Annual Report

January 1, 2016 to December 31, 2016

College of Agriculture, Food Systems, and Natural Resources
(CAFSNR)

with contributions from

North Dakota Agricultural Experiment Station
NDSU Extension Service

Kenneth F. Grafton – Vice-President for Agricultural Affairs, Dean and Director, North Dakota Agricultural Experiment Station
Gregory P. Lardy – Associate Vice-President for Agricultural Affairs, Dean and Director
Chris M. Boerboom – Director, NDSU Extension Service
David S. Buchanan – Associate Dean for Academic Programs
Jane M. Schuh – Associate Director, North Dakota Agricultural Experiment Station
A. Goals and Priorities: 2016

- Increase reputation and visibility of the department.
- Increase stability/excellence by continuing fund raising for centers, Burdick Center for Cooperatives and Center for Public Choice and Private Enterprises.
- Complete department’s annual assessment report.
- Implement our Strategic Plan document (e.g., initiate a joint MS/MBA with College of Business Administration and joint PhD programs with Math and Transportation Logistics)
- Hire new faculty/staff to replace retirements/resignations.
- Enhance student learning in both undergraduate and graduate programs.
- Organize a retreat to evaluate Program Review Report for 2015.
- Continue to increase/maximize use of the CTR with other programs.

B. Executive Summary of Accomplishments in Achieving Goals and Priorities

The year 2016 was another challenging but very successful year, as we accomplished most of our goals and priorities. The department organized several extension/outreach conferences (in Agricultural Lending, Crop Insurance, Renewable Energy and Crop Production Outlook) and continued a regular news column on “Spotlight on Economics” and “It’s Happening at State.” Faculty, support staff, and students won eleven awards for excellence within the university and nationally (six awards for faculty, three awards for staff, and two awards for our students). Fund raising for the Center for Public Choice and Private Enterprises is ongoing; it is at approximately $2.5 million. The assessment review to develop programmatic learning outcomes for our three undergraduate programs and two graduate programs are ongoing. The MS/MBA with the College of Business Administration is in stage II approval. The joint PhD program was put on hold for budget reasons. Our Program Review report was received positively by the university. The department filled two faculty positions in Farm Management and International Trade and a Lecturer to teach DCE courses. Two faculty got promoted to Associate Professor with Tenure. Our students received top national awards. Our Bison Fund competitors are competing in the national competition, after taking first place at the regionals (managing more than $5 million).

a. Teaching

- Our department continues to service all introductory economic courses for the university and the number of students in these courses are increasing.
- Student accomplishment in national competitions continues to improve significantly with knowledge gained from the CTR. The CTR has also helped increase collaboration with the CBA (e.g., a Portfolio class and Bison Fund).
- We place almost all our students, with a significant number working in the state.
- Faculty are working to incorporate programmatic learning outcomes into their courses.
- The department continues to have a ratio of produced FTE higher than budgeted FTE.
- Most MS theses result in peer reviewed journal articles and professional presentations.
- Dr. Wachenheim received two awards for excellence in teaching (Peltier and WAEA).
- Dr. Wilson received a national award for excellence for his innovation with the CTR.
- Students received regional and national awards.

b. Research, Scholarship, and Creative Activities
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*Does not include double counting

c. **Service/Outreach/Extension**
   - Completed a bioenergy conference, David Ripplinger and the Bio Epic Center.
   - Extension: Completed Agricultural Lenders Conference.
   - Extension: Completed Crop Insurance Conference.
   - Completed work on ND Tax Department and ND Agricultural Land Valuation Model.
   - We had more than 248 extension and outreach presentations around the state, region, etc.
   - Dr. Miljkovic: Editor of *Journal of International Agricultural Trade and Development.*
   - Drs. Wachenheim and Nganje served as Managing Editors for the IFAMR journal.
   - Mr. Petry and Dr. Ripplinger received Extension Awards for excellence.

d. **Goals and Priorities for 2017**
   - Increase reputation and visibility with regional conferences (e.g., Farm Bill, Lenders, Crop Insurance, and Crop Outlook conferences).
   - Create a departmental Advisory Board.
   - Increase stability/excellence by continuing fund raising for centers (e.g., Center for Public Choice and Private Enterprises), endowments (e.g., Ag. Finance) and other initiatives.
   - Complete department’s annual assessment report.
   - Implement joint MS/MBA with College of Business Administration and joint MS in Applied Economics with MSUM.
   - Hire new faculty/staff for new initiatives and critical positions.
   - Enhance student learning in both undergraduate and graduate programs.
   - Continue to increase/maximize use of the CTR with other programs.
## Scheduled Teaching Agribusiness and Applied Economics

North Dakota State University

January 1, 2016 - December 31, 2016

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Awards and Honors Department of Agribusiness and Applied Economics

North Dakota State University

January 1, 2016 - December 31, 2016

Agribusiness and Applied Econ

Jackson, Jeremy (Associate Professor)

2016 NDSU College of Agriculture, Food Systems, and Natural Resources Larson/Yaggie Excellence in Research Award (2016)

2016 Peltier Innovation in Teaching Award (2016)

Miljkovic, Dragan (Professor)

U.S. Universities Representative, Executive Committee of the International Agricultural Trade Research Consortium (IATRC) (2016)

Wachenheim, Cheryl J. (Professor)

Undergraduate Teaching Award, 10 Years Experience, Western Agricultural Economics Association (2016)

Zhang, Lei (Assistant Professor)

Earl and Dorothy Foster Excellence in Teaching Award, College of Agriculture, Food Systems, and Natural Resources (2016)
Contracts, Grants and Sponsored Research – Department of Agribusiness and Applied Economics

North Dakota State University

January 1, 2016 - December 31, 2016

AES Agribusiness and Applied Econ

Hodur, Nancy M. (Research Assistant Professor)

Funded

Huseth-Zosel, Andrea (Co-Principal:), Hodur, Nancy (Co-Principal:), Gold, Abby (Co-Principal:), Jansen, Rick (Co-Principal:), Kendra Erickson-Dockter (Co-Principal:), Cernusca, Mihaela (Co-Principal:), "ND Compass and NDSU Department of Public Health Workshop for Public Health Professionals: Local Data for a Healthy Community," Sponsored by North Dakota Department of Health, North Dakota State University, $10,000.00. (2016 - 2017).

Funded


Not Awarded


Not Awarded

"Contribution of Pulse Crop Industry to the Economies of Western North Dakota and Eastern Montana," Sponsored by Northern Pulse Growers Association, Federal, $12,862.00.

Not Awarded

"Developing a Biomaterial Industry in North Dakota," Sponsored by ND Department of Commerce, State, $364,158.00.

Not Awarded

"Housing Demand Analysis for the Cities of Bismarck and Mandan," Sponsored by City of Bismarck, Local, $137,216.00.

Not Awarded

Lakkakula, Prithviraj (Research Assistant Professor)

*Funded*


Ripplinger Ph.D., David G. (Assistant Professor)

*Funded*


*Funded*

Wick, Abbey (Principal:), Casey, Francis (Co-Principal:), Ripplinger, David (Co-Principal:), "Research and Extension Efforts at the Soil Health and Agriculture Research Extension (SHARE) Farm (year 4)," Sponsored by ND Soybean Council, State, $82,513.00. (July 1, 2016 - June 30, 2017).

*Funded*


*Funded*

Cannayen, Igathinathane (Co-Principal:), Wiesenborn, Dennis (Principal:), Pryor, Scott (Co-Principal:), Ripplinger, David (Co-Principal:), "Energy beets: a new industrial sugar source for the production of advanced biofuels," Sponsored by North Central Sun Grant Center, $241,949.00. (September 3, 2014 - August 2016).

*Not Awarded*


*Not Awarded*

Cannayen, Igathinathane (Co-Principal:), Bajwa, Dilpreet (Other: Project Director), Ripplinger, David (Co-Principal:), "Technology Driven Biomass Economic Development in Upper Midwest United States," Sponsored by AFRI Foundational, NIFA 2015, $487,755.00. (September 2015 - December 2019).

