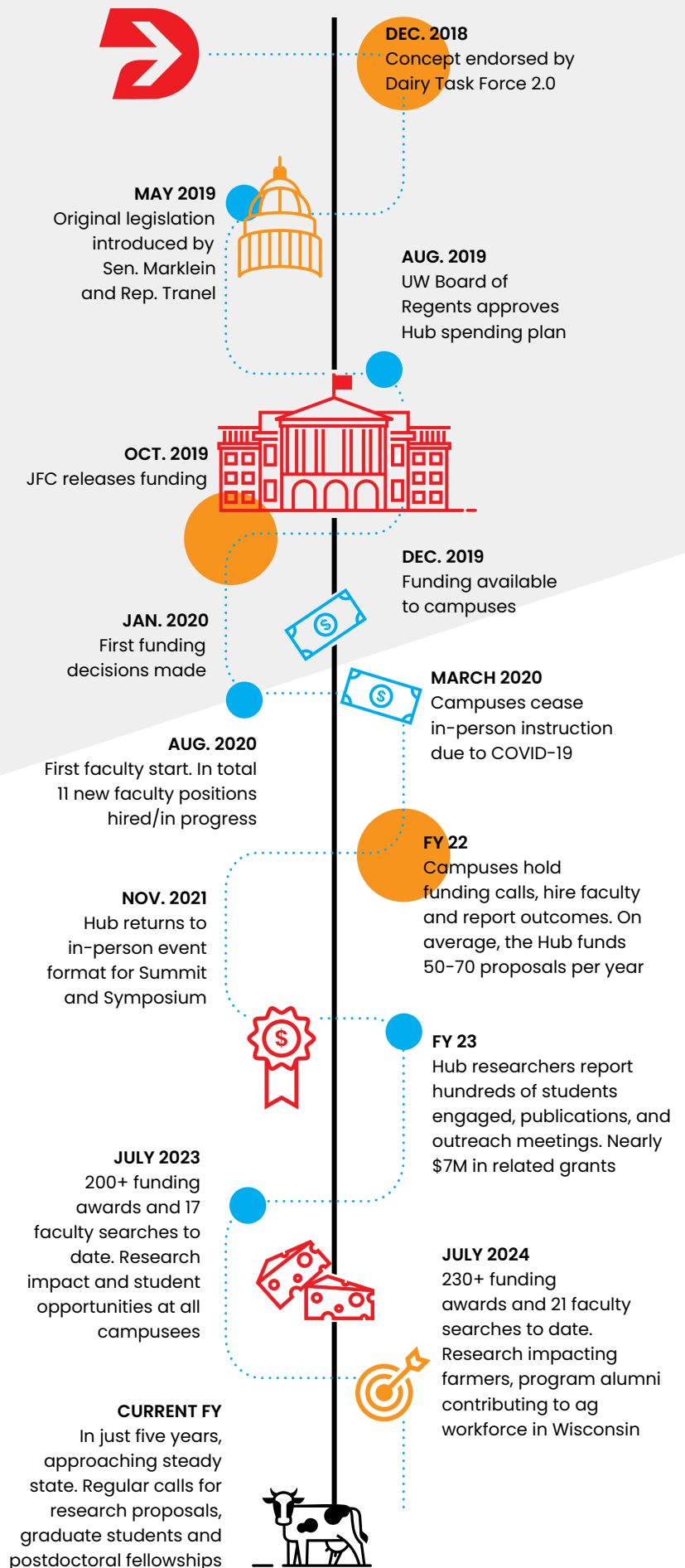
\$7.8M
PER YEAR



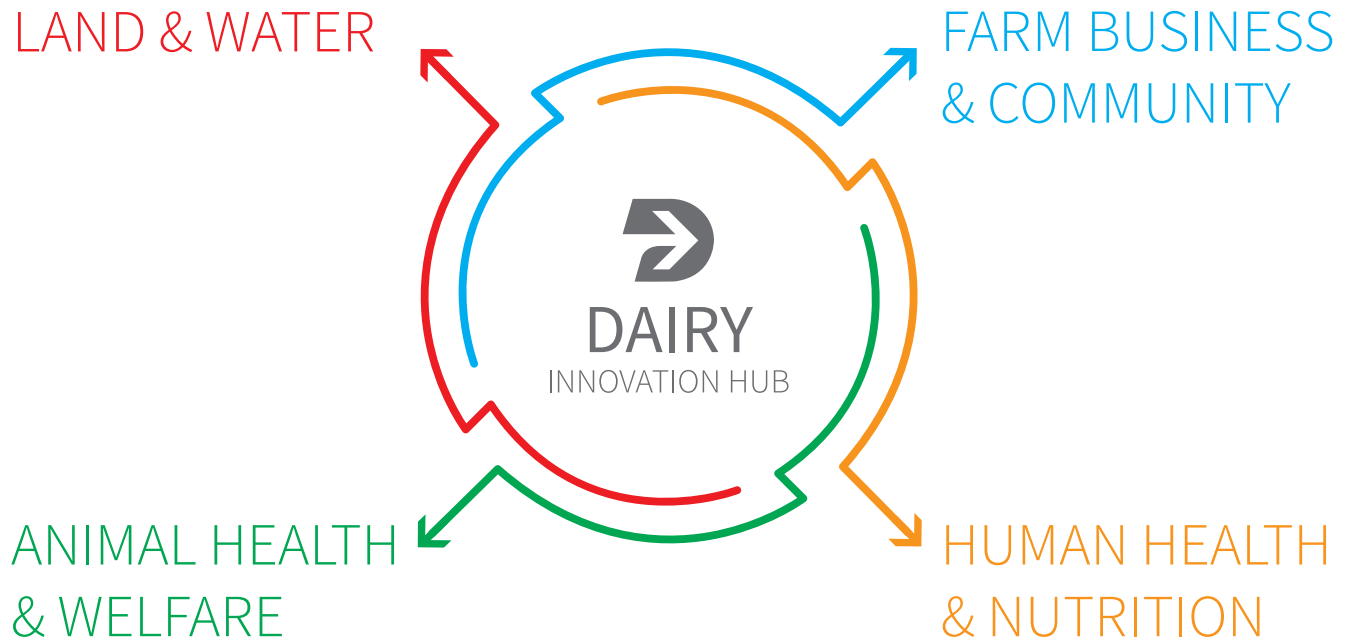


HOW DID WE GET HERE?

Above: On Jan. 31, 2024, the Hub hosted an informational research poster session at the State Capitol to highlight select projects funded by the initiative at UW-Madison, UW-Platteville, and UW-River Falls. Photo by Jori Skalitzky/Dairy Innovation Hub



FOUR KEY PRIORITY AREAS



Stewarding land and water resources

Improve nutrient management and soil health; reduce greenhouse gas emissions, improve air quality; develop alternative uses and markets for manure; investigate novel cropping systems; and minimize nutrient losses to lakes and rivers.

Enriching human health and nutrition

Develop value-added products to serve health needs and dietary trends; design food processing, packaging and delivery technologies to improve product quality and shelf-life; improve the safety of dairy foods; understand and address barriers and facilitators to dairy consumption.

Ensuring animal health and welfare

Develop data analytics for animal management; reduce metabolic disorders and infectious diseases; improve stress biology and immune function to support animal health and productivity; improve efficiency and sustainability; deploy genomic selection and other technologies for healthy animals.

Growing farm businesses and communities

Improve profitability and growth opportunities for businesses throughout the dairy economy and promote informed decision-making by consumers and policymakers; use big data to optimize dairy farms; develop skilled & tech-savvy rural workforce; improve financial literacy & return on assets.

THINKING GLOBALLY, ACTING LOCALLY

MISSION:

Position Wisconsin's dairy community for economic, environmental and social success by advancing science, developing talent and leveraging collaboration.

VISION:

To be the world's preeminent source of bold new discoveries and talent development in dairy.

CORE VALUES:

Awareness

We are grounded by the realities of the dairy community. We seek to be dialed-in to the needs and conditions of our stakeholders.

Learning and Discovery

We support scientific advancement and evidence-based decision-making. We want to be a platform for lifelong learning and action.

Collaboration

We actively contribute to university partners and stakeholders working together as a team. We acknowledge the power of relationships.

Respect

We embrace diverse perspectives, cultures, audiences and business philosophies. We treat everyone with dignity and respect.

Accountability

We take the stewardship of resources seriously. We will take responsibility for the success or failures of our efforts.

Creativity

We encourage looking at common problems through a different lens. We will foster the spark of innovation and find answers to tomorrow's challenges.



WISCONSIN DAIRY STATS

5,368

DAIRY FARMS

(as of Dec.1, 2024)



more farms than
any other state



32.1

BILLION

pounds of milk
produced annually

1,270,000



COWS

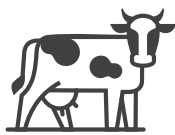
*That's almost half
as many as 1950!*



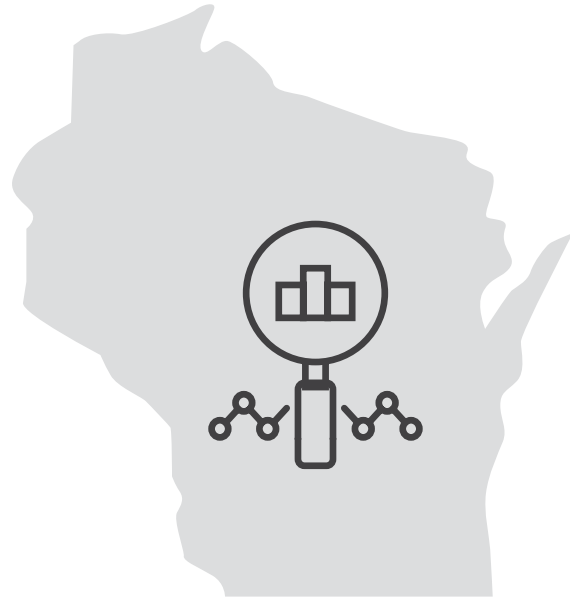
121K JOBS

in Wisconsin are dairy farming
or processing related

EVERY



IN WISCONSIN GENERATES
\$41,500
 in economic activity per year.



1ST NATIONALLY
 in cheese
 production



2ND NATIONALLY
 in milk
 production



\$52.8
BILLION

in economic activity to the
 state of Wisconsin



Sources: USDA NASS and Contribution of Agriculture to the Wisconsin Economy:
 An update for 2022 by Steven Deller & Jeffrey Hadacheck, UW-Madison.

