

UW-Madison Center for Integrated Agricultural Systems FY21 Annual Report (July 1, 2020 - June 30, 2021)

Unit mission/purpose

CIAS contributes to five of CALS' priority themes: changing climate, economic and community development, food systems, health and well-being, and healthy ecosystems. Although we are a small unit (currently 7.2 FTE, excluding director) we focus our efforts on leveraging resources to elevate innovation and create the conditions necessary for leaders to emerge. We align CIAS programs and priorities with the college's strengths and utilize the college's expertise for maximum synergy and interdisciplinarity. **Current CIAS mission**

statement: We facilitate the development of diverse and sustainable agricultural and food systems utilizing multidisciplinary, multi-professional research and education approaches. We seek creative production and marketing solutions to challenges facing people involved in small to medium agricultural and food enterprises.

Current CIAS vision: Our vision is of sustainable agricultural and food systems that contribute to the ecological, economic and social well-being of families, workers, consumers and their communities.

Notable educational, outreach and research achievements

Please see **Appendix 1** for additional details for each bullet.

Education

- **Student and Post-doc Training:** This effort is to strengthen CIAS's ties to CALS faculty and departments. The reporting period covers the first year of our three multidisciplinary "hatch-like" grants for graduate student training. Additionally, both intramural and extramural funding were used to support students in the Agroecology program and a post-doc working with the WICST.
- **Strengthening ties to Agroecology and other student programming:** With the growing support from the Single Step Foundation, we continued our mini-grant programming to support innovative student summer research.

Outreach

- **Creating financial tools for profitable farms:** CIAS partnered with Brad Barham (AAE) as part of the Grassland 2.0 project to produce the *Heifer Grazing Compass*; with Erin Silva (Plant Path) on the *OGRain Compass*; with Paul Mitchell (AAE); and with UW-River Falls faculty to create a *Hemp Compass*.
- **Grains to Trays:** Funded through a three-year, \$500,000 USDA Farmers Market Promotion Program Grant, CIAS and partners including the Artisan Grain Collaborative are working to increase the use of regional food-grade grains served in the institutional food service setting.
- **Responding to needs arising from the COVID-19 pandemic:** CIAS continues to convene the Wisconsin Local and Regional Food COVID-19 Response Group to discuss strategies to maintain or create supply chains and markets for small- and medium-sized farms and other food businesses. Partnership with Andrew Stevens (AAE) has resulted in funding for a research assistant.

Research

- **Building Grassland 2.0 partnerships:** Four CIAS staff are involved in this ambitious project with Randy Jackson, Adena Rissman, Michael Bell, and Brad Barham.
- **Food freight research:** CIAS has two on-going transportation-related projects. The first project is to assess the network structure for food flow in the United States. The second project focuses on transportation issues faced by rural grocery stores and their distribution partners.
- **Perennial food crops:** CIAS is working on two multi-state collaborations to support farmers in their efforts to grow high value perennials: craft cider apples and hazelnuts. The first project is in collaboration with Washington State, Michigan State and the University of Vermont. The second project involves CALS faculty partners Julie Dawson (Hort), Brent McCown (Hort-Emeritus), Dave Bohnhoff (Ag Eng-Emeritus), and staff Scott Sanford (Bio Sys Eng).
- **Understanding dairy supply management:** CIAS supported the continued work of Mark Stephenson at the Center for Dairy Profitability and Chuck Nicholson (AAE, joining the department in 2022) on continued model development. At the request of farmers, we coded the model into a computer

application that farmers can use to understand how policy will affect their farm. CIAS brought the beta version of the tool to World Dairy Expo 2021 for demonstration and public testing.

Outreach activity

- **Research and outreach publications** (See **Appendix 2**).
- **Beginning farmer schools:** The WI School for Beginning Dairy and Livestock Farmers (WSBDF) was all virtual, offering 100% online courses: the original *Pasture-based Dairy and Livestock (Business Start-up) Seminar* and a new course in *Pasture Management*. Total enrollment in WSBDF programs was 25. School Director, Nadia Alber, collaborated with organic livestock farmers and Organic Valley staff to create a new course in the Animal and Dairy Science Department called *Organic Livestock and Pasture Management*.
- **Other CIAS farmer programs** (covering vegetables, apples and flowers) were not held due to the COVID19 Pandemic. Work has begun to explore the transfer of these programs to Extension.
- **Conferences and other events:** CIAS staff presented or facilitated discussions at local, regional and national conferences, workshops, training events, and webinars (mostly virtual) reaching thousands of people. CIAS coordinated the seventh annual *Great Lakes Great Apple Crunch* with 807,796 participants in six states, and led the third annual *Wisconsin Chili Lunch* reaching 38,025 participants.
- **Communications:** A major website redesign project was initiated this past year. CIAS worked closely with the UW Center for User Experience and the new site is now live although portions of the site are still under construction (<https://cias.wisc.edu>).