*Not Awarded*

Not Awarded


Not Awarded


Not Awarded

Cannayen, Igathinathane (Co-Principal:), Pryor, Scott (Other: Project Director), Ripplinger, David (Co-Principal:), "Processing Pelleted Biomass in Conventional Corn Ethanol Facilities," Sponsored by USDA AFRI, $499,284.00. (September 1, 2013 - August 31, 2017).

Agribusiness and Applied Econ

Hearne, Robert (Associate Professor)

Not Awarded

Hearne, Robert (Principal:), Shaik, Saleem (Co-Principal:), Ryberg, Karen (Co-Principal:), Macek-Rowland, Kathleen (Co-Principal:), "Assessing Irrigation Efficiency in the Missouri River Basin," Sponsored by USGS NIWR(g), Federal, $149,936.00. (2016 - 2019).

Jackson, Jeremy (Associate Professor)

Funded


Funded


Funded

Jackson, Jeremy (Co-Principal:), Saxowsky, David (Principal:), "Updating and Migration of the Agricultural Land Valuation Model," Sponsored by North Dakota Oce of State Tax Commissioner, State, $49,979.00. (2016).

Funded

Lim, Siew H. (Associate Professor)

*Funded*

Wachenheim, Cheryl, Roberts, David, Lim, Siew, "Human dimensions affecting Prairie Pothole Region producer participation in the Conservation Reserve Program," Sponsored by Delta Waterfowl, Inc, $10,000.00. (January 1, 2012 - December 31, 2016).

*Funded*

Lin, Zhulu (Principal:), Lim, Siew (Co-Principal:), "A Model for Groundwater Allocation and Management at the Bakken Shale in Western North Dakota," Sponsored by National Science Foundation (Proposal No. 1413954), $249,423.00. (August 1, 2014 - July 31, 2016).

*Not Awarded*

"Rural Community Resilience to Shale Oil Development: the Case of North Dakota," Sponsored by NIFA, Federal, $497,376.00.

Miljkovic, Dragan (Professor)

*Funded*

Ripplinger, David (Principal:), Miljkovic, Dragan (Co-Principal:), Shaik, Saleem (Co-Principal:), "Impact of Tight Oil Production on Labor Market in North Dakota and Montana," Sponsored by North Central Regional Center for Rural Development, $15,000.00. (September 9, 2015 - July 2016).

Nganje PhD, William (Professor)

*Funded*

Bakare, Bukola (Co-Principal: Student RA), "Innovation in Health Transportation Economics," Sponsored by RWJF, Federal, $120,000.00. (August 15, 2016 - August 15, 2020).

*Funded*


Roberts, David (Associate Professor)

*Funded*


*Funded*

Funded

Wachenheim, Cheryl, Roberts, David, Lim, Siew, "Human dimensions affecting Prairie Pothole Region producer participation in the Conservation Reserve Program," Sponsored by Delta Waterfowl, Inc, $10,000.00. (January 1, 2012 - December 31, 2016).

Funded


Not Awarded

DeSutter, Thomas, Clay, Daigh, Aaron, Steele, Dean, Casey, Francis, Chatterjee, Wick, Abbey, Hopkins, Roberts, David, Malo, Reese, Carlson, Xu, Yiwen, Chang, Schumacher, Reiks, "Cover Cropping Techniques for Improving Soil Health and the Managing of Saline and Sodic Soils within the Northern Great Plains," Sponsored by NRCS CIG, $988,279.00. (September 2016 - September 2019).

Not Awarded

Limb, Ryan (Principal:), DeSutter, Thomas (Co-Principal:), Daigh, Aaron (Co-Principal:), Chatterjee, Amitava (Co-Principal:), Wick, Abbey (Co-Principal:), Roberts, David (Co-Principal:), Sedivec, Kevin (Co-Principal:), "Demonstrating the impacts of grassland to row crops on soil health in the northern Great Plains," Sponsored by USDA NRCS, Federal, $499,404.00. (January 2015 - December 2018).

Not Awarded


Shaik, Saleem (Associate Professor)

Not Awarded

Hearne, Robert (Principal:), Shaik, Saleem (Co-Principal:), Ryberg, Karen (Co-Principal:), Macek-Rowland, Kathleen (Co-Principal:), "Assessing Irrigation Efficiency in the Missouri River Basin," Sponsored by USGS NIWR(g), Federal, $149,936.00. (2016 - 2019).

Wachenheim, Cheryl J. (Professor)

Funded


Funded
Wachenheim, Cheryl, Roberts, David, Lim, Siew, "Human dimensions affecting Prairie Pothole Region producer participation in the Conservation Reserve Program," Sponsored by Delta Waterfowl, Inc, $10,000.00. (January 1, 2012 - December 31, 2016).

Wilson, William W. (Professor)

Funded


Zhang, Lei (Assistant Professor)

Funded

Zhang, Lei, Yang, Mijia, "1.Full-Spectrum Dust Control Techniques and Economy-Based Criteria," Sponsored by North Dakota State University, North Dakota State University, $30,000.00. (September 2014 - June 2016).

Not Awarded

Mahalingam, Ganapathy, Srivastava, Malini (Principal:), Reed, Wendy (Principal:), Aly Ahmed, Bakr, Christenson, Michael, Cwiak, Carol, Fischer, Dominic, Ge, Yue, Kim, Young, Kirkwood, Matthew, Kirkwood, Meghan, Strand, Michael, Urness, Cindy, Norland, Jack (Principal:), Zhang, Lei, Day, Stephanie, Gong, Na, Yang, Huojun, Hong, Miyoung, "NexCS: Next Generation Community Systems," Sponsored by North Dakota State University, North Dakota State University, $999,827.00. (August 16, 2016 - August 15, 2017).

Ext Agribusiness and Applied Econ

Olson, Frayne E. (Associate Professor)

Funded

Presentations – Department of Agribusiness and Applied Economics

North Dakota State University

January 1, 2016 - December 31, 2016

AES Agribusiness and Applied Econ

Lakkakula, Prithviraj (Research Assistant Professor)

Lakkakula, Prithviraj, Hall, Clifford, Institute of Food Technologists, "Forecasting Market Volumes of Top Categories of Peas and Lentils,” NDSU, CHICAGO, USA. (July 16, 2016 - July 18, 2016).


Ripplinger Ph.D., David G. (Assistant Professor)

Lin, Zhulu (Presenter), Schatz, Blaine, Ripplinger, David, Teboh, Jasper, Ostlie, Michael, USDA-NIFA 2016 Project Director Annual Meeting, "Soil health and water quality impacts of growing energy beets for advanced biofuel production in North-Central United States,” Washington, DC. (October 12, 2016 - October 13, 2016).


Agribusiness and Applied Econ

Hanson, Erik (Assistant Professor)


Hearne, Robert (Associate Professor)


Jackson, Jeremy (Associate Professor)

Jackson, Jeremy (Author & Presenter), Pritchard, Ian (Author), "Freedom and Philanthropy," Baylor University, Waco, TX. (December 2, 2016).

Jackson, Jeremy (Author & Presenter), Pritchard, Ian (Author), "Freedom and Philanthropy," Southern Methodist University, Dallas, TX. (December 1, 2016).


Lim, Siew H. (Associate Professor)


Lin, Tong (Presenter), Borders, Michael, Lin, Zhulu, Lim, Siew, North Dakota EPSCoR 2016 State Conference, "Impacts of hydraulic fracturing at Bakken on regional water resources," Grand Forks, ND. (April 19, 2016).


Miljkovic, Dragan (Professor)


Miljkovic, Tatjana (Presenter), Miljkovic, Dragan (Other), Maurer, Karsten, 51st Actuarial Research Conference (ARC) organized by the Society of Actuaries (SOA), "Impact on Mortality and Economic Loss Experience Arising from Climate Change," Minneapolis, MN. (July 27, 2016 - July 30, 2016).


Nganje PhD, William (Professor)


Sharma, Anupa (Assistant Professor)

Sharma, Anupa (Author & Presenter), International Agricultural Trade Research Consortium, "Non-reciprocal Trade Agreements and their Impacts on Value Added Exports," IATRC, Arizona. (December 13, 2016).


Wachenheim, Cheryl J. (Professor)


Wachenheim, Cheryl, "Understanding why consumers choose with behavioral economics," Guangdong University of Foreign Studies, Guangdong, China. (June 20, 2016).