FROM THE DIRECTOR

Heather White

Associate Dean for Faculty Affairs | UW–Madison CALS

Reflection is a valuable and powerful part of growth and advancement. Regardless of if we reflect on the state of our farm, business, research program, department, family, or self, reflection allows us to take a moment to identify next steps, gaps or challenges, and prioritize opportunities. Too often we reach a milestone and then without pomp and circumstance, move on to the next item on our to-do list.

This year marks five years since the Wisconsin state legislature approved funding for the Dairy Innovation Hub and did something historic – they identified a key area important to the state and decided to invest in their universities to ensure that key area stayed strong. No other initiatives like the Hub existed at the time, and there still isn't anything quite like it. Other states and countries continue to ask us how we got here and how it works, but one thing is apparent to them all: it does work, and is impactful.

This five-year milestone gives us a reason to pause and reflect on what has been accomplished and what we are looking forward to. The Hub was initiated with a plan to increase capacity, bring in top talent, and fund transformational research. As is the case every year, we have showcased examples of that within this report. With 19 funded faculty and more than 230 funded projects to date, we can no longer feature every project in our annual report, but I hope that you find our featured selection both interesting and inspiring. We have impacted undergraduate and graduate students in meaningful ways (more than 850 in fact), enhancing their classroom and hands-on learning opportunities through the expertise, resources, and research funded by the Hub.

More important than the accomplishments detailed herein, the leveraged research money, or the number of presentations, the Hub has proven the ability to rise above challenges by working together to achieve a common goal. The initiation and early successes of the Hub have demonstrated the power of academic and stakeholder partnerships, and I am beyond proud of the impact we are having through these efforts.

We have worked closely together, in a collaborative partnership, as we put the vision of the Hub into action. Stakeholder support was essential to garnering initial and continued funding. Input from the advisory council and others has ensured that the Hub stayed true to the original mission and vision.

As I reflect on our progress, I am proud of what we have accomplished together to support dairy in Wisconsin, and grateful for this leadership experience and your partnership. That said, it is time for me to pursue other opportunities and since August, I have been serving as the associate dean for faculty affairs at UW–Madison CALS. This is a great opportunity for me to continue to serve the college and to continue advocating for agricultural research, teaching, and outreach. I am committed to helping transition the Hub to a new faculty director and am eager to see what a fresh perspective can bring. I look forward to watching the Hub's continued success and impact.

On Wisconsin!





“

The initiation and early successes of the Hub have demonstrated the power of academic and stakeholder partnerships.

”



HUB DOLLARS IMPACT WISCONSIN DAIRY THROUGH:



Why is research and training so important ?



- Develop tools and technologies to produce more milk with less cows, land and water
- Improve the quality of life for dairy animals and build consumer trust
- Ensure a safe, abundant and nutritious food supply for ALL people
- Recruit, train and retain talent to live and work in Wisconsin
- Strengthen dairy economy by developing new products and uses for milk
- Keeps Wisconsin dairy farms and businesses nationally competitive and rural communities strong

ACCOMPLISHMENTS

More than **230+**
PROJECTS FUNDED
 across 3 campuses
 and 4 priority areas
 since 2020

21 Total
FACULTY SEARCHES
 attracting top
 talent to Wisconsin

\$8.7M
LEVERAGED GRANT FUNDS FROM FY 24

198
JOURNAL ARTICLES, ABSTRACTS, OR POSTERS
 accepted or published
 in FY 24

296
STUDENTS
 and trainees
 engaged in FY 24
 Hub research &
 infrastructure

238
PRESENTATIONS
 to live audiences
 in FY 24

WHO BENEFITS FROM THIS RESEARCH?



OUR LEADERSHIP



Glenda Gillaspy

Dean, College of Agricultural and Life Sciences, UW–Madison

Sustainability has been a theme of the Dairy Innovation Hub since the beginning, and the Hub continues to forward environmental, financial, and community sustainability. I want to highlight a couple of projects that I think have been especially impactful this year. First, UW–Madison dairy scientists, who got start-up funds from the Hub, are now leading a \$3.3M national research effort to reduce methane emissions from dairy cattle. In another project, soil scientists and engineers have expanded a Hub-funded nitrate sensing project into several federal grants to develop new technologies that can be deployed on farms.

Teaching the next generation of agricultural scientists is also an important goal of the Hub, and I am pleased to say we continue to expand opportunities for students to learn about farming. During the 2023–24 academic year, Michaela Hoffelmeyer joined the Department of Community and Environmental Sociology as an expert in public engagement with agriculture and has been teaching courses on labor in the food system.

Additionally, I had the opportunity to visit the State Capitol in March when researchers from the Hub had their posters on display in the Rotunda. I was inspired watching students and faculty explain their work to Wisconsin policymakers and farmers who were there for Ag Day at the Capitol. It was easy to see how much it meant to students to be able to explain how their projects can benefit Wisconsin farms and communities.



Dean Glenda Gillaspy talks with Md Rayhan Shaheb, a postdoctoral researcher from UW–Madison, during an informational poster session at the State Capitol on Jan. 31, 2024. Photo by Jori Skalitzky/Dairy Innovation Hub





Wayne Weber

**Dean, College of Business, Industry, Life Science and Agriculture,
UW-Platteville**

After two years serving as the interim provost for UW-Platteville, I am excited to return as the dean of the College of BILSA. I want to express my deep appreciation for Chuck Steiner, who provided outstanding leadership as interim dean, as well as the many colleagues throughout the college who stepped up during this period of leadership transition. Chuck will continue to play a vital role, resuming his positions as assistant dean of the College of BILSA and director of Pioneer Farm.

I am particularly eager to fully engage again with the Dairy Innovation Hub, especially given the exciting accomplishments and future directions. As dean of BILSA, I was actively involved with my colleagues at UW-River Falls and UW-Madison, along with farmers, industry partners, and legislators, during the initial launch of the Hub.

Some other updates from campus include welcoming our new Provost, Laura Reynolds, and look forward to her leadership. Hub faculty members Ryan Pralle, Joe Sanford, and Zifan Wan are conducting impactful research ranging from feeding strategies and robotic milking systems to the use of biochar in nutrient and emission management to the assessment and improvement of frozen dairy products. Collaboration continues to be a major strength of the Hub, and I am excited to be back as we work together to drive innovation throughout the dairy community.



Michael Orth

Dean, College of Agriculture, Food and Environmental Sciences, UW-River Falls

I recently completed my first year as dean of CAFES and a highlight was participating in a year's worth of Dairy Innovation Hub activities. Last November, I attended the Dairy Summit hosted by UW-Platteville and enjoyed seeing the variety of research at each campus as well as interacting with people in the dairy community. In May, I attended the Dairy Symposium hosted by UW-Madison which focused on more of the scientific studies being conducted relative to various disciplines related to dairy science. This was an excellent, well-designed event.

In CAFES, one way we have benefited from being part of the Hub is the improvement in technology that we have now in campus laboratories. For example, the solids processing lab is helpful for farmers and scientists to evaluate how much organic and non-organic matter is present in soils and water. In soils, this is imperative for plant health and in water, this indicates soil loss from land.

At UW-River Falls, we have seen that dollars committed to faculty and their research have been used to facilitate procuring external grant funding. As an example, Bahareh Hassanpour, a Hub faculty member, received a Hub faculty research fellowship to study nutrient cycling and stream water quality in agricultural headwater areas. Preliminary data from that study was incorporated into a grant that was recently funded by the National Science Foundation EMBRACE program. This is just one example of how faculty in CAFES are using Hub funds to procure additional funding to help address the needs of the Wisconsin dairy enterprise.

ADVISORY COUNCIL



“ In year five of the Hub, we remain steadfast to the four pillars: stewarding land and water resources; enriching human health and nutrition; ensuring animal health and welfare; and growing farm businesses and communities. Global consumers are asking this of the dairy community. Current and future Hub research will help Wisconsin dairy farmers and processors meet this challenge. A special thank you to Heather White for her dedication as the Hub’s first faculty director. ”

Dave Daniels

Mighty Grand Dairy | Wisconsin Farm Bureau Federation | chairman

COUNCIL MEMBERS:



Mitch Breunig

Mystic Valley Dairy,
Professional Dairy Producers



Holly Dolliver

UW–River Falls



Steve Kelm

UW–River Falls



Shelly Mayer
Professional Dairy Producers



Tera Montgomery
UW-Platteville



Chuck Nicholson
UW-Madison



Scott Rankin
UW-Madison



Randy Romanski
Department of Agriculture,
Trade & Consumer
Protection



John Umhoefer
Wisconsin Cheese
Makers Association



Heather White
faculty director (ex officio)



Chad Zuleger
Dairy Business Association



IN THE FIELD



Hub advisory council meets in Marshfield, farmers and local leaders tour investments

Members of the Dairy Innovation Hub advisory council held their summer in-person meeting on Tuesday, Aug. 13 at the University of Wisconsin–Madison Marshfield Agricultural Research Station (MARS) in Marshfield, Wis. The morning meeting included updates from council members, campuses, and Hub administration. Several discussion items filled the agenda, including the timeline for recruiting a new faculty director.

Heather White, who has very ably served as the faculty director of the Hub since fall 2019, has stepped down from the director role to serve as associate dean for faculty affairs in the College of Agricultural and Life Sciences at UW–Madison. Her leadership in this important role has been pivotal to the Hub’s success, and Hub leaders will identify a successor who will continue to champion the vision and mission of the

Hub with the same positive energy.

“I am committed to helping transition the Hub to a new faculty director and am eager to see what a fresh perspective can bring. I look forward to watching the Hub’s continued success and impact,” said White, who is also a professor in the Department of Animal and Dairy Sciences at UW–Madison in addition to her new associate dean role.

Following the council meeting, the group transitioned for a robust series of afternoon farm tours highlighting equipment investments, research, and partnerships facilitated by the Hub.

Tour stops included demonstrations on heat stress, methane emissions, computer vision and machine

learning, comparing heifers in pasture and traditional systems, perennial forages, and an ongoing paired watershed experiment.

“The Dairy Innovation Hub has significantly impacted research capabilities at the MARS station. Hub-funded research, equipment, students, and scientists are keeping the farm busy,” said Nancy Esser, MARS superintendent. “Ultimately, this pays off for farmers, stakeholders, and local leaders engaged in the dairy community.”