Climate and diversity

CIAS actively links its work in agriculture and food systems to Diversity, Equity and Inclusion efforts, through our Citizen Advisory Council (CAC) work, projects and campus leadership. **See Appendix 3** for details.

- **Native Nations Workgroup.** Under direction from CALS Deans Bill Barker and Doug Reinemann, CIAS participated in the CALS Native Nations Workgroup. The Workgroup includes Richard Monette (Law School, Turtle Mountain Band of Chippewa), Dan Cornelius (CAC, Oneida Nation of Wisconsin), and Erin Silva (Plant Pathology).
- **Campus screening of “Gather”.** Working with CESoc graduate student Jaclyn Wypler, CIAS sponsored a showing of the film “Gather” about Tribal food sovereignty. Movie respondents were graduate students Marie Richards, Christian Keeve and Becca Dower, and CAC member Dan Cornelius.
- **Panel on “Coming into the Foodshed”.** Celebrating this seminal work that won CIAS fame, we marked the 25 year anniversary with a panel at the Agriculture, Food and Human Values annual meeting, featuring Dr. Annie Jones, UW Organizational Development and Tribal Nations Specialist, Jennifer Gauthier, Menominee County/Nation Extension, Christian Keeve, University of Kentucky PhD student (and mini-grant recipient), and Jack Kloppenberg (now emeritus CESoc) and John Hendrickson.

Appendix 1: Notable educational, outreach and research achievements

Education

- **Training students in interdisciplinary research:** This is the second year of our multidisciplinary grant program for graduate student training, to strengthen CIAS’s ties to CALS faculty and departments. Each item below includes the PI, position title, project title and funding source, and co-PIs of the grants supporting graduate students.
 - Akins/RA Wells: Evaluation of stockpiling pastures to extend the fall grazing season (CALs 2-yr RA) Also Wattiaux, Silva, Picasso, Kriegl, Cavadini.
 - Picasso/RA Sandro: Developing high-quality cereals for organic and perennial systems in the Upper Midwest (CALs 2-yr RA) Also Gutierrez, Dawson, Kucek, S.Smith, N.Smith.
 - Ruark/RA Augarten: Soil health and managed grazing (CALs 2-yr RA) Also Jackson, Wattiaux.

- Jackson/postdoc Ofarnu: CCROP - LandLab Ecological Modeling Also Gratton.
 - Stevens/RA Teal, SH Hughes: Lessons from COVID-19: Positioning Regional Food Supply Chains for Future Pandemics, Natural Disasters and Human-made Crises (Federal grant)
 - Wattiaux/Agroecology PA Gobster: Assist with Food systems related courses (DySCI, Agronomy 471 and Dy Sci. An. Sci. Food Sci. 472 (Spring 2021) (CIAS funds)
 - Wattiaux/Animal & Dairy Science RA Pizzaro: Kernza straw as an alternative forage for dairy heifers with Picasso (CIAS funds)
- **Strengthening ties to Agroecology and other student programming:** In 2021, nine students working with faculty Bell, Dawson, Gaddis, Gratton, Morales, Naughton, and Rissman were awarded research grants (\$1850 - 2500). Working with the Agroecology program and CALS faculty Michael Bell, Annie Jones, and Bill Tracy, and incoming faculty Chuck Nicholson, CIAS staff scientist Sarah Lloyd taught Agroecology 702 (methods) in the spring semester 2021, and led the introduction week Agroecology 720. Building undergraduate capacity is also important to CIAS. We participated in meetings convened by the Organic Collaborative, and are in touch with Katie Peterman on undergraduate involvement. We are the academic home for F. H. King Students for Sustainable Agriculture and employed nine CALS undergraduates and graduate students.