Wachenheim, Cheryl, "Getting shoppers and consumers to make the right choice using behavioral economics," Southwest University Management Institute, Chongquin, China. (June 15, 2016).

Wachenheim, Cheryl, "Land conservation programs in the United States: A choice by independent farmers," Southwest University Management Institute, Chongquin, China. (June 15, 2016).

Wachenheim, Cheryl, "The debate over biotechnology," Southwest University Management Institute, Chongquin, China. (June 15, 2016).


Wachenheim, Cheryl, "Advances in experiential learning in the United States," Beijing Institute of Technology, Beijing, China. (May 12, 2016).

Wachenheim, Cheryl, "Urban governance in the United States," Asia Media Research Center, China Communications University, Beijing, China. (April 28, 2016).

Wachenheim, Cheryl, "The debate over biotechnology," The Center for Agriculture and Rural Development, Zhejiang University, Hangzhou, China. (April 22, 2016).

Wachenheim, Cheryl, "Environmental and conservation programs in the United States," The Center for Agriculture and Rural Development, Zhejiang University, Hangzhou, China. (April 21, 2016).


Wachenheim, Cheryl, "Behavioral economics and the business of food," School of Business Administration, Southwestern University of Finance and Economics, Chengdu, China. (March 23, 2016).

Wachenheim, Cheryl, "Teaching methods used in American Universities," School of Foreign Languages for Business, Southwestern University of Finance and Economics, Chengdu, China. (March 23, 2016).


Wachenheim, Cheryl, "Assessment of student learning," Nanjing Normal University, Nanjing, China. (March 2, 2016).


Wilson, William W. (Professor)

Wilson, William, FM Retired Medical Professionals. (October 12, 2016 - Present).


Wilson, William, Grain Procurement Seminar, "USW will conduct wheat procurement workshops in Trinidad to educate flour mills on the mechanics of the US wheat marketing system," Trinidad. (July 11, 2016 - July 15, 2016).


Zhang, Lei (Assistant Professor)

Zhang, Lei, North Dakota State University, "Flood Hazards Impact on Neighborhood House Prices," North Dakota State University, Fargo, ND. (November 2016).


Ext Agribusiness and Applied Econ

Olson, Frayne E. (Associate Professor)


Intellectual Contributions – Department of Agribusiness and Applied Economics

North Dakota State University

January 1, 2016 - December 31, 2016

AES Agribusiness and Applied Econ

Dahl, Bruce

Refereed Journal Articles

Journal Article (Published)


Journal Article (Submitted)


Journal Article (Submitted)


Other Intellectual Contributions

Book Chapter (Published)


Research Report (Published)


Hodur, Nancy M. (Research Assistant Professor)

Other Intellectual Contributions

Abstract (Published)


20
Lakkakula, Prithviraj (Research Assistant Professor)

Non-Refeereed Journal Articles

*Journal Article (Published)*


*Journal Article (Revising to Resubmit)*


Other Intellectual Contributions

*Manuscript (Submitted)*


Ripplinger Ph.D., David G. (Assistant Professor)

Refereed Journal Articles

*Journal Article (Published)*


*Journal Article (Submitted)*


Non-Refeereed Journal Articles

*Journal Article (Published)*


Other Intellectual Contributions

*Extension Publication (Published)*


*Research Report (Published)*


*Research Report (Published)*


*Research Report (Published)*


*Extension Publication*


*Extension Publication*


**Agribusiness and Applied Econ**

**Hanson, Erik (Assistant Professor)**

**Refereed Journal Articles**

*Journal Article (Accepted)*


**Other Intellectual Contributions**

*Magazine/Trade Publication (Published)*


**Hearne, Robert (Associate Professor)**

**Refereed Journal Articles**

*Journal Article (Published)*

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Accepted)*


**Other Intellectual Contributions**

*Book Chapter (Accepted)*


*Book Chapter (Accepted)*


**Jackson, Jeremy (Associate Professor)**

**Refereed Journal Articles**

*Journal Article (Accepted)*


*Journal Article (Accepted)*


*Journal Article (Submitted)*

Lim, Siew H. (Associate Professor)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Accepted)


Journal Article (Accepted)


Conference Proceedings

Conference Proceeding (Published)


Miljkovic, Dragan (Professor)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)

Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Accepted)


Journal Article (Accepted)


http://www.tandfonline.com/doi/full/10.1080/02664763.2016.1168366

Other Intellectual Contributions

Book (Published)


Book Chapter (Published)


Manuscript (Submitted)


Manuscript (Submitted)


Manuscript (Submitted)

*Manuscript (Submitted)*


*Manuscript (Working Paper)*


**Nganje PhD, William (Professor)**

**Referred Journal Articles**

*Journal Article (Published)*


**Other Intellectual Contributions**

*Book (Published)*


**Roberts, David (Associate Professor)**

**Non-Referred Journal Articles**

*Journal Article (Working Paper)*


*Journal Article (Working Paper)*


*Journal Article (Working Paper)*

Journal Article (Working Paper)


Journal Article (Working Paper)


Journal Article (Working Paper)


Other Intellectual Contributions

Manuscript (Submitted)


Shaik, Saleem (Associate Professor)

Refereed Journal Articles

Journal Article (Published)


Wachenheim, Cheryl J. (Professor)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Submitted)


Other Intellectual Contributions

Popular Press Publication (Published)
Wilson, William W. (Professor)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Submitted)


Journal Article (Submitted)


Journal Article (Submitted)


Journal Article (Submitted)


Journal Article (Submitted)


*Journal Article (Submitted)*


*Journal Article (Submitted)*


**Non-Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


**Other Intellectual Contributions**

*Book Chapter (Published)*


*Newsletter (Published)*


*Special Reports/Publications (Published)*


*Book Chapter (Published)*


*Research Report (Published)*


Zhang, Lei (Assistant Professor)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Accepted)


Graduate School

Wahl, Tom I. (Professor)

Refereed Journal Articles

Journal Article (Published)


Other Intellectual Contributions

Book Chapter (Published)

A. Significant Departmental achievements

a) Teaching

- ABEN generated 1949 student credit hours with 3.6 teaching faculty FTE.
- ABEN graduated 38 undergraduate students and 2 graduate students.
- ABEN had 147 undergraduate students, and ABEN faculty supervised 27 graduate students.
- ABEN faculty and students received several prestigious awards: see more details at the end

List new initiatives, innovative teaching approaches

- ABEN 255-1, ASM 225: New capabilities were made for the document camera activities (hand-written derivations, printed handouts with discussion) in an instrumented classroom captured by Tegrity in Blackboard (possibly 1st time at NDSU).
- A one credit lab was added to ABEN 110 introducing first-year students to engineering design through hands-on, open-ended projects.
- Developed a Writing Style Guide/Template for use with ABEN and ASM capstone courses.
- One ANSYS computer lab was added to ABEN 377. Mr. Collin Miller and his Amity associates worked with ABEN faculty to add a real-world problem for the course design project.
- New lab notes were developed for ASM 264L (Spring 2016).
- Established a new hydraulics lab, and added 4 hydraulic test benches to the lab. Hands on exercises were incorporated into ABEN479/679 course, including using Automation Studio software.
- The fabrication and machinery system lab was expanded with new equipment & welding stations
- New student scholarships were established

b) Research/Scholarly/Creative Activities

Major research accomplishments

- ABEN faculty successfully received or participated in 66 grant projects for a cumulative $10.4 M, of which $2.98 M was administered through the department.
- Faculty generated 31 refereed articles, 27 abstracts, 2 proceedings, 14 invited talks and 7 reports.
- Several million acres of saline/sodic soils in ND and SD may be at risk of conversion to sodic soils due to resumption/initiation of tillage and installation of subsurface drainage. Drawbar power requirements for chisel plow tillage under different calcium-based surface amendments and subsurface drainage practices on a sodium-affected soil
- Demonstrated very good singulation and germination rate of coated XL confection kernel
- Identified conditions for raw beet juice preservation using organic acids; characterized effect of crambe seed storage conditions on biodiesel from the seed oil.
- Completed an LCA research project while on Fulbright Scholar developmental leave in South Africa.
- Established drainage water management program in the Red River Basin.
- Developed a method to map weed species and herbicide resistance with Unmanned Aerial Systems (UAS), filed a provisional patent. We have research projects at NDSU with three UAS companies