The MARS station is located near the state’s geographic center, in an area of Wisconsin with the highest concentration of dairy farms. The station, established in 1912, is home to one of the nation’s premier dairy heifer research facilities and operates 955 acres of land providing support for faculty, researchers, and students in the

UW–Madison College of Agricultural and Life Sciences, and the USDA Institute for Environmentally Integrated Dairy Management.

In addition to advisory council members, area farmers, local legislators, and board members from key agriculture organizations were invited to attend the tours.

Paul Lippert, a dairy farmer from Pittsville, Wis., attended the tour representing the Professional Dairy Producers board of directors.

“The research I saw during the tour funded by the Dairy Innovation Hub has a future on the farm. I found the research on grazing heifers, involving two full summers of grazing with very little supplementation, to be very important and I hope to use the findings soon on our dairy,” said Lippert.

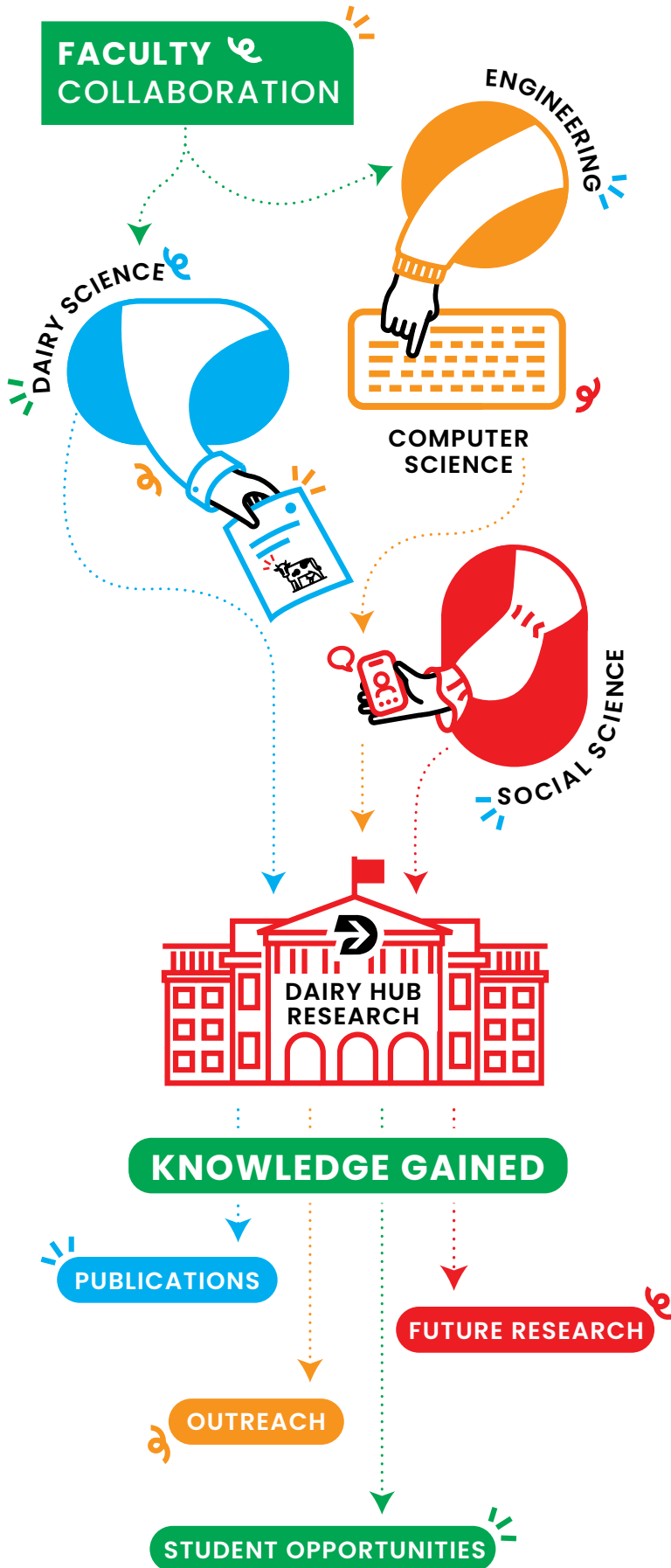


Lippert owns Grass Ridge Farm, LLC with his father, Matt, and brother, Carl. The dairy is home to 700 registered Holsteins and Jerseys as well as 600 young stock. He graduated from UW–River Falls with a dairy science degree.

“The research on computer vision is also exciting because it will allow us to do a better job of managing cows as individuals AND as groups in the future. Technology that lets us monitor cows day-to-day could reap huge benefits in how we manage our dairy,” said Lippert.



Facing page: Tour guests ride the “people wagon” between sites at MARS on Aug. 13, 2024. Above: Paul Lippert farms with his family in Pittsville, Wis. He also serves on the Professional Dairy Producers board of directors. Left: After the tour, guests cool off with an ice cream social in the MARS shop featuring a collection of research posters funded by the Hub. Members of the advisory council, along with farmers, and local leaders attended the tour. Photos by Nguyen Tran/Dairy Innovation Hub



A platform to work together

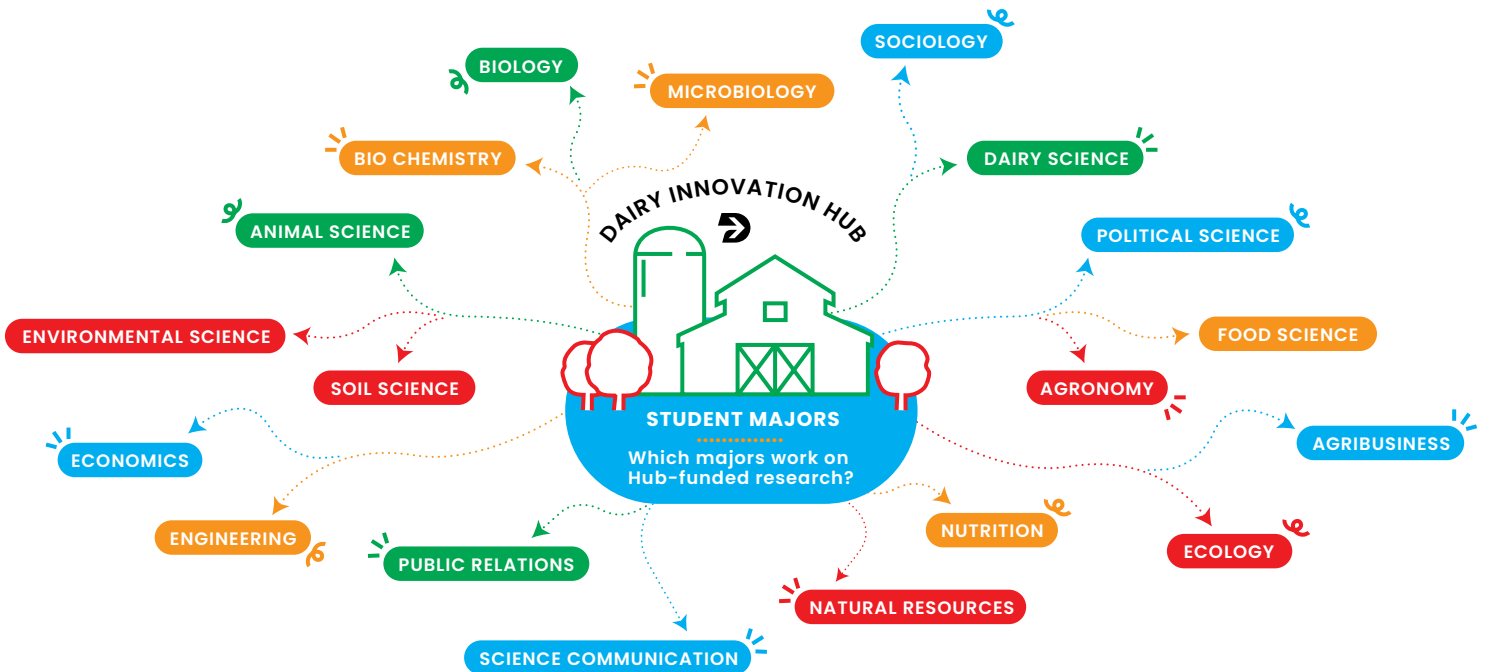
From the start, the Dairy Innovation Hub implemented systems to keep partners at UW–Madison, UW–Platteville, and UW–River Falls informed and accountable to best steward the State’s investment. As a result of this consistent communication, faculty and staff at each institution have a better idea of what’s happening at each campus and opportunities to work together.



Why is collaboration across campuses and disciplines so important?

-  Multidisciplinary research approaches a topic or problem from multiple angles
-  Leveraging talents and resources for a common goal reduces duplication
-  Working across campuses gives faculty and staff access to opportunities and helps with retention
-  Students have a deeper understanding of available careers and career pathways
-  Farmers, processors, and other end-users are better served when researchers are tackling relevant topics

DIVERSE MAJORS CONTRIBUTE TO DAIRY RESEARCH:



It's not just dairy students working on Hub-funded research

Students of all majors, interests, and degree levels are working on Hub-funded research with opportunities for future growth. The Hub's four priority areas are intentionally broad because research and outreach that benefits the dairy community covers a wide range of topics. Diverse talents and perspectives are a must!

Research experience is career experience

Graduate school isn't the only reason to pursue research experience as an undergraduate. Critical thinking, following protocols, data analysis, collaborating as a team, and natural curiosity are qualities found in successful employees and leaders regardless of their field. Student researchers develop these transferable skills and employers notice.