Outreach

- **Creating financial tools for profitable farms:** CIAS staff **John Hendrickson** has developed the *Heifer Grazing Compass*, which will allow service providers to help dairy farmers understand financial, labor, and other benefits of grazing heifers on pasture. Workshops are now being planned with Extension and National Resource Conservation Service staff to train them to use this tool with producers across that state. In partnership with Erin Silva (Plant Path) and the OGRAIN project, CIAS is updating the *OGRAIN Compass* spreadsheet to afford more nuanced financial projections of making the transition to organic production practices. CIAS is also a partner in a collaborative project with Paul Mitchell (AAE) and UW-River Falls faculty to create a *Hemp Compass* spreadsheet to help interested producers understand the opportunities, costs and risks of this emerging crop.
- **Grains to Trays:** Year One of the project includes research to assess farm-level barriers to accessing the institutional market and institutional interest and challenges to purchase and use regional grains. The remaining project years will focus on tool development and training to develop regional grain supply chains.
- **Responding to needs arising from the COVID-19 pandemic:** Additionally, CIAS moved online for all of its meetings and classes. We were able to link our work on food freight to a USDA-COVID-19 Rapid Response proposal (awarded July 2020) that funds an RA for Andrew Stevens and a graduate student hourly worker. The first journal articles are in preparation from this project.

Research

- **Building Grassland 2.0 partnerships:** Four CIAS staff played a central role in raising awareness of structural market and supply chain policy issues this spring. **Michelle Miller** is part of a team that developed the dairy farmer census, linked the project with the Center for Dairy Profitability and Wisconsin's farm organizations, and conducted structured interviews with Wisconsin milk haulers. We also linked this project with our work on cover crops (CCROP) by crafting a scope of work for FY21 that builds on strategic alliances between the two projects. CIAS staff participate regularly in Grassland 2.0 Policy Objective team meetings. As a link to broader policy initiatives that influence the shift to Grazing in the state, CIAS staff **Regina Hirsch** is a member of the Natural Resources Conservation Service (NRCS) State Technical Advisory Committee, which plays a key role in helping farmers transition to grazing. **Jacob Grace** has remained involved in communication efforts within Grassland 2.0 and GrassWorks, Inc., a statewide grazing organization, and works to connect university researchers with grazing

practitioners throughout the state. In a fortuitous move, staff scientist **Sarah Lloyd** secured a steady 75% time position with Grassland 2.0, funded through a subcontract with University of Minnesota (Nick Jordan), increasing and stabilizing CIAS capacity to work on this project.

- **Food freight research:** At the invitation of USDA-Agricultural Marketing Service - Transportation Division, CIAS is leading two projects on supply chain challenges. The first is an assessment of the network structure for food flow in the United States. Network statistics are now calculated for cold chain meat and dairy movements at the county level and we are analyzing results for publication. This project informed comments to USDA on food supply chains, signed on by Randy Jackson, Nan Enstad, Adena Rissman, and Michel Wattiaux. **Michelle Miller** is publishing *Big data, information asymmetry and food supply chain management*, in the Journal of Agriculture, Food Systems and Community Development. Campus partners include CALS faculty Andrew Stevens and Steve Deller (AAE), Ernest Perry (Eng), and Lindsey Day Farnsworth (Division of Extension). The working group includes faculty from Universities in five states and food system professionals.
In the second project, USDA-ARS-TSD invited CIAS to lead a new project to ascertain transportation issues faced by rural grocery stores and their distribution partners. CIAS is working with Judi Bartfeld (SOHE Extension), Dave Long at the CESoc Applied Population Lab (Randy Stoeker director, CESoc), supply chain researchers at the New Jersey Institute of Technology, the Wisconsin Department of Transportation, and Feeding America on this project. CIAS staff continue to work with the Wisconsin Food Hub Cooperative and supply chain partners to research and guide transportation efficiencies in local and regional fresh produce movement as part of a USDA LFPP subaward “Filling the Truck”. This included partnering with many community groups to offer a Tribal Elder Food Box to Red Cliff Band of Lake Superior Chippewa, Oneida Nation of Wisconsin and Menominee Nation in 2021, and evaluate the costs associated with the program.
- **Perennial food crops:** CIAS is working on two multi-state collaborations to support farmers in their efforts to grow high value perennials: craft cider apples and hazelnuts. The craft cider research collaboration with Washington State, Michigan State and the University of Vermont is exploring the full craft cider supply chain with surveys, interviews and focus groups. One journal article is in press, with two to three following. CIAS work on hazelnuts is to create and maintain a network of Central Wisconsin growers to conduct on-farm trials of new cultivars.
- **Understanding dairy supply management:** This project includes an analysis of growth management dairy pricing policies, with input from Wisconsin dairy farmers and farm organization staff (Wisconsin Farm Bureau Federation, Wisconsin Farmers Union, with some involvement from Professional Dairy Producers of Wisconsin (PDPW) farmer board members. CIAS convened regular meetings with farmers and farm organization staff to methodically address key issues with the Stephenson and Nicholson dairy price policy model, documented the discussions, and provided key research and analysis to address knowledge gaps. In addition, CIAS worked with Grassland 2.0 to support work to add grazing farm systems components to the model, to improve the analysis and make the model more relevant to a wider set of farmers and farm systems.

