

# 2022 Dairy Summit

**Wednesday, Nov. 16: 9 a.m. – 3:30 p.m.**

**Riverview Ballroom, University Center, UW–River Falls**

*also available via livestream*



## **Speaker information and abstracts**

*Listed in presentation order*

### ***Welcome***

#### **Maria Gallo, chancellor**

*UW–River Falls*

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Maria Gallo became the 20th chancellor at UW–River Falls in July 2021, after serving five years as the President of Delaware Valley University. Prior to that, Chancellor Gallo was dean and director of Research and Cooperative Extension at the University of Hawaii at Mānoa College of Tropical Agriculture and Human Resources from 2012 to 2016. Chancellor Gallo also served as professor and chair of the Agronomy Department over the course of her 16 years at the University of Florida. She is a Fulbright Scholar as well as a fellow of the American Society of Agronomy and the Crop Science Society of America, where she also served as their president.

#### **Dean Olson, interim dean**

*College of Agriculture, Food and Environmental Sciences, UW–River Falls*

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Dean Olson became interim dean for the UW–River Falls College of Agriculture, Food and Environmental Sciences in October 2022. Prior to that, he served as the associate dean of CAFES since 2012. From 2002 to 2013, Olson served as the as chair of the Agricultural Engineering Technology Department at UW–River Falls. He has been with the college since 1997, where he has taken on the role of professor, chair, associate dean, and now interim dean.

#### **Glenda Gillaspy, dean**

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

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Glenda Gillaspy became dean of the UW–Madison College of Agricultural and Life Sciences in August 2022. Prior to that, she was head of the biochemistry department in the College of Agriculture and Life Sciences at Virginia Tech since 2015, where she had been a professor in the department since 1998. As head of the Department of Biochemistry at Virginia Tech, Gillaspy led changes to the graduate program that doubled the number of graduate students while enhancing their professional opportunities. She developed a mentoring program to attract and retain new faculty, bolstering the research and teaching resources of the department.

**Charles Steiner, interim dean**

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

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Charles Steiner became the interim dean of the UW–Platteville College of Business, Industry, Life Science and Agriculture in June 2022. Prior to that, he served as the associate dean for BILSA since 2019. Steiner served as the director of UW–Platteville’s Pioneer Farm since 2011 until his appointment as interim dean. As Pioneer Farm’s director, he supported the farm’s mission to provide on-farm experiences for students, to evaluate management practices, to conduct systems and applied research, and to communicate education and research to students, agencies, producers, and the public.

***Opening panel***

***“Connections between farmer-led conservation and Dairy Innovation Hub research: a case study of the Western Wisconsin Conservation Council”***

**Greg Friendshuh**

*WWCC; Friendshuh Farms, Clear Lake*

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Greg Friendshuh has been a WWCC board member since its inception in 2018. He is the owner of Friendshuh Farms in Clear Lake, Wisconsin, where he milks around 2000 cows and manages over 3400 acres of cropland. Friendshuh Farms uses cover crops, no-tillage, and other sustainable practices.

**Dave Tollberg**

*WWCC; Northland Crop Consulting*

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Dave Tollberg joined the WWCC Board of Directors in 2022. He has more than 40 years of experience as a crop consultant, first as an agronomist for coops and as a private consultant since 1994, serving farmers in Wisconsin and Minnesota. As a member of WWCC, Tollberg focuses on representing farmers and promoting responsible agronomic practices.

**Jill Coleman Wasik (Moderator)**

*Department of Plant and Earth Science, UW–River Falls*

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Coleman Wasik is an associate professor in the Department of Plant and Earth Science at UW–River Falls. Her research explores the relationship between human-caused disturbances and changes in the biogeochemical cycles of elements. She has been with the university since 2013.

**Hub-funded research introductions**

**Growing farm business and communities**

***“Cost of production assessment and analysis for Wisconsin dairy farms”***

**Chuck Nicholson**, Department of Agricultural and Applied Economics, UW–Madison

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Nicholson is an associate professor of agricultural and applied economics at UW–Madison, whose position is funded entirely by the Dairy Innovation Hub. His research specialties include dairy markets and policy, food systems modeling, controlled-environment agriculture, and linkages between agriculture and food security.

**Luis Peña-Lévano**, Department of Agricultural Economics, UW–River Falls

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Peña-Lévano is an assistant professor in agricultural economics at UW–River Falls, whose position is funded entirely by the Dairy Innovation Hub. His research focuses on dairy-related economics, finance, and international trade and will leverage new and established connections with the agribusiness community in Wisconsin and the surrounding area. Peña-Lévano started in August 2021.