CAMPUS UPDATES

UW–Madison FY 24 accomplishments:

- » Six new postdoctoral fellowships awarded. Ongoing funding for second postdoctoral fellowship cohort
- » On-boarded one new assistant professor focused on public engagement with agriculture in the community and environmental sociology department
- » Recruited three new assistant professors in the areas of adaptive cattle nutrition, soil carbon science, and translational plant science for dairy sustainability
- » Ongoing funding for six graduate student assistantships selected in FY 23

FY 24 Steering committee:



Paul Fricke

Animal and Dairy Sciences



Margaret Kalcic

Biological Systems Engineering



Chuck Nicholson

Animal and Dairy Sciences
Agricultural and Applied Economics



Beth Olson

Nutritional Sciences



Scott Rankin

Food Science



Matt Ruark

Soil and Environmental Sciences



Kent Weigel

Animal and Dairy Sciences



Heather White

Animal and Dairy Sciences



Heidi Zoerb

CALS External Relations

UW–Platteville FY 24 accomplishments:

- » Five new awards for faculty research fellowships; Ongoing funding for five projects selected in FY 23
- » Five new awards for supplies and equipment
- » Support for graduate student assistantship co-mentored with UW–Madison
- » Planning and fundraising for new Dairy Pilot Plant capital project
- » Developing agribusiness faculty position
- » Collaborative planning for 2023 Dairy Summit, held on the UW–Platteville campus

FY 24 Steering committee:



Kevin Bernhardt

Agribusiness; Center for Dairy Profitability



Krista Hardyman

Animal Science



Tera Montgomery

Animal Science; director, School of Agriculture



Austin Polebitski

Civil and Environmental Engineering



Chuck Steiner

director, Pioneer Farm



CAMPUS UPDATES (continued)

UW–River Falls FY 24 accomplishments:

- » Four new awards for faculty research fellowships; Ongoing funding for seven projects funded in FY 23
- » On-boarded one new assistant professor in the area of dairy health and management
- » Recruited one new assistant professor in the area of agricultural economics
- » Three new awards for supplies and equipment
- » Ongoing support for graduate student assistantship co-mentored with UW–Madison
- » Final implementation of dairy pilot plant capital project

FY 24 Steering committee



Steve Kelm
Animal and Food Science



Peter Rayne
Animal and Food Science



Joel Peterson
Agricultural Engineering
Technology



Holly Dolliver
Plant and Earth Science



Brenda Boetel
Agricultural Economics





Above: As part of a project examining the effect of in-field prairie strips on nutrient cycling and biodiversity in crop production, student intern Elayna Stirn collected and identified butterflies, bumble bees, and flower flies that were present in research plots. Photo by Kevyn Juneau/UW-River Falls

OUR PARTNERS



Lee Kinnard

President | Dairy Business Association

“As dairy farmers, we continue to see the impact the Dairy Innovation Hub has on our farms and the dairy industry as a whole. Knowing innovative, relevant research is happening in our state means we have access to resources we can directly correlate with as we look to bring new ideas and advanced technologies to our farms. We are confident the investments being made will continue to strengthen our farms, our communities, and all of America’s Dairyland.”



Shelly Mayer

Executive Director | Professional Dairy Producers

“The world does business where it can reliably experience new discoveries, explore the latest innovations, and trust in the leaders at the helm – and that’s what the Dairy Innovation Hub is all about. Their work and research continue to impact communities within and even outside the dairy sector. The Hub brings the dairy community together to support and develop one another while also embracing the needs of people of every demographic across the globe. The Dairy Innovation Hub is making the kind of difference our world needs today.”



**Randy Romanski**

Secretary | Wisconsin Department of Agriculture,
Trade and Consumer Protection

“The Dairy Innovation Hub is recognized internationally for its commitment to research that will advance the global dairy industry. I am proud the State of Wisconsin has invested in this important work that is benefiting our dairy cattle, land and water resources, farmers, communities, and consumers. I am grateful for the collaboration between the three Universities, government partners, and industry leaders to ensure the long-term prosperity and leadership of America’s Dairyland.

”

**Brad Olson**

President | Wisconsin Farm Bureau Federation

“With the best of the best researchers and faculty mentors, the Dairy Innovation Hub positions Wisconsin as the cutting-edge leader in dairy research. The Hub facilitates a spirit of collaboration amongst our agricultural universities that ultimately supports the entire dairy supply chain. From animal health to economics and everywhere in between, the Dairy Innovation Hub is providing sustainable solutions for tomorrow’s leaders in the dairy industry.

”

**John Umhoefer**

Executive Director | Wisconsin Cheese Makers Association

“To meet the rising demand for Wisconsin cheese and dairy products, it’s essential to invest in research that supports the entire dairy supply chain, from animal health to sustainability to processing and beyond. The Dairy Innovation Hub unites top-notch researchers at Wisconsin’s leading agricultural campuses with a broad coalition of dairy industry partners and state lawmakers – driving meaningful change that will benefit generations to come.

”

NEW FACULTY PROFILE



Maria Jose Fuenzalida

Assistant Professor | Animal and Food Science
UW–River Falls | *start date August 2023*

What is your hometown?

I am from Arica, Chile.

Where did you grow up?

Arica is Chile's

northernmost city, being located south of the border with Peru. Arica has an extremely dry climate, with almost no rainfall. Even so, the frequent maritime winds from the cold waters nearby renders a moderate desert climate.

What is your educational/professional background, including your previous position?

I enrolled for a veterinary degree at the Universidad Austral of Chile in 2002 and graduated in 2009. I then had the opportunity to come to the United States and work with Dr. O.J. Ginther as a research trainee at his Eutheria Foundation in Cross Plains, Wis. After this experience, I decided to pursue graduate studies and I completed my master's and PhD programs in the dairy science department at UW–Madison. In 2019, I was fortunate to work as a dairy and livestock extension educator for Dane County where I learned about developing educational programming and translational research. In 2021, my family moved to Minnesota, and I started a new career as a GLP and Non-GLP study director and IACUC liaison for a pre-clinical studies business. In this role, I learned about research performed to obtain basic information about the safety and biological efficacy of a product before testing it in a final target population.

How did you get into your field of research?

I had multiple advisors who inspired me to pursue animal research while in vet school. When I came to the United States and while working with Dr. Ginther, I came to realize the importance of research in animal science, thus it became my objective to pursue graduate studies. Finally, during my master's and PhD, I became passionate about understanding the pathophysiology of intramammary infections in dairy cows.

What are the main goals of your current research program?

My first goal is to understand the impact of an intramammary infection on fertility, milk production, milk quality, and animal health. My second goal is to determine appropriate and effective strategies to prevent and control an intramammary infection.

What attracted you to UW–River Falls and the Dairy Innovation Hub?

I wanted to come back to academia because I wanted to see the impact that animal research can have on the dairy industry, the public, and graduate and undergraduate students. UW–River Falls is a great educational institution that focuses on student success; thus, it made sense for me to start working on research and teaching here. The Hub provides opportunities for many talented researchers, and I am fortunate that I was chosen to join this excellent group of faculty.



What was your first visit to campus like?

During my first visit to campus, I felt like I was at home. I must thank Dr. Larry Baumann for making me feel like I belonged at UW–River Falls on my first visit to campus.

What’s one thing you hope students who take a class with you will come away with?

The enthusiasm and passion for learning about animal science.

Do you feel your work relates in any way to the Wisconsin Idea?

I do. My research program will enable me to train undergraduate and graduate students, to conduct research studies, obtain data, and create educational programming for the dairy community. Furthermore, I am very interested in educating the public about the importance of dairy and the impact of academic animal research.

What are your hobbies and other interests?

My hobbies are playing volleyball, drawing, and painting.



Fuenzalida is building a research program to understand the impact of an intramammary infection on fertility, milk production, milk quality, and animal health. Top: Fuenzalida leverages the Mann Valley Farm in her milk quality work. Bottom: In addition to diagnosis, Fuenzalida is working to determine appropriate and effective strategies to prevent and control intramammary infection. Photos by Pat Deninger/UW–River Falls

NEW FACULTY PROFILE



Michaela Hoffelmeyer

Assistant Professor | Community and Environmental Sociology | UW–Madison | *start date August 2023*

Where did you grow up?

I grew up in Winterset, Iowa, famous for the Bridges of Madison County and as the birthplace of John Wayne.

Both areas of research feed into a primary goal of calling on individuals, organizations, institutions, and policy makers to consider if and how we are serving all farmers and celebrating all people involved in agricultural production. I want people to examine what we mean when we leverage phrases like “no farms, no food” and “America needs farmers” and the degree to which we support underserved farmers and farm workers with this rhetoric.

What is your educational/professional background?

I completed my undergraduate degree in global resource systems and public service and administration in agriculture from Iowa State University. Then went directly to graduate school at Penn State University, studying rural sociology with a dual title in women’s, gender, and sexuality studies.

What was your first visit to campus like?

My first time visiting UW–Madison was as an undergrad student when our rugby team traveled to Madison for a conference match. It was the perfect fall Saturday, and the pitch was nestled in a tree-filled park. I was stunned by how the university and city are intertwined.

How did you get into your field of research?

Growing up, I felt very conflicted by the assertions that I was hearing surrounding ideas about agricultural production, food insecurity, and environmental conservation. I couldn’t understand how we produced so much food in Iowa but also had so many people unable to afford that food. I came to grad school to grapple with conflicting ideas surrounding increased production and environmental stewardship and to understand how to improve the agrifood system for everyone.

What’s one thing you hope students who take a class with you will come away with?

I teach the Department of Community and Environmental Sociology’s undergraduate course, “Issues in the Food System.” I hope students in the class can understand different approaches to enacting change in the agrifood system and analyze how these approaches serve different goals and visions.

What your research and outreach goals?

One stream of my research engages questions about gender and sexuality in agriculture. A second explores laborers’ health and safety in the agrifood system, specifically meat processing and, in the future, dairy.

Do you feel your work relates in any way to the Wisconsin Idea?

Because I’ve spent most of my life at land grant universities, I am deeply motivated by the goals of applied research and teaching. I prioritize sharing my research in academic and non-academic spaces like farming conferences and organizations. I push students to reflect on topics like food justice and sovereignty and apply them in their daily lives

as consumers, advocates, and professionals. The pandemic forced us all to reconsider many things we took for granted.

Is there something you've learned that has helped you through challenging times?

Having a personal and professional network of extremely generous, supportive, and kind people allowed me to weather the difficulties of the pandemic, and I am exceptionally grateful for their support.

What's something interesting about your area of expertise that usually surprises the public?

Injuries in the meat processing industry have largely shifted from acute, highly visible injuries like lost limbs to chronic, less visible, but highly debilitating injuries due to increasing line speeds and poor preventative measures. The steel (a knife-sharpening tool) is a meat processing worker's "best friend!"

What are your hobbies and other interests?

I love riding my road bike, drinking copious amounts of coffee, and watching Russell Wilson win football games.



Above: Hoffelmeyer grew up in Winterset, Iowa. She's pictured on the top left of the hay wagon after a day of bailing hay on her parents' farm. Below: Hoffelmeyer's research prior to coming to UW-Madison, centered on preventing and treating injuries in small-scale meat processing. For this research, she completed ethnographic observations: Six months as an employee at two small-scale processing plants with ~700 hours of observations. She also completed 25 interviews with workers and managers. The photo shows plant workers on a typical small-scale processing line from one of the plants in the study. Research findings suggest recentring workers' health and safety through preventing and treating injuries can help remediate high turnover rates. Photos contributed. Article adapted with permission from UW-Madison CALS.