C) Extension/Outreach

List new initiatives, innovative extension approaches

- The grain drying and storage educational program focused on alternative grain storage options and long-term grain storage that impacted grain worth billions of dollars across the United States and internationally.
- A series of news releases were developed on energy efficiency in businesses and homes that were disseminated to media across the state and regionally.
- Contributed to two listening sessions organized and attended by Representatives Colin Peterson (MN) and Kevin Cramer (ND) to examine drainage issues in the Red River Valley. South Dakota Representative, Kristi Noem, and Glenn Thompson (PA), chair of the house Conservation and Forestry subcommittee also attended the first listening session.
• Subsurface Drainage Water Quality. Many farmers, organizations and government agencies are curious about the water quality of tile flows. Questions about tile water quality prompted the ND Soybean Council to fund both proposals presented to them.
• Faculty provided an extension Precision Agriculture seminar series for NDSU Extension agents.
• Extension faculty provided in-service training for county agents on Extension agricultural engineering topics. Two daylong training sessions were conducted for a total of 32 new county agents in Washburn and Carrington. The training was meant to familiarize the new agents with resources and program available to them through our department.

d. Service
• Faculty actively engaged in various professional societies, editorial services, proposal review, conference organization, etc.
• The teaching faculty participated in curriculum development, student advising, professional development, course/program assessment, and student recruitment activities

B. Department 2016 Goals and Priorities for the past year and progress toward those goals.

1. Address the space needs of the department. Based on efforts from ABEN personnel, new space in the AES Service Center was given to ABEN in 2016. A hydraulics lab benefitting both ABEN and ASM programs, and a machinery systems/fabrication lab benefitting several ASM courses was established.
2. Maintain strong relationship with alumni, employers and stakeholders.
   • Advisory board meeting encouraged us to pursue a precision agriculture emphasis in our ASM program by offering two precision agriculture courses (data collection and mapping; hardware systems), 1-2 soil science/ crop & weed science courses and continue hands-on hydraulics and other machinery systems.
   • ABEN leveraged support for requests to SBARE, and brought in industry expertise and support to classrooms, research partnerships, contributions of our students and faculty.
   • Incorporate alumni/industry input into revising and improving our curriculum and course offerings.
3. Continue to improve our student experience, and student recruiting and retention activities.
   • Alpha Epsilon honor society for ABEN students received Best Chapter award the peer mentoring program they successfully implemented.
   • Bison Pullers ¼ scale tractor competitors won 1st place in maneuverability and 7th overall in the international ¼ scale competition, The best performance in ABEN history.
   • ABEN student club officers provide facilities tours to prospective students.
   • New recruitment strategies: revamping ASM & ABEN program information sheets for alumni networks and agricultural teachers groups, spread information about our major. Prospective students will hear about our program through this initiative.
   • Yearly offering of design experience to our ABEN students, maintaining strong lab components in ASM program, and encourage internship and research experience with faculty members.
4. Grow the impact of ABEN department within and outside NDSU.
   • ABEN hosted 5 visiting scholars including Australia and Iran.
   • ABEN faculty were co-advisors for two Ph.D. students in Kazakhstan.
   • ABEN hosted a group from Ireland, examining the subsurface drainage in Red River Valley
   • ABEN chair promoted our graduate and undergraduate programs, and research/extension expertise to three universities in Turkey. Faculty will be visiting Turkey on Mevlana Exchange program with funding from Turkey.
   • MOU was signed in 2016 between NDSU and Mongolia University of Life Sciences.
   • ABEN faculty maintain strong collaborations with universities in Kazakhstan, Uzbekistan, Turkey, China, Korea, Bangladesh, Columbia, India, Thailand, and Iran.
   • ABEN faculty are helping a university in Uzbekistan establish an Ag Mechanization program.
   • Research collaboration with international companies such as Elbit Systems (Israeli company), and AeroDrone (Ukraine), and many domestic companies.
   • ABEN organized UAS research expo for top government officials such as governor, senators and legislators, and top industry representatives.
   • ABEN maintains strong communication and collaborative relationship with state agencies (ND Department of Commerce, Department of Health, Department of Agriculture, and State Water Commission), economic development groups (economic development commissions of Grand Fork, Fargo-Moorhead and Cavalier County), ND Trade Office, farmers, precision agriculture industries, biomaterial companies, food industry, agricultural machinery companies,
dealerships, commodity boards, farmers and other stakeholder groups.

- ABEN students were promoted and received various awards in 2016: Sunoj Shajahan - Best Conference Paper (ASABE ITSC Community) ASABE Annual International Conference; M. Anar - Outstanding poster (ASABE NRES community) ASABE Annual International Conference; M. Anar – Dexter Sugarbeet Fellowship

5. **Maintain a productive and collegial environment conducive for scholarship and learning**

- ABEN mentoring program: senior faculty serve as mentors to junior faculty
- Early career faculty attend a conference on program assessment.
- A portion of operational funds is used for supporting faculty research.

6. **Begin the process of developing a vision and long-term goals for ABEN department.**

- ABEN made considerable progress in developing a strategic plan to align its goals with the priorities of the colleges and AES.

7. **Research scholarship: Maintain a strong research program.**

- Stakeholder groups connect with our faculty through department seminars, emails, and one-on-one meetings to address the research needs of the state.
- ABEN provided leadership for UAS research and educational activities at NDSU.

8. **Continue to provide leadership and service to the university and profession**

- ABEN faculty served on NDSU UAS working group, Nexus-ND Group of Unmanned Aerials Systems and provided leadership to UAS Application in Agriculture on behalf of NDSU Agriculture.

C. **Department Challenges for the past year, including narrative on how those are being addressed.**

Meeting teaching needs with fewer faculty and staff members, addressing the educational/research needs in precision agriculture with no research/teaching faculty in that area, and a need for a new department building are the biggest challenges of the department.

D. **Department Goals and Priorities for the Coming Year**

1. Implement the budget cut with minimal impact to department productivity and morale
2. Develop and implement new student recruitment strategies
3. Continually improve and strengthen of ABEN programs & student experience.
4. Maintain and enhance ABEN research/teaching/extension productivity
5. Develop/update the vision and long-term goals for ABEN department
6. Establish/maintain strong working relationship with alumni, employers and stakeholders to generate support for ABEN programs and needs.
7. Grow the impact of the department within NDSU, nationally & internationally.
8. Maintain a productive and collegial environment for personal & professional development
# Scheduled Teaching Agricultural and Biosystems Engineering

North Dakota State University

January 1, 2016 - December 31, 2016

<table>
<thead>
<tr>
<th>Fall 2016</th>
<th>ABEN Number</th>
<th>Course</th>
<th>Title</th>
<th>Section</th>
<th>Credit Hours</th>
<th>Enrollment</th>
<th>Instructor</th>
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<tr>
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<td>ABEN 110</td>
<td>Intro/Agric/Biosystems Engr</td>
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<td>Pryor, Scott W.</td>
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<td>Fall 2016</td>
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<td>Skills for Academic Success</td>
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<td>Comp Aided Analysis/Design</td>
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<td>Steele, Dean D.</td>
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| Spring 2016 | ECS | 899 | Doctoral Dissertation | 17 | 1 | Ripplinger Ph.D., David G. |
| Spring 2016 | ECS | 899 | Doctoral Dissertation | 18 | 1 | Rahman, Shafiqur |

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| Summer 2016 | ABEN | Course | Title | Section | Credit | Enrollment | Instructor |
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| Summer 2016 | ABEN | 899 | Doctoral Dissertation | 8 | 1 | Simsek, Halis |
| Summer 2016 | ABEN | 899 | Doctoral Dissertation | 9 | 1 | Jia, Xinhua |
| Summer 2016 | ABEN | 899 | Doctoral Dissertation | 5 | 3 | Bajwa, Sreekala |

| Summer 2016 | ECS | Course | Title | Section | Credit | Enrollment | Instructor |
| Summer 2016 | ECS | Number | | | | | |
| Summer 2016 | ECS | 798 | Master's Thesis | 17 | 1 | Simsek, Halis |
| Summer 2016 | ECS | 899 | Doctoral Dissertation | 12 | 1 | Pryor, Scott W. |
| Summer 2016 | ECS | 899 | Doctoral Dissertation | 13 | 1 | Roberts, David |
| Summer 2016 | ECS | 899 | Doctoral Dissertation | 15 | 1 | Ripplinger Ph.D., David G. |
| Summer 2016 | ECS | 899 | Doctoral Dissertation | 18 | 1 | Rahman, Shafiqur |
Awards and Honors –Department of Agricultural and Biosystems Engineering