Project summary: This project aims to investigate constraints of the export market for small- and medium-sized dairy product manufacturers in Wisconsin and strategies to overcome them. This project has four main objectives; 1) identify Wisconsin dairy manufacturers that currently sell to export markets and others that have an interest in selling, 2) document potential barriers to export market participation with an emphasis on supply chain logistics and costs, 3) identify, evaluate, and recommend strategies that could address barriers to export market participation, and 4) provide an opportunity for up to five undergraduate students in the UW system to participate in this research and enhance their knowledge of dairy product exports. This research will use a combination of survey methods and focus groups to collect data from a relevant subset of dairy product manufacturers, conduct interviews and site visits to key export logistics service providers, and assess constraints and identify potential solutions. Additionally, a special workshop event will be organized to allow the students to present their findings.

### ***“Impact of dairy farm changes on social capital in rural Wisconsin”***

**Christopher Holtkamp**, Department of Plant and Earth Science, UW–River Falls  
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Holtkamp is an assistant professor of conservation and environmental planning at UW–River Falls whose experience and focus is on rural communities. As a planner, Holtkamp takes the unique challenges and opportunities facing small towns and helps them leverage their limited resources for maximum benefit.

Project summary: Dairy farming is transitioning as small farms, a hallmark of Wisconsin’s identity, are declining in favor of larger farms. Research finds that changes in farm size and ownership are contributing to changes in economic conditions and social capital in affected areas. Developing policies that foster social capital in communities experiencing a transition to larger farms may contribute to more sustainable economic vitality. This project will provide local knowledge of changes occurring in Wisconsin communities. Interviews will be conducted in communities transitioning to larger farms and communities where small farms still dominate. Additional research using secondary sources will be used to understand social and economic conditions. The overall goal of this study is to understand how changes in dairy farming are affecting communities in rural Wisconsin.

## *Hub-funded research introductions*

### **Stewarding land and water resources**

#### ***“Efficient manure land application through vertical tillage systems”***

**Bob Zhiwei Zeng**, Department of Agricultural Engineering Technology, UW–River Falls  
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Zeng is an assistant professor of agriculture engineering technology at UW–River Falls. He is licensed professional engineer with expertise in the areas of machinery systems modeling, testing, automation, and numerical simulation.

Project summary: Careful manure management is necessary to apply nutrients in an environmentally friendly way. Traditional surface manure spreading is low-cost but may result in nutrient loss, odor and air pollution, and groundwater contamination. This project aims to investigate the feasibility of incorporating liquid manure application with vertical tillage. The goal of this project is to develop a viable liquid manure application system that maximizes field efficiency and crop nutrient availability while minimizing environmental impacts. To this end, the research team will focus on computer-aided design (CAD) and modeling for a prototype machine for liquid manure addition.

## *Hub-funded research introductions*

### **Enriching human health and nutrition**

#### ***“Optimization of casein micelle nanoparticle formation using high pressure homogenization and processing aids”***

**Grace Lewis**, Department of Animal and Food Science, UW–River Falls  
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Lewis is an assistant professor in animal and food science at UW–River Falls, whose position is funded entirely by the Dairy Innovation Hub. Her research interests include high-pressure technologies, dairy food byproduct enhancement and utilization, processing interventions to improve dairy protein functionality and nanoparticles, emulsions, and foams.

Project summary: Casein proteins, the most abundant proteins in milk, orient themselves into micellar structures with water resistant cores. Micellar structures help the body absorb fat soluble vitamins and other complicated fats. Many studies have looked to use casein proteins for the formation of nanoparticles, which allow for desirable applications in both the food and

pharmaceutical industries. Many processing techniques have shown promise in improving the formation of these nanoparticles, but some techniques have not been thoroughly studied together. This research project aims to evaluate a model system with new combinations that include ethanol, heat, salts, and high-pressure homogenization. Future work will look to expand on this optimized procedure for dietary and medicinal applications.

### ***“Pilot scale demonstration of a process to convert an acid whey waste stream to high value food products”***

**Scott Rankin**, Department of Food Science, UW–Madison  
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Rankin is a professor in food science and the chair of the food science department at UW–Madison. His research has focused on the characterization of primarily dairy food flavor with sensory and instrumental techniques. Through Babcock Dairy Plant, he offers numerous programs and short courses related to the dairy foods processing industry.

Project summary: The United States generates 3 million tons of acid whey (AW) each year, much of it a by-product of Greek yogurt production. Current strategies for processing AW are inadequate due to its high acidity and low protein content. Thus, the vast majority of AW is disposed of using costly and environmentally unsustainable methods such as land applications on farm fields. This project has developed a bench-scale, patent pending process to convert AW into three major, high-value products: glucose-galactose sweetener syrup (GGS), milk minerals, and whey protein. The objective of the project is to demonstrate this technology at the pilot scale using facilities at Babcock Hall. Researchers will produce pilot batches of GGS and milk minerals and evaluate them for food safety. Potential customers will use samples of the GGS in a range of their products such as baked goods, ice cream, and flavored milks.