FACULTY FOLLOW-UP



Hub-funded faculty member, students lauded for research efforts

Grace Lewis is an assistant professor specializing in dairy processing at UW–River Falls, funded by the Dairy Innovation Hub. In just a few short years since joining the faculty, Lewis has demonstrated leadership in research and teaching, and she’s getting some well-deserved accolades along the way.



Above: From left, Ashley Gruman, Grace Lewis, Nevaeh Bolinger, and Danielle Stroinski pose for a photo in a Babcock Dairy Plant cheese cave at UW-Madison. Photo by Scott Rankin. Right: Grace Lewis presents research at the Dairy Summit, Nov. 2022. Photo by Pat Deninger/UW-River Falls

Lewis, along with students Yihong Deng, Ashley Gruman, Anna Lokken, Katherine Petersen, and Rafael Larosiliere received the Carl E. Gulbrandson Innovator of the Year Award during the WiSys SPARK Symposium at UW-Superior this past July. The award is given annually by WiSys to Universities of Wisconsin faculty, staff, and students who have made exemplary contributions as innovators. It is named for the former managing director of the Wisconsin Alumni Research Foundation who supported WiSys.

Lewis and her students placed first at the Dairy Management Inc. New Product Competition in July 2023 for developing RootCurd, a ginger-coagulated dairy product based on an ancient Chinese recipe that is 89% dairy and is designed to ease consumers' anxiety. RootCurd took many hours to develop and lots of trial and error to turn into its end product.

RootCurd contains 20 grams of dairy protein per serving. Ginger provides the product with its slightly spicy flavor; lavender helps reduce stress.

"I'm really proud of my students for working so hard to create a high-quality product," Lewis said. "Their effort shows that high-level research and hard work can make a positive impact on the dairy industry."

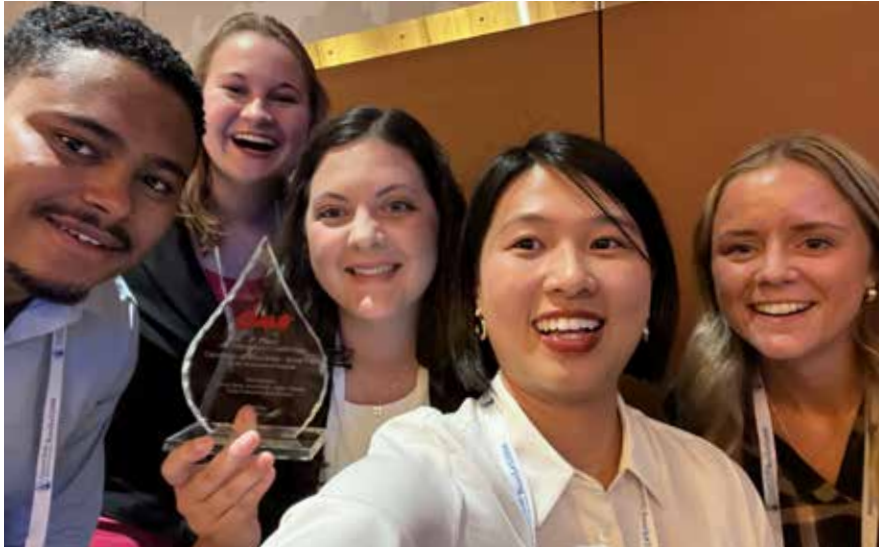
Lewis also is being recognized by WiSys for other research efforts. She has a pending patent for her work in conjunction with UW-Madison assistant professor (and fellow Hub-funded faculty) Joseph Pierre, in which milk fat is used as intravenous nutrition for people who can't digest foods normally. Another of her projects that uses milk protein to enable better absorption

of medicine and foods by humans has received accolades and could be adopted by the food and pharmaceutical sectors.

Lewis joined the faculty at UW-River Falls in 2021. Since then she has received numerous accolades and awards, including second prize for the prestigious IDF Professor Pavel Jelen Early Career Scientist Prize in 2023, funding for her work in the Dairy Innovation Hub, and a WiSys Ignite Grant for 2023-24.

When she was first contacted by WiSys officials about the Carl E. Gulbrandson Innovator of the Year Award, Lewis figured the organization was





asking her to present again at its SPARK Symposium, which she has done in the past.

“Then they told me that me and my students were being honored with this (Gulbrandson) award,” Lewis said. “I was surprised in a good way. I am very, very thankful.”

Lewis’ students were surprised and honored as well by the award saying the acknowledgment for their hard work is gratifying.

“I felt a lot of pride for myself, my teammates and Dr. Lewis,” said Petersen, of Clear Lake, who graduated with a food science and technology degree in May 2023 and works in research, development, and application for the food company Kerry Group. “It really means a lot to all of us to get this recognition.”

As Anna Lokken and her classmates began research on RootCurd, they had no idea how the effort would develop and that their work would lead to winning a national competition and a pending patent.

“When we started this project, I don’t think any of us thought it would take off the way it did,” said Lokken, of Litchfield, Minn., who graduated in December 2023 with a food science and technology degree and now works as a research and regulatory affairs specialist at Anderson Chemical Company. “It’s truly an honor to

receive this award and continue to be recognized for all of the work we put into RootCurd.”

Developing RootCurd into a tasty food that could be sold on a commercial level was anything but easy, students said. They spent countless hours devising more than 40 different versions of the product, a process that included plenty of trial and error.

When they entered the Dairy Management Inc. New Product

Competition last summer with RootCurd, students had low expectations. They were surprised and proud when they won the national competition. Motivated by that experience, Lewis and her students decided to seek a patent for RootCurd and partnered with WiSys to do so.

“This group of students was so motivated and so much fun to work with too,” Lewis said. “I hope winning this award will show them how gifted they really are.”

Petersen said she wasn’t sure at first she wanted to be part of the RootCurd team. Now she is so thankful that she was.

“It has opened up so many opportunities and allowed for so many different experiences,” she said. “You never know what can come from taking advantage of an opportunity that is presented to you.”

This article was adapted with permission from UW–River Falls.

Above: from left, Rafael Larosiliere, Anna Euerle, Kate Petersen, Yihong Deng, and Ashley Gruman won first place in the Dairy Management Inc. New Product Competition with their product RootCurd. Contributed photo. Facing page: from left, Grace Lewis, Danielle Stroinski, Joseph Schuh, Yihong Deng, Nevaeh Bollinger, and Ashley Gruman pose for a photo at the 2024 American Dairy Science Association meeting. Photo contributed.



Lewis' students "sweep" undergraduate poster competition at national meeting

This past summer, students from UW–River Falls attended the 2024 Annual Meeting of the American Dairy Science Association® (ADSA) June 16-20, 2024 in West Palm Beach, Florida. The meeting attracted nearly 100 students and their advisors along with more than 1700 professionals and guests from the US, Mexico, Canada, and beyond.

During the meetings, students participated in professional development, educational and networking events along with multiple competitions including dairy quiz bowl and paper and poster competitions. Students also had the opportunity to attend symposia, oral sessions and poster sessions presented by professional members of the organizations.

Student researchers from Assistant Professor Grace Lewis' lab participated in the undergraduate poster competition, ultimately taking the top three awards in a

clean sweep. Danielle Stroinski placed first, Yihong Deng placed second, and Ashley Gruman placed third. All three students are graduating seniors majoring in food science and technology. Lewis' faculty position and the students' research are funded by the Dairy Innovation Hub.

Joseph Schuh, a junior majoring in dairy science and Nevaeh Bolinger, a junior majoring in food science and technology, attended the conference and participated in competitions and meetings.

Students attended the meetings as members of the American Dairy Science Association Undergraduate Student Division (ADSA-USD). The ADSA-USD is a division of the parent organization that works to develop leadership and promote scholarship among students interested in the dairy industry, and to encourage students toward careers in dairy science.

RESEARCH PROFILE



ENSURING ANIMAL HEALTH AND WELFARE

Jennifer Van Os

Assistant Professor | Animal and Dairy Sciences
UW–Madison

Project title: “Mooving Cows: An innovative tool for diverse audiences to learn dairy cow handling practices”

Funding began July 2023

A new educational video game called “Mooving Cows,” which gives dairy workers and anyone interested the opportunity to practice cow handling skills, is now publicly available to download and play. The free game was developed by UW–Madison researchers and is available in both the iOS (Apple) and Google Play (Android) app stores.

The idea for the game arose from feedback received from Wisconsin dairy farmers, explains Jennifer Van Os, assistant professor and extension specialist in

the UW–Madison Department of Animal and Dairy Sciences. Over the years, says Van Os, she has heard from numerous farmers seeking better training options for milkers and other staff members on proper cow handling – ways to move cows through dairy facilities that help ensure worker safety, while minimizing cow stress and injury.

Compared to currently available training articles and videos, the video game format allows for a more active, engaging learning experience. In the game,



‘Serious games’ result in better learning and retention compared to conventional instructional approaches.



players focus on practicing routine cow movement in simulated milking parlor, pasture, and freestall pen environments. Players learn how their actions affect cow behavior, stress and milk production.

The game was developed based on decades of research and with input from over 60 people in the Wisconsin dairy community, including dairy farm owners, milkers, dairy consultants and veterinarians.

The game can be played in English or Spanish, and it takes around 30 minutes to complete. People who successfully complete all levels receive a certificate of completion. This certificate can be used as documentation for the Farmers Assuring Responsible Management (FARM) Animal Care Program, which requires everyone with animal handling roles on dairy farms to have annual continuing education on proper animal handling.

An additional objective of the project was to evaluate the potential relevance of the game for other audiences, namely students in classroom settings. Undergraduates in an intro animal science course, vet students in a dairy skills rotation, and youth (grades 4-10) in 4-H groups played the game, and researchers found that they also learned from and enjoyed the experience.

Funding to develop Mooving Cows came from the UW Dairy Innovation Hub and the Research Forward initiative hosted by the UW–Madison Office of the Vice Chancellor for Research and Graduate Education.

This article was adapted with permission from UW–Madison CALS.

Scan QR code to learn more and download the game app!



FINDINGS



Mooving Cows has been downloaded more than 12,000 times in nearly 120 countries, with an average rating of 4.5 out of 5.0 on both Google Play and Apple Apps.

In addition to Van Os, Nigel Cook, Dominic Ledesma, Markus Brauer, and Olufunmilola Abraham collaborated on the game.