North Dakota State University

January 1, 2016 - December 31, 2016

Agricultural & Biosystems Eng

Bajwa, Sreekala (Professor)

   Best Conference Paper in the ITSC Community, ASABE (2016)

   Mevlana Scholar, Ondokuz Mayis University (2016)

Rahman, Shafiqur (Associate Professor)

   USDA Agricultural Air Quality Task Force (AAQTF) Member, USDA, NRCS (January 27, 2016)
AES Agribusiness and Applied Econ

Ripplinger Ph.D., David G. (Assistant Professor)

Funded


Funded

Wick, Abbey (Principal:), Casey, Francis (Co-Principal:), Ripplinger, David (Co-Principal:), "Research and Extension Efforts at the Soil Health and Agriculture Research Extension (SHARE) Farm (year 4)," Sponsored by ND Soybean Council, State, $82,513.00. (July 1, 2016 - June 30, 2017).

Funded


Funded

Cannayen, Igathinathane (Co-Principal:), Wiesenborn, Dennis (Principal:), Pryor, Scott (Co-Principal:), Ripplinger, David (Co-Principal:), "Energy beets: a new industrial sugar source for the production of advanced biofuels," Sponsored by North Central Sun Grant Center, $241,949.00. (September 3, 2014 - August 2016).

Not Awarded


Not Awarded

Cannayen, Igathinathane (Co-Principal:), Bajwa, Dilpreet (Other: Project Director), Ripplinger, David (Co-Principal:), "Technology Driven Biomass Economic Development in Upper Midwest United States," Sponsored by AFRI Foundational, NIFA 2015, $487,755.00. (September 2015 - December 2019).

Not Awarded


Not Awarded


Not Awarded

Cannayen, Igathinathane (Co-Principal:), Pryor, Scott (Other: Project Director), Ripplinger, David (Co-Principal:), "Processing Pelleted Biomass in Conventional Corn Ethanol Facilities," Sponsored by USDA AFRI, $499,284.00. (September 1, 2013 - August 31, 2017).

AES Agricultural & Biosystems Eng

Sivarajan, Saravanan (PostDoc)

Funded


Agribusiness and Applied Econ

Nganje PhD, William (Professor)

Funded

Bakare, Bukola (Co-Principal: Student RA), "Innovation in Health Transportation Economics," Sponsored by RWJF, Federal, $120,000.00. (August 15, 2016 - August 15, 2020).

Funded

Bajwa, Sreekala (Professor)

Funded


Funded


Funded


Not Awarded


Not Awarded


Bora, Ganesh (Assistant Professor)

Funded


Not Awarded

"Precision Planting and Calibration of Planters for Good Plant Stand and Population," Sponsored by ND Corn Utilization Council, State, $47,636.00.

Not Awarded

"Utilization of UAS and LiDAR Sensor in Managing Electrical Utilities and Distribution Lines," Sponsored by Cass County Electric Cooperative, Local, $176,871.00.

Not Awarded
"Variable Rate Seeding and Precision Planting of Soybean for Plant Population Management," Sponsored by ND Soybean Council, State, $21,693.00.

Not Awarded

Bumgarner, Jeffrey (Co-Principal:), Bora, Ganesh (Principal:), Ossowski, Martin (Co-Principal:), Denton, Anne (Co-Principal:), Nowatzki, John (Co-Principal:), "Big Data Regional Innovation Hubs: Establishing Spokes to Advance Big Data Applications," $967,195.00. (2016 - 2018).

Not Awarded

Cannayen, Igathinathane (Co-Principal:), Bora, Ganesh, Nowatzki, J (Co-Principal:), "Machine Enhancement and Precision Technologies for Mechanical Harvesting of cattails," $147,054.00. (September 1, 2013 - August 31, 2017).

Cannayen, Igathinathane (Assistant Professor)

Funded

Cannayen, Igathinathane (Co-Principal:), "Phenocam application in LTAR project. Specific Cooperative Agreement between USDA-ARS and NDSU," $30,000.00. (October 1, 2015 - September 30, 2017).

Funded

Cannayen, Igathinathane (Principal:), "Mechanical, thermal, and storage characteristics of biomass; Specific Cooperative Agreement between USDA-ARS and NDSU. Project amendment II," $15,000.00. (October 1, 2014 - September 30, 2017).

Funded

Cannayen, Igathinathane (Principal:), "Mechanical, thermal, and storage characteristics of biomass," Sponsored by Specific Cooperative Agreement between USDA-ARS and NDSU, $5,000.00. (October 1, 2013 - September 30, 2017).

Funded


Funded

Cannayen, Igathinathane (Co-Principal:), Flores, Paulo (Principal:), Ostlie, Mike (Co-Principal:), Teboh, Jasper (Co-Principal:), Schatz, Blaine, Zilahi-Sebess, Szilvia, Aberle, Ezra, Nowatzki, John, Endres, Greg, "Increasing UAV related research capacity at the Carrington REC," $96,689.00. (January 1, 2016 - June 30, 2017).

Funded

Cannayen, Igathinathane (Co-Principal:), Wiesenborn, Dennis (Principal:), Pryor, Scott (Co-Principal:), Ripplinger, David (Co-Principal:), "Energy beets: a new industrial sugar source for the production of advanced biofuels," Sponsored by North Central Sun Grant Center, $241,949.00. (September 3, 2014 - August 2016).
Currently Under Review


Not Awarded


Not Awarded


Not Awarded


Not Awarded

Cannayen, Igathinathane (Co-Principal:), Bajwa, Dilpreet (Other: Project Director), Ripplinger, David (Co-Principal:), "Technology Driven Biomass Economic Development in Upper Midwest United States," Sponsored by AFRI Foundational, NIFA 2015, $487,755.00. (September 2015 - December 2019).

Not Awarded


Not Awarded


Not Awarded


Not Awarded

Not Awarded


Not Awarded


Not Awarded


Not Awarded

Cannayen, Igathinathane (Co-Principal:), Bora, Ganesh, Nowatzki, J (Co-Principal:), "Machine Enhancement and Precision Technologies for Mechanical Harvesting of cattails," $147,054.00. (September 1, 2013 - August 31, 2017).

Not Awarded

Cannayen, Igathinathane (Co-Principal:), Pryor, Scott (Other: Project Director), Ripplinger, David (Co-Principal:), "Processing Pelleted Biomass in Conventional Corn Ethanol Facilities," Sponsored by USDA AFRI, $499,284.00. (September 1, 2013 - August 31, 2017).

Not Awarded

Cannayen, Igathinathane (Co-Principal: (feedstock preparation)), Orchard, S (Principal:), Includes 21 Co-PIs from different universities (Co-Principal:), "Abundant, Cost Effective Biofuels and By-Products: An Integrated Approach," Sponsored by Menon & Associates, Inc, $1,659,658.00. (2016).

Jia, Xinhua (Associate Professor)

Funded

Jia, Xinhua (Principal:), "Managing Water for Increased Resiliency of Drained Agricultural Landscapes," Sponsored by Purdue University, Private, $361,032.00. (February 1, 2015 - January 31, 2020).

Funded

Lin, Zhulu (Principal:), Jia, Xinhua, "$1063 Quantification of Best Management Practice Effectiveness for Water Quality Protection at the Watershed Scale (Multistate Project)," Sponsored by USDA-NIFA Formula, $0.00. (October 2015 - September 2019).

Funded

Funded


Funded

Jia, Xinhua (Principal:), "Growth and fresh yield responses of sweet corn to mulch, planting date, and hybrid," Sponsored by USDA Specialty Crop Program, State, $100,000.00. (October 1, 2014 - September 30, 2016).

Funded


Not Awarded

"Impact of Drainage Water Management on Soil Phosphorus Loss in the Red River of the North Basin," Sponsored by NIFA, Federal, $150,000.00.

