

Faculty Position and Research Priority Internal Brainstorming Session

In January 2023, faculty and staff across the CALS community engaged in a Dairy Innovation Hub brainstorming session to reflect on faculty hires across the three campuses and to discuss remaining critical gaps in relevant expertise. Some research areas can be addressed through RFP mechanisms and funded projects, while others would be ideal targets for the final round of faculty hires. This information will be used in conjunction with external (i.e., stakeholders, Advisory Council) discussions and gap evaluations to inform the research areas prioritized below.

Stewarding Land & Water Resources

Water

- Surface and ground water sustainability
- Watershed groups
- Economics for water pollution, regulations, and carbon markets

Environment

- Environmental pressure
- Fossil fuels, greenhouse gas, and carbon footprint
- Phosphorus remediations
- Climate change and environmental concern
- Improve manure management to reduce nitrogen emissions

Plant

- Connect all pieces of plant production
- Plant genetics

Enriching Human Health & Nutrition

Milk composition

- Proteomics in milk and areas of diet/nutrition
- Ingredients vs. components in milk
- Plant components infused in dairy nutrition
- Production and implications on health/nutrition – *“How cows are fed to influence products to meet the consumer’s needs.”*
- Nutritional interventions for rumen and microbiomes
- Clinical trials in bioactive compounds and health benefits and/or human diet-based interventions

Product consumption

- Alternative packaging (shelf-life improvements) in microbiology and quality of nutrition
- Recycling and upcycling of product packaging
- Traditional dairy consumption & processing and delivery of products
- Patterns of consumption
- Product development and technology/innovations to promote dairy
- Focus on dairy export innovation (shelf stability) that benefits the WI dairy industry
- Dairy product impacts, both scientific and social
- Barriers to dairy consumption

Community

- Interdisciplinary global health in all countries, both developed and developing
- Obesity epidemic
- Intolerance/resistance/perception of dairy and low-fat milk
- Extension/outreach education of dairy
 - Education of health benefits in schools and communities
 - Integrate outside already funded low-income programs
 - Leverage topics and healthcare collaborators
 - Research based on the study of consumer perceptions and consumer sciences

Ensuring Animal Health & Welfare

Animal

- Beef/dairy/cross nutrition management and specialization
- Profitable meat production for farmers
- Product innovation in dairy nutrition and waste streams

Environment

- Elevate public perception/knowledge about methane cattle emissions
- Public perception of dairy/animal agriculture on climate – *“Stop eating meat and drinking milk to combat climate change.”*
- Climate change and greenhouse gas emissions effects on animal health
- Economic impact of animal health and welfare changes/improvements
 - Production economics
 - Input/output choices
 - Economically sustainable

Community

- Communicate controversial issues in dairy to convey science to consumers
- Social license with neighbors and consumers

Research

- Transmission of pathogens from animal to humans in epidemiology and zoonotic diseases – “One Health”
- Transfer of microbial resistance
- Animal genetics connection to plant genetics

Growing Farm Businesses & Communities

Economics/markets

- Maintain social and economic sustainability through social license
- Preserve healthy regional economies and markets
- Develop diverse, new products and applications that are economically successful

Policy

- Expansion, program support, and engagement with communities surrounding labor policies
- Policy process for governance
- Labor policy, reliance, and careers surrounding immigration and migration integration within local communities
- Social level health and rural social capital to support business and community

Business

- Grow size of industry by keeping the business viable and productive in communities
- Create new business models and high value products
- Profitability of recreational agricultural businesses
- Leverage large dairy economics – *not just at the farmer level*
- Need for social support
- Business side of dairy that is not limited to food science and the products
- Innovation at the farm level: specialization, diversification, return on investments, environmental dairy interactions

Community

- Maintain smaller family farms and additional focus on succession planning
- Community accountability for social perceptions (positive/negative) outside of the farming community
- Developing a dairy innovation ecosystem that includes social license on welfare and environment
- Interface environment with dairy and community development

ALL PRIORITY AREAS (*commonalities across all groups*)

Communication

- Perceptions of socially acceptable practices – “*Social license*”
- Overall science communication
- Misinformed consumers

Research

- Input into the cow → microbiome/rumen
- Influencing the product
- Plant science that requires less nutrients for plants to thrive in order to reduce GHG and methane emissions

Climate

- Optimize manure practices
- Methane/climate change adaptation
- Remain a sustainable industry that is economically and environmentally sound

General position recommendations:

- Cross-university, interdisciplinary collaborations among engineers, physicists, material scientists, etc.
- Target hires at Assoc. level that fit many spaces with ties to Midwest and connections on UW-Madison campus
- Specialist in communications, specifically for media/message training