The vision is for this learning tool to remain free for all dairy farms in the U.S. in the long term.

EXPLORE ONLINE

Learn more about the Mooving Cows project at moovingcows.org

Facing page and above: Screenshots from the Mooving Cows game app. Users select their avatar and language and begin “playing” through various scenarios. To advance to the next level, they must demonstrate successfully mastering the task at hand – such as moving cows from one location to another. Photos contributed.

FARMER PERSPECTIVE



Partnership in university research allows farm to operate as 'best-in-class'

Jordan Matthews

Partner, Rosy-Lane Holsteins, Watertown, Wis.

Project title: "Mooving Cows: An innovative tool for diverse audiences to learn dairy cow handling practices"



What is the history of Rosy-Lane Holsteins? Lloyd Arthur Holterman Sr. and wife Rosemarie purchased the homestead at W3855 Ebenezer Drive in 1965 and the herd size grew gradually to a peak of 80 milking cows. Throughout most of the time Lloyd Sr. milked at Rosy-Lane, he had 60 milking cows and 70 heifers. Beginning in the late 80's, the farm transitioned to Lloyd Jr. and Daphne.

Since that time, new technology and farming practices have been implemented focusing on cow comfort, profitability, and sustainability. This has allowed the farm to grow both in size and impact to

the local community, the dairy community, and the lives of those who work there.

In 1999, Tim Strobel became a partner, in 2013, I became a partner, and in 2024, Sam Peetz became a partner as well. I started as a sophomore in high school from a non-ag background and Lloyd and Daphne helped drive my passion in dairy through initially feeding calves part time. I am also an alumni of UW-Madison with a degree in dairy science.

Why did you want to get involved with this project?

Since Jennifer Van Os became part of the faculty at

UW–Madison, we have collaborated on a few projects together. I think the way we see the industry is similar, so it has been easy to jump on and help with many of her projects!

What was the game development process like? It started out with just conversations. A lot of questions and answers coming from both sides. Where is there a need and how do we get there? Those were the big two questions, then just brainstorming happened from there. I would give the credit to Jennifer and her team. I recall mostly giving feedback after they had developed something or we would work together to pick apart an idea for aspects of the game. The process took about a year of back and forth like this.

Did you have any employees test it out with you?

What was that like? We had quite a few of our team members try it out. There was a lot of laughter and smiling while playing it. I think initially they did consider it a game and not connect quite clearly of how it would relate to what they were doing, because of how fun it is. After the fact when we would talk through what they did, how they scored, etc., we would get the reactions and the “ah ha” moments of how that relates to moving cows and safety on farm.

Why do you think a game like *Mooving Cows* is needed?

People learn in various ways. We have continually struggled to find content to help connect the dots on cattle flight zones and animal handling, especially when bringing on new members to our team. We don't necessarily want to go into a pen to practice without any training beforehand. This gives us a chance with a tool (phone or tablet) that most people are on anyway, to get some high quality training accomplished. From that point we have a baseline and can go practice safely with real animals.

How have you used the game since its release? We have had most team members try it again since its release and had a fun little competition to see who would get the highest score. We will be moving forward in our on-boarding with needing to have the ‘completed certificate’ from the game as part of our professional training for team members.

What is your advice for other farmers looking for animal handling training for their team? Should they use the game? If you want to strive for professionalism and safety with your team, then it's a no-brainer to have it included in your training.

Why does Rosy–Lane participate in University research? Part of our mission states “to utilize and experiment with profitable and environmentally-sound technologies for plants and animals.” Nearly every experiment done by the University is for this reason. If we want to continue to operate as a best-in-class farm, working hand-in-hand with the experts setting the standards has helped us accomplish our mission.



*Facing page: Jordan Matthews stands next to showers in the milking parlor at Rosy Lane, as part of a different study in collaboration with Van Os. Photo by Michael P. King/UW–Madison CALS. Above: Marvin Herrera, an employee at Rosy-Lane, uses the *Mooving Cows* game app to train on safe techniques to move cows from the barn to the milking parlor. Photo contributed.*

RESEARCH PROFILE



Krista Wellnitz

Associate Professor, Animal, Dairy and Veterinary Science, UW-Platteville



Dong Isbister

Associate Professor, Women's and Gender Studies, UW-Platteville

GROWING FARM BUSINESSES AND COMMUNITIES

Project title: "Evaluating trends in female to male ratios in dairy science and related programs throughout Wisconsin and the Midwest region, and the translation into post-secondary employment"

Funding began July 2023

Krista Wellnitz, Animal, Dairy and Veterinary Science faculty, along with Dong Isbister, faculty in Women and Gender Studies at UW-Platteville are working on a Dairy Innovation Hub project about gender ratios and career choice in dairy-related majors.

The goals of this project are to evaluate trends in female to male ratios in dairy science, animal science, and agribusiness at UW-Platteville over the past 10-15 years. In addition, researchers will compare this information to other major state and regional agricultural universities and technical institutions.

Through this project, faculty hope to begin to understand how the female to male ratios in the university classroom translate into careers within the agriculture sector after graduation. And finally, if students are not pursuing agriculture related careers post-graduation, what careers are those female graduates pursuing and why?

Data collection is underway via

individual surveys to UW-Platteville alumni in dairy science, animal science, and agribusiness. In addition, researchers will build on the survey data by working with small focus groups, as well as individual interviews. This information will allow faculty to better understand individual career choices post-graduation.

This project is essential to informing educators on how they can help ensure the transition from dairy science, animal science, and agribusiness degrees to industry-related jobs for all institution types. In addition, it will allow faculty to gauge why students are selecting such a degree in college but may choose a different career after graduation.

Collecting this data through surveys, focus groups, and interviews will help to better understand how programs may need to adjust, shift, and change to see a greater number of UW-Platteville undergraduates pursue and maintain high-quality careers in agriculture.

STUDENT PERSPECTIVE



Hannah Pfeffer

first-year veterinary student, UW–Madison
animal science and biology BS'24, UW–Platteville alumna

Project title: “Evaluating trends in female to male ratios in dairy science and related programs throughout Wisconsin and the Midwest region, and the translation into post-secondary employment”

Why did you choose your undergraduate major?

I am originally from Racine, Wis. Although I did not grow up

on a farm, I was very involved in my local 4-H and FFA chapters raising and showing beef cattle, rabbits, horses, and poultry. These experiences deepened my love for agriculture and inspired me to explore veterinary medicine.

Why did you choose to pursue veterinary school?

I am currently in my first year at the School of Veterinary Medicine at UW–Madison. Growing up, I always knew I wanted to pursue a career with animals and after exploring a few of my agricultural interests through student organizations at UW–Platteville, I became certain that large animal/rural veterinary medicine was for me. Although I worked as a technician at various clinics as an undergraduate, I knew that if I committed to the profession, it would be through the doctor pathway because I love understanding why things work the way they do. I want to have the skills to identify a problem and use my knowledge, intuition, and experience to evaluate, integrate, and ultimately, to save animal lives.

How did you get involved in the “gender ratios” project?

Dr. Krista Wellnitz was a very crucial mentor to me during my time at UW–Platteville and throughout my veterinary school application process. When she reached out about the project, I was super excited to help because I saw a lot of shifts related to this topic during my time on campus.

Do you have any personal experiences with the shift of many agriculture majors from male to female?

Throughout my time at UW–Platteville, I networked with people from various areas of agriculture, many of whom, were female. I believe the shift of many agriculture majors from male to female has to do with an increase in female leaders and role models in youth programs like 4-H and FFA. Growing up, most of my program leaders and senior club members were female, and they encouraged me to consider a career in agriculture. I think that seeing female leaders in agriculture can be motivating to young women. Some of these women may have learned how to farm from their grandpa or father, but have demonstrated equal potential as the next generation of that farm or agriculture business.

What have you experienced related to career opportunities after graduation?

Prior to graduation, I accepted my seat for vet school, but many of my friends went to work as specialists in areas like nutrition, genetics, crops, education, and herd health. Most of them accepted full-time positions before graduating because demand is high in their fields.

What is your role with this project?

With the vigorous course load of veterinary school, I have been able to contribute asynchronously to the study. My major contribution has been helping Dr. Wellnitz format survey questions based on the goals and objectives of the research. I draw on my personal experience to determine questions we should ask and the best way to word them. I then work with the researchers on format. Next, I will be working with data analysis.

OUTREACH AND EDUCATION

UW–Madison’s Dairy Cattle Center sparks interest in research, visitor center facelift



Maria Woldt
Program Manager, Dairy
Innovation Hub

This past summer, the Buttles family from Stone-Front Farm hosted the Grant County dairy breakfast, welcoming more than 3,000 people to their farm in Lancaster, Wis. Andy Buttles has been a champion for the Dairy Innovation Hub since the early days, serving on committees, speaking at events, and even participating in on-farm research trials with faculty from UW–Platteville and UW–Madison.

At the Hub’s 2023 Dairy Summit event at UW–Platteville, Buttles spoke alongside assistant professor Ryan Pralle about a research trial on his farm aiming to diagnose Bovine Fatty Liver Syndrome using a blood panel instead of traditional liver biopsies. During his talk, he recalled fondly his time as a student at UW–Madison and a campus job he had at the Dairy Cattle Center (DCC). It was at the “DCC” that he developed an interest in on-farm research and saw first-hand the advancements made by UW faculty to benefit Wisconsin farmers.

UW–Madison’s DCC is unique because it is one of just a few working dairy farms in the country located directly on a college campus. This proximity allows for students, researchers, and visitors alike to access the facility with ease.

Speaking of visitors, the DCC is a popular tour spot for guests of all ages. Much like

the dairy breakfasts held in June, a trip to the DCC is often visitors’ first time on a farm. DCC staff are always willing to accommodate tours and walk-ins are welcome to watch afternoon milking.

When the DCC was renovated in 2013, project organizers had envisioned including a lobby welcoming space that would offer educational programming and be visually appealing, but when the funds ran out, the lobby renovation got put on the back burner.



Ted Halbach
Emeritus Distinguished
Faculty Instructor, Animal
and Dairy Sciences, UW–
Madison





Kate VandenBosch, dean of UW–Madison CALS from 2012 to 2022, brought sprucing up the lobby area back to the top of the priority list. As dean of one of the three universities involved in the Hub – VandenBosch proposed using Hub funds to re-imagine the DCC lobby area to make the space more inviting for students, staff, and visitors. When VandenBosch stepped down as dean in 2022, incoming CALS dean Glenda Gillaspay fully supported the project.