Not Awarded

Steele, Dean (Co-Principal: Irrigation engineer with drip irrigation research experience), Jia, Xinhua (Principal: Lead PI and project coordinator), Scherer, Thomas (Co-Principal: Lead Extension person; engineer with drip irrigation experience), Schatz, Blaine (Co-Principal: Host at Carrington Research Extension Center; supervisor of agronomic operations), "Sweet corn production with soil moisture sensor controlled drip irrigation and plastic mulches," Sponsored by USDA Specialty Crops Block Grant Program, State, $105,952.00. (October 5, 2016 - Present).

Lin, Zhulu (Assistant Professor)

Funded

Lin, Zhulu (Principal:), Jia, Xinhua, "S1063 Quantification of Best Management Practice Effectiveness for Water Quality Protection at the Watershed Scale (Multistate Project)," Sponsored by USDA-NIFA Formula, $0.00. (October 2015 - September 2019).

Funded


Funded

Funded

Lin, Zhulu (Co-Principal:), Zheng, Haochi (Principal:), Zhang, Xiaodong, "Evaluating how market and policy affect cellulosic biofuel feedstock production in marginal land of Upper Midwest and its consequences on water sustainability in a changing climate," Sponsored by USDA-NIFA Bioenergy Challenge Program, Federal, $555,000.00. (September 2013 - August 2017).

Funded

Lin, Zhulu (Principal:), "Assessing the impacts of hydraulic fracturing at Bakken on regional water resources," Sponsored by North Dakota Water Resources Research Institute, State, $2,812.00. (March 2016 - February 2017).

Funded


Funded

Lin, Zhulu (Principal:), Lim, Siew (Co-Principal:), "A Model for Groundwater Allocation and Management at the Bakken Shale in Western North Dakota," Sponsored by National Science Foundation (Proposal No. 1413954), $249,423.00. (August 1, 2014 - July 31, 2016).

Not Awarded


Not Awarded

Lin, Zhulu (Principal:), "Groundwater quality risk assessment in North Dakota," Sponsored by North Dakota Water Resources Research Institute, State, $3,000.00. (2016).

Not Awarded


Pryor, Scott W. (Associate Professor)

Funded
Pryor, Scott (Co-Principal:), Voronov, Andriy (Principal:), "Collaborative Research: Engineering of Recoverable Cellulosomes for Bioconversion," Sponsored by NSF, Federal, $191,970.00. (July 1, 2016 - June 30, 2019).

Funded

Cannayen, Igathinathane (Co-Principal:), Wiesenborn, Dennis (Principal:), Pryor, Scott (Co-Principal:), Ripplinger, David (Co-Principal:), "Energy beets: a new industrial sugar source for the production of advanced biofuels," Sponsored by North Central Sun Grant Center, $241,949.00. (September 3, 2014 - August 2016).

Funded

Pryor, Scott (Principal:), Hall, Clifford (Co-Principal:), "Extraction and Concentration of Colorants and Antioxidants from Gluten Meal," Sponsored by Golden Growers Cooperative, $9,000.00. (July 2015 - June 2016).

Funded


Not Awarded


Not Awarded


Not Awarded


Not Awarded


Not Awarded

Cannayen, Igathinathane (Co-Principal:), Pryor, Scott (Other: Project Director), Ripplinger, David (Co-Principal:), "Processing Pelleted Biomass in Conventional Corn Ethanol Facilities," Sponsored by USDA AFRI, $499,284.00. (September 1, 2013 - August 31, 2017).
Rahman, Shafiqur (Associate Professor)

**Funded**


**Funded**

Rahman, Shafiqur (Principal:), "Fate and transport of zinc and silver nanoparticles (NPs) in livestock manure and their impacts on the environment (air and soil)," Sponsored by AFRI-NIFA, $149,714.00. (February 1, 2015 - January 31, 2018).

**Funded**

Rahman, Shafiqur (Principal:), "Biochar Production and Characterization from Feedlot Manure and Wet Distiller Grains (WDG) as an Environmental Management Option," Sponsored by North Dakota Corn Council, Local, $4,999.00. (July 1, 2016 - June 30, 2017).

**Funded**

Saini-Eidukat, Bernhardt (Co-Principal:), Rahman, Shafiqur (Principal:), Ringwall, Kris (Co-Principal:), Cihacek, Larry (Co-Principal:), "NDSU-RCA," Sponsored by Quantification of Road Dust and Its Effect on Soil Quality, $59,956.00. (2014 - 2016).

**Not Awarded**

Rahman, Shafiqur, Quadir, Mohi (Co-Principal:), Swanson, Kendall (Co-Principal:), Lee, Chiwon (Co-Principal:), "Fate and transport of zinc and silver nanoparticles (NPs) in livestock manure and their impacts on the environment (air and soil) and crop(s)," Sponsored by AFRI-NIFA, $499,988.00. (October 1, 2016 - September 30, 2019).

**Not Awarded**

McGranahan, Devan (Principal:), Kirkwood, M (Co-Principal:), Gillam, Erin (Co-Principal:), Rahman, Shafiqur (Co-Principal:), Fischer, Dominic (Co-Principal:), Hovick, Torre (Co-Principal:), Harmon, Jason (Co-Principal:), "A proposal to create a Center for Global Change Impacts at North Dakota State University," Sponsored by Office of the President's Grand Challenge Initiative, North Dakota State University, $990,892.00. (2016).

Simsek, Halis (Assistant Professor)

**Funded**


**Funded**
Simsek, Halis (Principal: Student scholarship for Swati Sharma), "Wastewater derived dissolved organic nitrogen removal using integrated system of biological reactors and UV light irradiation," Sponsored by North Dakota Water Resources Research Institute (NDWRRI), State, $6,000.00. (March 1, 2016 - February 28, 2017).

Steele, Dean D. (Associate Professor)

Funded

Hopkins, David G (Principal: Sampling design, mentoring graduate student, outreach), Steele, Dean E (Co-Principal: Development of evapotranspiration maps; sampling design), "Evaluating Soil Health using Remotely Sensed Evapotranspiration on the Benchmark Barnes Soils of North Dakota," Sponsored by Cass County Soil and Water Conservation District (SWCD), Local, $10,500.00. (June 1, 2015 - Present).

Funded

Hopkins, David G (Principal: PI, sampling design, mentor to graduate student, outreach), Steele, Dean D (Co-Principal: development of evapotranspiration maps, sampling design), "Evaluating Soil Health using Remotely Sensed Evapotranspiration on the Benchmark Barnes Soils of North Dakota," Sponsored by USDA/NRCS Soil Survey Division, Federal, $95,637.00. (September 3, 2015 - September 30, 2017).

Not Awarded


Not Awarded

Steele, Dean (Co-Principal: Irrigation engineer with drip irrigation research experience), Jia, Xinhua (Principal: Lead PI and project coordinator), Scherer, Thomas (Co-Principal: Lead Extension person; engineer with drip irrigation experience), Schatz, Blaine (Co-Principal: Host at Carrington Research Extension Center; supervisor of agronomic operations), "Sweet corn production with soil moisture sensor controlled drip irrigation and plastic mulches," Sponsored by USDA Specialty Crops Block Grant Program, State, $105,952.00. (October 5, 2016 - Present).

Not Awarded

DeSutter, Thomas, Clay, Daigh, Aaron, Steele, Dean, Casey, Francis, Chatterjee, Wick, Abbey, Hopkins, Roberts, David, Malo, Reese, Carlson, Xu, Yiwen, Chang, Schumacher, Reiks, "Cover Cropping Techniques for Improving Soil Health and the Managing of Saline and Sodic Soils within the Northern Great Plains," Sponsored by NRCS CIG, $988,279.00. (September 2016 - September 2019).