Appendix 2: Research and outreach publications

- Outreach
 - [Website \(https://cias.wisc.edu\)](https://cias.wisc.edu) architecture major renovation
 - Organic Agriculture in Wisconsin 2021 Status Report ([2021 Organic Report](#)).
 - Wattiaux, M., Miller, M., Lloyd, S., Lukszys, P., Rissman, A., Enstad, N., Jackson, R. 2021. [Comments regarding the Executive Order 140147 on “America’s Supply Chains” specifically for the Production of Agricultural Commodities and Food Products](#). Docket Number AMS-TM-21-034. June 20, 2021.
 - [Labor Cost Estimator Tool instructional video \(on Labor Management Dashboard website\)](#)

- Wattiaux, M.A. Sustainability of the Dairy Sector: Challenges and Opportunities. Invited presentation. First International Virtual Scientific Symposium of the Sherbrooke Research and Development Center, Sherbrooke, Québec, Canada.
- Research
 - Miller, M. (2021). [Identifying critical thresholds for resilient regional food flows: a case study from the U.S. Upper Midwest](#). *Frontiers*.
 - [Miller, Michelle \(2020\) "Innovations in Logistics" pp.37-41 in National Academies of Sciences, Engineering, and Medicine 2020. Innovations in the Food System: Exploring the Future of Food: Proceedings of a Workshop. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25523>.](#)
 - Miller, M. (In Press). Big data, Information asymmetry and food supply chain management. *Journal of Agriculture, Food Systems and Community Development*.
 - Conner, David S., Tambet, Heleen, Selting Smith, Katherine, Ostrom, Marcia, Serrine, J. Robert, Howard, Philip H., Miller, Michelle (In Press) Research and Extension Needs for Craft Cider Apple Growers. *HortTechnology*

Appendix 3: Climate and diversity

CIAS staff participated in a WISELI Bias Training, December 2020. Staff also continued to explore racial equity issues in a variety of projects. For instance, CIAS worked with Grassland 2.0 students to connect them with Native people interested in food systems, and brought DEI issues to the CCROP project. Much of our current diversity work is focused on Native Nations. In consultation with the CIAS Citizens Advisory Council (CAC), Dan Cornelius and the Oneida Nation of Wisconsin hosted the 2020 summer meeting. However, the meeting was moved to an online presentation about Tribal food sovereignty. In 2021, we opted to physically tour the Oneida Nation, and they were willing to host.

Native Nations Workgroup. Under direction from CALS Deans Bill Barker and Doug Reinemann, CIAS participated in the CALS Native Nations Workgroup. The Workgroup includes Richard Monette (Law School, Turtle Mountain Band of Chippewa), Dan Cornelius (Oneida Nation of Wisconsin), and Erin Silva (Plant Pathology). We met six times. Our first project was to develop a list of CALS faculty, students and staff who are working or interested in working with Native Nations. We determined that it would speed partnership building to bring people up to speed on issues of concern to Native Nations through a professional development workshop. We planned and implemented a workshop on August 23, 2021.

Campus screening of "Gather". Working with CESoc graduate student Jaclyn Wypler, CIAS sponsored a showing of the film "Gather" about Tribal food sovereignty. Together we organized a panel of respondents, each of whom has a strong connection to CIAS, through our minigrant program, other mentoring programs in which we participate, and our CAC. The panelists were graduate students Marie Richards, Christian Keeve and Becca Dower, and CAC advisor Dan Cornelius. More than two hundred people registered for the event. Subsequently, the UW Library obtained [Gather](#).

Panel on "Coming into the Foodshed". In 1996, the journal *Agricultural and Human Values (AHV)* published "[Coming into the Foodshed](#)," by CIAS scholars Jack Kloppenburg (CESoc), John Hendrickson, and G. W. "Steve" Stevenson. The article, with over 400 citations, provides an invitation and foundation for robust discussion about building resilient and sustainable local and regional agriculture and food systems. We marked the 25 year anniversary with a panel at the Agriculture, Food and Human Values annual meeting in June 2021, featuring Dr. Annie Jones, UW Organizational Development and Tribal Nations Specialist, Jennifer Gauthier, Senior Outreach Specialist, Menominee County/Nation Extension and Christian Keeve, University of Kentucky PhD student (and former minigrant recipient), in conversation with Kloppenburg and Hendrickson, expanding the discussion and dialogue around this influential work.