Maria Woldt, program manager for the Hub and emeritus faculty instructor Ted Halbach, managed the “welcome center” construction project. They envisioned a study space for students, a welcome space for visitors, and an educational installation for tour groups.

The project took a little over two years and displays include basic dairy facts, nods to Wisconsin’s history as America’s Dairyland, as well as historical accomplishments and groundbreaking developments that have taken place on the campus. There is also a life-sized cow model and a Badger red calf hutch!



The DCC includes an 84-stall barn, home to some of the Department of Animal and Dairy Sciences research herd. Visitors are welcome to observe cows in the milking parlor during certain days and times. The second floor houses classrooms, a meeting room, and living space for the student managers of the dairy. The DCC serves as an instructional and research facility for the Department of Animal and Dairy Sciences, the School of Veterinary Medicine, various Short Courses, and the U.S. Dairy Forage Center. About 15 courses are taught at the DCC during a typical academic year.

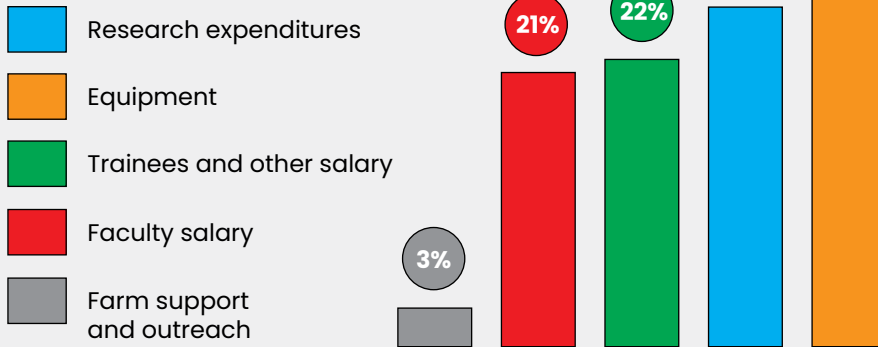
The DCC was built in 1956 to replace the original dairy barn built in 1898. A 2013 renovation updated feed storage, milking facilities, ventilation and living conditions for the cattle, and in 2017, the classroom and locker room spaces were renovated.

Facing page: Andy Buttles speaks about Hub-funded research trials on his farm at the 2023 Dairy Summit hosted by UW–Platteville. Photo by Andrew McNeill/UW–Platteville. Above: Attendees interact with informational displays during an open house celebrating the completion of the new welcome center and lobby at the Dairy Cattle Center at UW–Madison. Photo by Michael P. King/UW–Madison CALS

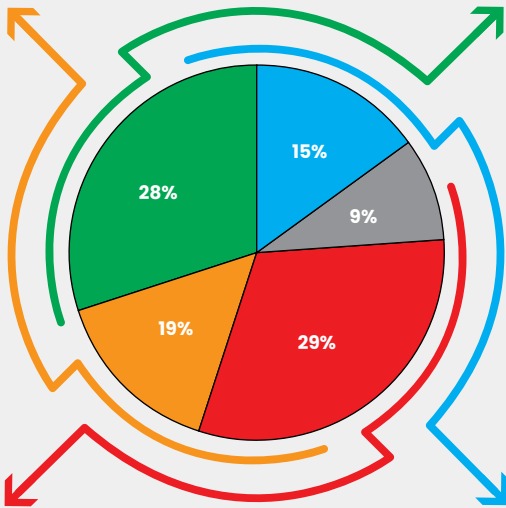
FINANCIAL OVERVIEW

Fiscal Year 24: July 1, 2023 – June 30, 2024

By expense type



FY 24 projections from the approved spending plan mirror, almost exactly, actual expenses for the year. Funding was approved in October 2019, and the initial investments of \$1M in FY 20 and \$7.8M per year thereafter have seeded recruitment of new talent, capacity-building equipment, and research projects in just five short years.



By priority area



With more than 230 awards to date, projects are in various stages of progress. Awards often span multiple years and are tracked according to their approved budgets, resulting in partial spending in a given fiscal year. Funds have naturally distributed across the Hub's four priority areas leading to maximum impact for the dairy community.

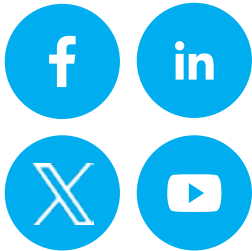
FY 24 FINANCIAL HIGHLIGHTS:

Nearly **\$3.4M**
for faculty, trainees and staff
NEW DAIRY TALENT

Total **\$7.8M**
FUNDS ALLOCATED
for dairy initiatives

COMMUNICATIONS STRATEGY

SOCIAL MEDIA



- » 4,186 followers across four social platforms, a 62% increase over FY 23
- » LinkedIn continues to be the top performing platform
- » 74,828 impressions on LinkedIn in FY 24, average engagement rate is 6%, which is considered very high by social media standards
- » Top Facebook post: "Vilas Faculty Mid-Career Investigator Award", UW–Madison
- » 91,602 impressions on X, formerly Twitter, 3% engagement rate
- » 9,659 views on YouTube. A 70% increase year over year.

MEDIA RELATIONS

- » 424 popular press mentions, consistent with FY 23
- » Twelve press releases distributed to media promoting funding decisions at UW–Madison, UW–Platteville, and UW–River Falls
- » Regular media interviews with Hub staff and researchers

OUTREACH IMPACT

- » 37 public and stakeholder presentations given by Hub staff. Including campus centers, conferences, information sessions, trade groups, agencies, and legislators
- » Multiple in-kind articles and blog posts authored by Hub staff (not including researchers), contributed to stakeholder publications
- » Starting in January, began a campaign targeting farmer-facing marketing and outreach opportunities

E-NEWSLETTER

From its onset, maintaining close communication has been a priority for the Hub. The Hub maintains a quarterly e-newsletter that

sends to more than 1,344 (and growing) unique Hub stakeholders, funded researchers, dairy leaders, state agencies, and key legislators.

Contacts are invested in some way with the Hub, and have "opted in" to receive content. Mass or purchased email lists are not used, and all content



is original. Increasingly, citizens and related public groups are interested in Hub initiatives and have subscribed to the e-newsletter.

Anyone interested in receiving updates from the Hub can sign up at dairyinnovationhub.wisc.edu. All content is free and publicly available.

CONFERENCES AND EVENTS

DAIRY SUMMIT

The Hub held its fourth annual Dairy Summit on Nov. 15, 2023. The event was hosted by UW–Platteville in a hybrid format. There were 243 registrations: majority attendance was in-person, but there was significant virtual engagement both live and on-demand after the event.

The Summit included welcome remarks, progress reports on Hub-funded research projects, as well as panel sessions featuring dairy farmers, and state legislators. In-person attendees enjoyed three facility tours impacted by the Hub, including Pioneer Farm and several lab spaces in the new Sesquicentennial Hall and Pioneer Tower.

The Dairy Summit highlights the Hub's newest research and is formatted for a public audience.

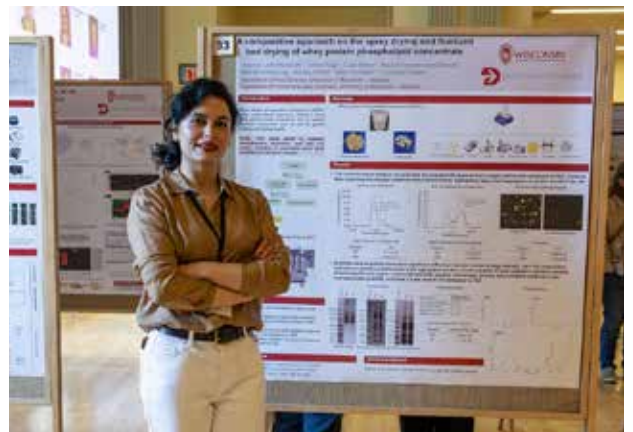
DAIRY SYMPOSIUM

The Hub held its third annual Dairy Symposium on May 15, 2024 at the Memorial Union on the UW–Madison campus. More than 200 researchers, students, academic colleagues, and campus affiliates attended the day-long event.

Through poster sessions, keynote presentations, breakout discussions, and student flash talks, the Dairy Symposium highlighted examples of the Hub's most advanced research and facilitated discussions about how this work can help meet the challenges facing today's dairy community.

Symposium is the academic-focused companion to the public-focused Dairy Summit held each November.

"We know the research presented at the symposium takes time to develop, and we're looking forward to getting some finalizations in the next few years that can go out and support farmers. There's a lot of good momentum," says Dave Daniels, chair of the Dairy Innovation Hub advisory council and owner of Mighty Grand Dairy. "Some of the things discussed at the symposium can be very academic, but I find it very informative, and I get a lot out of it."



From top: farmer Chris Wilson and professor Hal Evenson at UW–Platteville present at Dairy Summit. Photo by Andrew McNeill/UW–Platteville. Middle: UW–Madison postdoctoral fellow Fatemeh Jalil Mozhdehi presents a poster during the Dairy Symposium. Bottom: Moises Torres Gonzalez from the National Dairy Council, speaks at Dairy Symposium. Photos by Nguyen Tran/Dairy Innovation Hub

TAKING RESEARCH ON THE ROAD

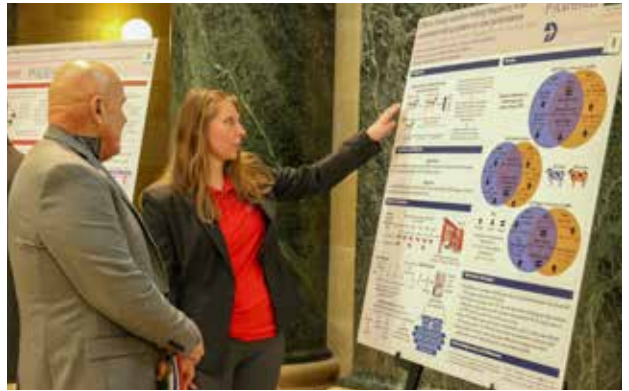
Outreach and education are core tenets of the Dairy Innovation Hub. One of the best ways to share outcomes from Hub-funded research is by having a presence at meetings, conferences, and events. This year, the Hub team hit the road and shared project outcomes from researchers at UW–Madison, UW–Platteville and UW–River Falls with the public.