Wiesenborn, Dennis P. (Professor)

Funded

Cannayen, Igathinathane (Co-Principal:), Wiesenborn, Dennis (Principal:), Pryor, Scott (Co-Principal:), Ripplinger, David (Co-Principal:), "Energy beets: a new industrial sugar source for the production of advanced biofuels," Sponsored by North Central Sun Grant Center, $241,949.00. (September 3, 2014 - August 2016).
Ext Agribusiness and Applied Econ

Olson, Frayne E. (Associate Professor)

Funded

Presentations – Department of Agricultural and Biosystems Engineering

North Dakota State University

January 1, 2016 - December 31, 2016

Agricultural & Biosystems Eng

Bon, Thomas A. (Associate Professor)

Rogers, David (Author & Presenter), Bon, Thomas (Author), Baiocchi, Orlando R (Author), Peloubet, Frank (Author), Maassel, Michael (Author), Culture of Ethics: Engineering for Human Dignity and the Common Good, "Engineering Ethics Education through More Than a Quarter Century," University of St. Thomas, University of St. Thomas, St. Paul, MN. (October 7, 2016).

Cannayen, Igathinathane (Assistant Professor)


Jia, Xinhua (Associate Professor)

Steele, Dean (Author), Kolars, Kelsey (Author & Presenter), Jia, Xinhua (Author), Scherer, Thomas (Author), DeSutter, Thomas (Author), 10th International Drainage Symposium, "Modifying the checkbook irrigation scheduling model for high water table conditions to manage subsurface drained and subirrigated fields," ASABE, Minneapolis, MN. (September 7, 2016 - September 9, 2016).

Lin, Zhulu (Assistant Professor)

Lin, Zhulu (Presenter), Schatz, Blaine, Ripplinger, David, Teboh, Jasper, Ostlie, Michael, USDA-NIFA 2016 Project Director Annual Meeting, "Soil health and water quality impacts of growing energy beets for advanced biofuel production in North-Central United States," Washington, DC. (October 12, 2016 - October 13, 2016).


Lin, Tong (Presenter), Borders, Michael, Lin, Zhulu, Lim, Siew, North Dakota EPSCoR 2016 State Conference, "Impacts of hydraulic fracturing at Bakken on regional water resources," Grand Forks, ND. (April 19, 2016).

Anar, Mohammad J (Presenter), Lin, Zhulu, 2016 AgWeek Coalition Graduate Student Poster Symposium, "Assessing water quality impacts from sugarbeet cultivation for biofuel production using RZWQM (Root Zone Water Quality Model)," Fargo, ND. (April 12, 2016).


Pryor, Scott W. (Associate Professor)

Pryor, Scott (Author & Presenter), ABEN Department Seminar, "Habashwe! A Year in South Africa as a Fulbright Scholar," NDSU ABEN Department, Fargo, ND. (November 2016).


Vargas-Ramirez, Juan (Author & Presenter), Wiesenborn, Dennis, Pryor, Scott, ASABE 2016 Annual International Meeting, "Effects of pre-storage concentration and acidification, and post-storage conditioning of non-purified beet juice on yeast (Saccharomyces cerevisiae) fermentation," ASABE, Orlando, FL. (July 17, 2016 - July 20, 2016).


Pryor, Scott (Author & Presenter), Nahar, Nurun (Author), ASABE 2016 Annual International Meeting, "Reduced severity ammonia pretreatment and lowered enzyme loading with pelleted corn stover," ASABE, Orlando, FL. (July 17, 2016 - July 20, 2016).

Pryor, Scott, Bioenergéticos Potenciales en Sonora, México y Ciclos de Vida ("Bioenergy Potential Sources in Sonora, Mexico and Life Cycles"), "Why Bioenergy? Why LCA?", Department of Research and Graduate Studies in Food Processing and the Department of Chemical Engineering and Metallurgy at Universidad de Sonora, Hermosillo, Mexico. (January 6, 2016).

Rahman, Shafiqur (Associate Professor)


Datta, Sumon (Author & Presenter), Rahman, Shafiqur (Author), Borhan, Ms. Saidul (Author), Saini-Eidukat, Bernhardt (Author), Cihacek, Larry (Author), 2016 ASABE Annual International Meeting, "Quantification and characterization of particulate matter generated from unpaved roads in the oil development area of western North Dakota," ASABE, Orlando, Florida. (July 17, 2016 - July 20, 2016).

Simsek, Halis (Assistant Professor)

Talas, Yavuz (Author), Aydin, Senay (Author & Presenter), Yegenoglu, Dilsat (Author), Simsek, Halis (Author), ICSAE 2016 3rd International Conference on Sustainable Agriculture and Environment, "Iron (Fe) and iron chlorosis in plant nutrition.,” Warsaw, Poland. (2016).


Steele, Dean D. (Associate Professor)

Bohn, Meyer (Author & Presenter), Hopkins, David (Author), Steele, Dean (Author), Tuscherer, S (Author), Soil Science Society of America annual meeting, "Novel approaches to quantify and combat soil degradation," Phoenix, AZ. (2016).

Steele, Dean (Author), Scherer, Thomas (Author & Presenter), Irrigation Workshop, "Soil moisture measurement for irrigation water management," NDSU Extension Service, Bismarck. (December 8, 2016).
Steele, Dean, Tuscherer, S., NDSU Extension Service Irrigation Workshop, "Soil moisture measurement for irrigation water management," Bismarck, ND. (December 8, 2016).


Kolars, K., Jia, X., Steele, Dean, Scherer, T. F., DeSutter, T. M., ASABE 10th International Drainage Symposium, "Incorporation of subsurface water management into the Checkbook Method for scheduling subsurface drainage and subirrigation," Minneapolis, MN. (September 7, 2016 - September 9, 2016).

Kolars, K. (Presenter), Jia, X., Steele, Dean, Scherer, T., DeSutter, T., 10th International Drainage Symposium, "Modifying the checkbook irrigation scheduling model for high water table conditions to manage subsurface drained and subirrigated fields," Minneapolis, MN. (September 7, 2016 - September 9, 2016).


Wiesenborn, Dennis P. (Professor)


Vargas-Ramirez, Juan (Author & Presenter), Wiesenborn, Dennis, Pryor, Scott, ASABE 2016 Annual International Meeting, "Effects of pre-storage concentration and acidification, and post-storage conditioning of non-purified beet juice on yeast (Saccharomyces cerevisiae) fermentation," ASABE, Orlando, FL. (July 17, 2016 - July 20, 2016).

Scherer, Thomas (Associate Professor)

Steele, Dean (Author), Scherer, Thomas (Author & Presenter), Irrigation Workshop, "Soil moisture measurement for irrigation water management," NDSU Extension Service, Bismarck. (December 8, 2016).

Steele, Dean (Author), Kolars, Kelsey (Author & Presenter), Jia, Xinhua (Author), Scherer, Thomas (Author), DeSutter, Thomas (Author), 10th International Drainage Symposium, "Modifying the checkbook irrigation scheduling model for high water table conditions to manage subsurface drained and subirrigated fields," ASABE, Minneapolis, MN. (September 7, 2016 - September 9, 2016).
AES Agricultural & Biosystems Eng
Sivarajan, Saravanan (PostDoc)

Refereed Journal Articles

Journal Article (Published)

Conference Proceedings

Conference Proceeding (Published)

Conference Proceeding (Published)

Agricultural & Biosystems Eng
Bajwa, Sreekala (Professor)

Refereed Journal Articles

Journal Article (Published)

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article*


*Journal Article*


*Conference Proceedings*


*Conference Proceeding (Published)*


*Conference Proceeding (Published)*

Cannayen, Igathinathane (Assistant Professor)

**Non-Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


**Conference Proceedings**

*Conference Proceeding (Published)*


**Other Intellectual Contributions**

*(Published)*


*(Published)*


*(Published)*

(Published)


(Published)


(Published)


(Published)


(Published)


(Published)


(Published)


(Published)


(Published)


(Published)
Igathinathane, C., Schauer, C., Redden, R. (2016). *Image processing tool for wool fiber grading using ImageJ*. Orlando, Florida.: (Published)


Igathinathane, C. (2016). *NDSU research and NGPRL: Biomass bale stacks logistics and bale moisture uptake*. USDA-ARS, Mandan, ND.: (Published)


Sunoj, S., Igathinathane, C., Viswanathan, R. (2016). *Quantification of fermentation levels in cocoa beans using FT-NIR spectroscopy*. Orlando, Florida.: (Published)


Igathinathane, C., Schauer, C., Redden, R. (2016). *OonSA - NDSU wool grading software tool (Poster presentation)*. USDA-ARS, Mandan, ND.:
Jia, Xinhua (Associate Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Accepted)*


**Conference Proceedings**

*Conference Proceeding (Published)*


Lin, Zhulu (Assistant Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*

Conference Proceedings


Pryor, Scott W. (Associate Professor)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Submitted)


Rahman, Shafiqur (Associate Professor)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)

Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Accepted)


Other Intellectual Contributions

Book Chapter (Published)


Extension Publication (Published)


Research Report (Published)

Rahman, S., Ringwall, K., Saini-Eidukat, B., Cihacek, L. (2016). *Quantification of road dust and its effect on soil* (pp. 22). NDSU RCA.