### ***Hub-funded research introductions***

#### **Ensuring animal health and welfare**

### ***“Impact of maternal and early life stressors on heifer feed efficiency”***

**Kaylee Riesgraf**, Department of Animal and Dairy Sciences, UW–Madison  
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Riesgraf is a graduate student pursuing a master’s degree in dairy science from UW–Madison. Her graduate assistantship is collaboratively mentored and co-funded by UW–River Falls.

Riesgraf grew up on her family's farm, A&L Lisowe Acres, near Fond du Lac, Wis. and received a bachelor's degree in dairy science from UW–River Falls. Previous experience on her home farm and an internship at Holsum Dairies in Hilbert, Wis. sparked a passion for diagnosing sick dairy cows and developing subsequent treatment plans.

Project summary: Riesgraf is part of the team mentored by UW–Madison animal and dairy science professor and chair, Kent Weigel, exploring the effects of stressful life experiences on heifers, including maternal stress during late gestation and neonatal stress before weaning. This study looks closely at dry matter intake, average daily gain, and feed efficiency of heifers subjected to common stressors in early life. These heifers, age 17 to 20 months, are located at the Marshfield Agricultural Research Station. Additionally, samples are taken at puberty and mid-gestation to evaluate DNA and metabolic related differences between stressors.

***“Characterizing the behavior and management of dairy cows and neonate calves shortly after birth”***

**Kate Creutzinger**, Department of Animal and Food Sciences, UW–River Falls  
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Creutzinger is an assistant professor in animal and food science at UW–River Falls, and her position is funded entirely by the Dairy Innovation Hub. Her research interests involve the improvement of dairy cattle quality of life used in various agriculture systems by developing a robust teaching and research program focused on applied behavior, welfare, and sustainability.

Project summary: Despite advancements in nutrition and epidemiology, dairy cows remain at high risk of disease after giving birth. A main gap in our knowledge is the optimal housing environment for these vulnerable animals, which would require a fundamental understanding of cow behavior and preferences after calving. The overall goal of this project is to characterize cow and calf behaviors after calving in a semi-natural setting, as well as common management practices for early lactation cows in Wisconsin. The first objective is to investigate the disease prevalence and detailed behavior after calving for cows and calves kept together on pasture, including their preference for visual seclusion, and rejoining the herd. The second objective is to survey Wisconsin dairy producers to characterize the management, housing, and reported disease rates for dairy cows in the first three weeks of lactation. Results from this project will create foundational knowledge about the natural behavior of dairy cows and calves shortly after birth and identify shortcomings in early lactation management that can be addressed to improve the welfare of dairy cows.

## *Closing panel*

### ***“University innovation and partnerships drive regional economic development”***

#### **Paul Bauer**

*CEO, Ellsworth Cooperative Creamery, Ellsworth*

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Paul Bauer is the CEO of Ellsworth Cooperative Creamery, based in Ellsworth, Wisconsin. Active in the region as a business leader, Bauer and the cooperative believe in giving back to the community to make it better for all. The Cooperative was founded in 1910 and is now 250 patron dairy families strong. All three of the Cooperative’s production facilities, which specialize in cheese curds and cheese, are based in Wisconsin. The cooperative is a partner in the UW–River Falls dairy pilot plant that is currently under construction.

#### **Ken Heiman**

*President, Nasonville Dairy, Marshfield*

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Ken was born and raised in the cheese industry. His family started at Nasonville Dairy in the 1960s, and he became a licensed cheesemaker at the young age of 16. One of his favorite things about making cheese is the unique combination of art and science it takes to get a flavor just right. Ken is particularly passionate about carrying his father’s legacy forward and continuing to improve his craft. He loves biting into a piece of extra-sharp cheddar and appreciating just how much effort went into the texture, flavor, and complete experience.

#### **Sen. Rob Stafsholt**

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Senator Rob Stafsholt (R-New Richmond) is a lifelong St. Croix County resident and attended UW–River Falls. He has been a small business owner of residential rental and real estate investment company; farmer; assistant coach for the New Richmond–Somerset High School trap team. Former co-owner of a salad and food dressings manufacturing and sales company and a mortgage loan originator. He is serving his third term in the Legislature representing Senate District 10. Among several critical committees, Sen. Stafsholt chairs the committee on Small Business and Rural Issues.

**John Umhoefer, (Moderator)**

*Executive Director, WI Cheese Makers Association*

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John Umhoefer is the executive director of the Wisconsin Cheese Makers Association, which was established in 1891. He also serves on the Dairy Innovation Hub advisory council as one of several key trade organizations who supported the initial concept in 2019. For more than 130 years, WCMA has served as the voice of cheese and dairy manufacturers, processors, and marketers. WCMA serves dairy processors and their industry supplier partners as a strong policy advocate, networking hub, and trusted source of education and information.