In January, the Hub hosted an informational research poster session at the State Capitol to highlight research at each participating campus. Legislators, staff, and the public browsed research posters and engaged with students and faculty affiliated with Hub-funded projects. The poster session was co-located with Wisconsin Farm Bureau Federation’s Ag Day at the Capitol.

This winter, the Hub had a presence at the Dairy Strong conference and the PDP Business Conference. Also at the Business Conference, PDP invited four Hub-funded faculty to present on the Preview Stage. For the third year, 30 research posters were displayed in the Nexus Innovation Lane area. This space is dedicated to inventors, creators, and idea-generators sharing their most novel ideas.

This spring, the Hub began a strategic farmer-focused outreach campaign to increase awareness with farmers and related agriculture channel partners. The campaign includes several key elements such as advertisements with top agriculture news websites, engagement with the Alice in Dairyland program, and involvement in multiple state agriculture communicators groups. These paid and earned media opportunities are leading to increased communication and awareness across Wisconsin agriculture groups, farmers, and dairy processors.

During the summer months, the Hub had the unique opportunity to showcase funded research on-farm and in-field. Several industry groups enjoyed guided tours and demonstrations, seeing first-hand the added capacity made possible by the Hub.



From top: Erin Kammann, a former graduate student at UW–Madison, speaks to Rep. Dave Conside during a poster session at the State Capitol. Photo by Jori Skalitzky/Dairy Innovation Hub. Middle: Alice in Dairyland Haley Heinzel at UW–Madison’s Dairy Cattle Center. Keith Bone, SVP of Operations for Foremost Farms, explored a cannulated cow at UW–Madison on a Hub-sponsored tour. Photos by Maria Woldt/Dairy Innovation Hub

AWARD LISTING

FY 24 funding decisions by priority area

Awards in this section were selected by panels of faculty colleagues through a competitive proposal process where faculty and staff submitted a research idea, budget, and justification.

Stewarding land and water resources

UW–Madison

Postdoctoral fellowships

- Assessing the impact of states and national climate policies and food behavioral changes on the US dairy industry – Min Chen, Department of Forest and Wildlife Ecology. Trainee: Abdolhamid Dashtiahangar
- Bioconversion of whey permeate to 2,3-butanediol at bioreactor scale – Victor Ujor, Department of Food Science. Trainee: Rasool Kamal

Graduate student assistantships

- Ecological intensification for productivity, profitability, soil health, and carbon sequestration in the dairy-forage and cash-grain agroecosystems of the North Central US – Gregg Sanford, Department of Soil and Environmental Sciences. Student: Gideon Fynaardt

UW–Platteville

Faculty research fellowships

- Establishment of long term biochar research plots for evaluation of applications to dairy rotations – Joseph Sanford, Pioneer Farm

Equipment

- Instrumentation updates for monitoring water quality and soil health from basins 5, 10, and 11 at Pioneer Farm – Dennis Busch, Pioneer Farm
- Precision manure nutrient application using a real-time near-infrared reflectance spectroscopy (NIRS) nutrient sensing technology – Joseph Sanford, School of Agriculture
- Real-time PCR based quantification of alfalfa root rot pathogen – Muthu Venkateshwaran, School of Agriculture

UW–River Falls

Faculty research fellowships

- Growing a new UW collaboration to continuously measure groundwater nitrate in western Wisconsin farm wells using a novel sensor technology – Jill Coleman-Wasik, Department of Plant and Earth Science

- Filling existing gaps in the monitoring of soil greenhouse gas emissions and environmental health at Mann Valley Farm – Susanne Wiesner, Department of Plant and Earth Science

Equipment

- Assessing soil health and forage quality in dairy agricultural systems using multi-spectral and thermal sensors on-board of an unmanned aerial vehicle – Susanne Wiesner, Department of Plant and Earth Science

Growing farm business and community

UW–Madison

Graduate student assistantships

- Carework as farm work? Agricultural practitioners' perspectives of childcare – Michaela Hoffelmeyer, Department of Community and Environmental Sociology. Student: Trish Fisher

UW–Platteville

Faculty research fellowships

- Using seed priming to improve alfalfa feed quality and value – Raymond Pugh, Department of Chemistry

Equipment

- Gene expression and sequence analysis to mitigate stress responses/outbreaks in dairy cows and increase alfalfa production – Chanaka Mendis, Department of Chemistry

UW–River Falls

Faculty research fellowships

- Development of whey protein–lignin based film/coating materials for dairy food packaging applications – Youngmi Kim, Department of Agriculture Engineering Technology

Ensuring animal health and welfare

UW–Madison

Short term, high impact grant

- Development of online course on udder health: “Milk Quality from the Udder World (UW)” – Carolina Pinzón, Division of Extension

Postdoctoral fellowships

- Assessing changes in the fecal microbiomes of neonatal dairy calves to enhance animal health – Hilario Mantovani, Department of Animal and Dairy Sciences. Trainee: Rayanne Viana Costa
- Nutritional strategies to reduce early pregnancy loss in dairy cattle – Sofia Ortega, Department of Animal and Dairy Sciences. Trainee: Froylan Sosa Hernandez

UW–Platteville

Faculty research fellowships

- Precision livestock farming: Harnessing data and machine learning for enhanced dairy calf health and welfare – Md Mamunur Rahman, Department of Mechanical and Industrial Engineering

UW–River Falls

Equipment

- Replacement and improvement of video recording systems at the Mann Valley Farm Dairy Learning Center – Phase 3 – Kurt Vogel, Department of Animal and Food Sciences

Enriching human health and nutrition

UW–Madison

Postdoctoral fellowships

- Next generation yogurt with dairy probiotic complexes – Gulustan Ozturk, Department of Food Science. Trainee: Jerina Rugji
- Unlocking the potential of whey: sustainable production of low-calorie tagatose and prebiotics for value creation and reducing environmental impact – Scott Rankin, Department of Food Science. Trainee: Wenjia Wang

UW–Platteville

Equipment

- Assessment of dairy protein peptides and their derivatives for improving the quality of frozen dairy products – Zifan Wan, School of Agriculture

UW–River Falls

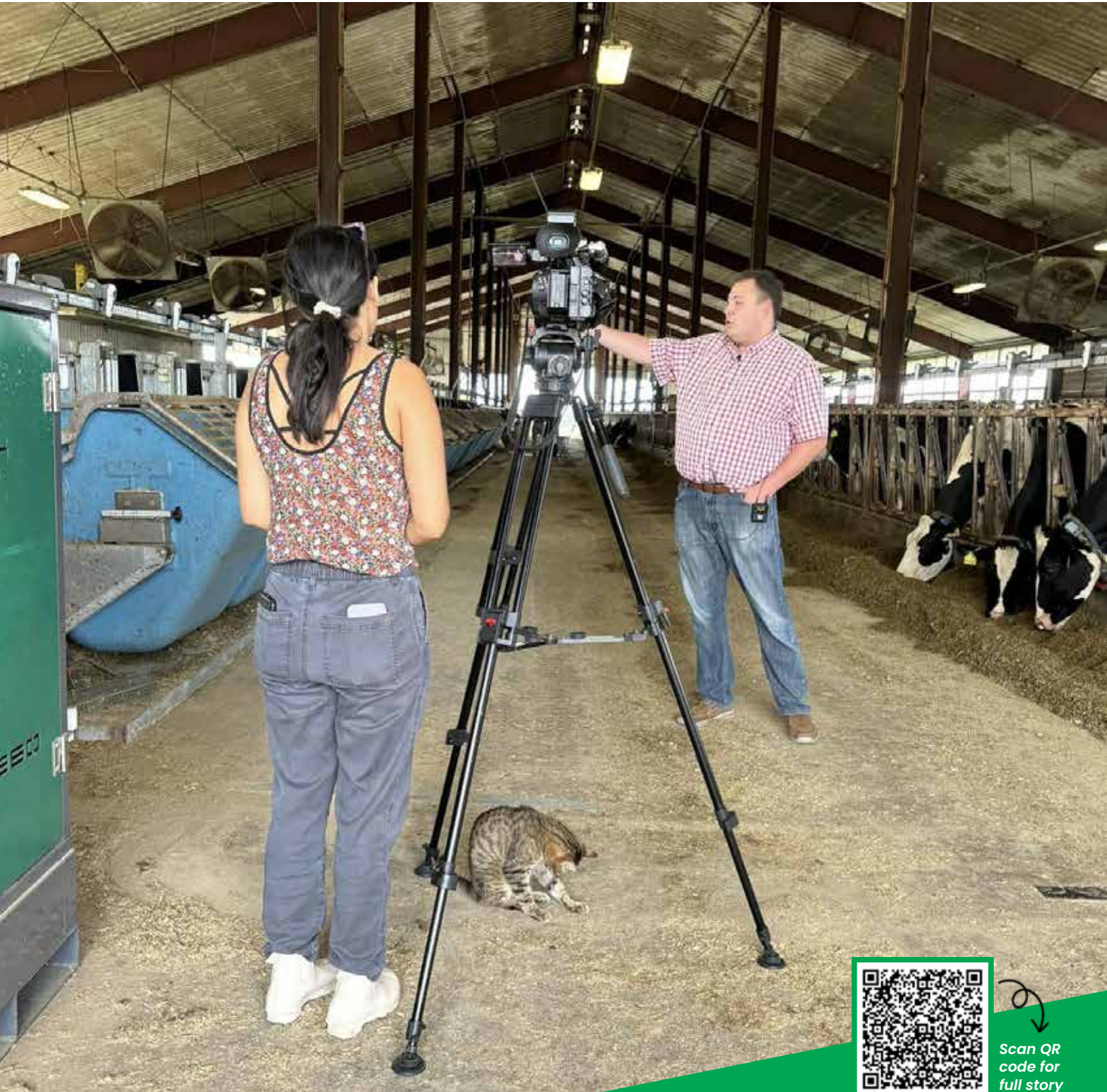
Faculty research fellowships

- Processing-induced alterations in casein protein digestibility and enzymatic interactions – Grace Lewis, Department of Animal and Food Science

Equipment

- Benchtop spray dryer for teaching, research, and outreach – Grace Lewis, Department of Animal and Food Science





Scan QR code for full story

Reporter Shaina Nijhawan from WMTV 15 News in Madison visited Pioneer Farm last summer to cover a story on the latest technology available to UW-Platteville students and faculty. Ryan Pralle, an assistant professor in the School of Agriculture, spoke about the new RIC2Discover feed intake machines and the GreenFeed machine. Photo by Christine Bellport/UW-Platteville



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