Simsek, Halis (Assistant Professor)

Refereed Journal Articles

Journal Article (Published)

Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Conference Proceedings

Conference Proceeding (Published)


Conference Proceeding (Published)


Steele, Dean D. (Associate Professor)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)


Journal Article (Accepted)

Other Intellectual Contributions

Symposium (Published)


Extension Publication (Published)


Manuscript (Accepted)


Wiesenborn, Dennis P. (Professor)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)

Department of Animal Sciences

Annual Report: Calendar Year 2016

A. Significant Departmental achievements in research, teaching and outreach during the past year

a. Teaching

- Changes made since last report to enhance student learning to achieve the intended student learning outcomes for the curriculum.

The Veterinary Technology Program has made a number of changes in their program which have pushed their VTNE pass rates well beyond the national average. Multiple faculty are involved in professional development related to teaching (e.g. Gateways Program, enrolled in graduate courses, completing certificate programs).

- List new initiatives, innovative teaching approaches (providing evidence of quality improvements in teaching and learning).

b. Research/Scholarly/Creative Activities

1. Major research accomplishments

Departmental faculty continued to secure grants from commodity groups (e.g. ND Beef Commission, National Pork Board). Dr. Berg’s research investigating the role of sugar in the diet of monogastric animals continues to gain national attention. Strong collaborations have developed between Drs. Borowiec, Caton, Dahlen, and Reynolds as they investigate embryonic development in beef cattle using innovative techniques.

2. Significant additions to research capability

c. Extension/Outreach

- List new initiatives, innovative extension approaches

A new sheep specialist was hired. This is the first time that the department has shared extension resources in a formal manner with the University of Minnesota. One quarter of the specialist’s time is devoted to activities which serve the state of Minnesota. Initial assessment indicates it is working quite well.

d. Service

- Summarize state, national, or international professional service activities over the past year that are most noteworthy (for example: elected to lead national or international professional organization, organizing national or international professional meetings, etc.)

Dr. Joel Caton serves as a Director At Large for the American Society of Animal Science board and as the Associate Editor in Chief for the Journal of Animal Science. Dr. Rob Maddock serves as a Director for the
American Meat Science Association. Dr. Kim Vonnahme serves as President-Elect for the Western Section of the American Society of Animal Science.

B. Department Goals and Priorities for the past year, including narrative about progress toward those goals.

**Goals for 2016-2017**

**Overall Departmental Goals**

- Work with administrators in the College, Experiment Station, and Extension Service to address the budget issues resulting from the allotment process as well as the Governor’s request for a 90% budget. Ultimately, our budgets were reduced even further. We dealt with the allotment process through a hiring freeze. Multiple faculty and staff positions remain unfilled.
- Continue work to grow the department’s scholarship endowment fund and investigate opportunities to add endowments which support research endeavors.
  In 2016, Dr. Lardy began working with Randy Schmeling, the NDSU Foundation rep for CAFSNR to develop a list of prospective donors for scholarship fundraising.

**Teaching Goals**

- Work with faculty in the Veterinary Technology program to continue to address items identified in the AVMA Accreditation Report.
  During the 2016 reporting period, over 93% of our first time test takers on the VTNE passed the exam. This compares to national pass rates during the same time period ranging from 64.1 to 74.5%. Additionally, we have implemented a monitoring system for students on externships in which a faculty member has routine contact with the student and employer during the externship.
- Ask the department Curriculum Committee to conduct a review of the curriculum changes in the Animal Sciences major and evaluate the options within the major which were implemented in 2010.
  This has not been completed at this time.

**Research Goals**

- Continue to seek funding for the construction of a new Meats Research Laboratory.
  The project is number two on the SBARE Capital Improvement List but given the state’s budget situation, it was not selected for funding.
- Review the impact of faculty and technician vacancies on research capacity and implement plans for reassignment or redirection of positions as needed.
  Dr. Lardy worked with two faculty committees to explore options for addressing this situation (Short term issues and opportunities were addressed by working with an ad hoc committee made up of supervisors of technical staff positions; longer term needs were debated by the department’s Future Directions Committee). Several positions were moved to being partially funded from grant and income sources and two positions will be vacated in late 2017.

**Extension/Outreach Goals**

- In conjunction with Extension faculty and administration, develop a plan which addresses how to best serve the livestock constituent groups in the state with the budget limitations which currently exist.
  Addressing the needs of the dairy and swine industries continues to be a major concern for the department. At this point, there are no extension service resources devoted to these industries at the state or area specialist level.
B. Department Challenges for the past year, including narrative on how those are being addressed.

The major challenge has been and will continue to be the budget. At the time of this report submission, the department has six faculty vacancies and six staff vacancies. Two additional staff positions will be vacated in October, 2017. This is severely hampering the ability to carry out our departmental mission, especially as it relates to our presence in swine and dairy. The vacancies has impacted our day to day activities in every facet of the department. We have had to cancel classes, hire temporary instructors, vacate research programs, hire temporary labor at our farm units, and discontinue two significant extension programming areas. Our remaining faculty and staff have stepped up and filled in the gaps as best we can but we are missing significant portions of our department.

C. Department Goals and Priorities for the Coming Year

Teaching Goals

- Ask the department Curriculum Committee to conduct a review of the curriculum changes in the Animal Sciences major and evaluate the options within the major which were implemented in 2010.

Research Goals

- Address the vacancies in technical support which exist in the department and continue to review how we can optimize existing technical support.

Extension Goals

- Work with constituency groups to address how to meet their extension needs.
Scheduled Teaching Animal Sciences

North Dakota State University

January 1, 2016 - December 31, 2016

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<td>Large Animal Veterinary Technician Techniques</td>
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<td>Clinical Veterinary Practicum</td>
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<td>VETS 485</td>
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<td>Spring 2016</td>
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<td>Spring 2016</td>
<td>VETS 496</td>
<td>Field Experience</td>
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<td>VETS 255L</td>
<td>Fund/Vet Radiography Lab</td>
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<td>Spring 2016</td>
<td>VETS 255L</td>
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<td>Physiology of Reproduction</td>
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<td>Physiology of Reproduction</td>
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<td>Power of the Herd: Leadership Development through Horses</td>
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<td>ANSC 793</td>
<td>Individual Study/Tutorial</td>
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<td>Summer 2016</td>
<td>ANSC 793</td>
<td>Individual Study/Tutorial</td>
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<td>Master's Thesis</td>
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<td>ANSC 899</td>
<td>Doctoral Dissertation</td>
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<td>Veterinary Tech Externship</td>
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<td>18</td>
<td>Sonsthagen, Teresa B.</td>
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</table>

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Awards and Honors – Department of Animal Sciences

North Dakota State University

January 1, 2016 - December 31, 2016

Animal Science

Baranko, Loren L. (Lecturer)

Honorary Member, Kindred FFA (2016)

Honorary Member, NDSU Golden Key (November 11, 2016)

Bauer, Marc L. (Associate Professor)

George Washington Award, NDSU Agriculture Coalition (April 2016)

Berg, Eric P. (Professor)

Distinguished Teaching Award, American Meat Science Association (June 2016)

Berg, Erika L. (Associate Professor)

Tapestry of Diverse Talents, NDSU Memorial Union (February 24, 2016)

Christenson, Lisa A. (Assistant Professor)

Peltier Innovation in Teaching Award, North Dakota State University (2016)

Gamma Sigma Delta Honor Society Induction, Gamma Sigma Delta (April 4, 2016)

Grazul-Bilska, Anna (Professor)

Dale Hogoboom Presidential Professorship, NDSU (November 2016)

Jordan A. Engberg Presidential Professorship, NDSU (November 2016)

Hanna, Lauren (Assistant Professor)

Larson/Yaggie Excellence in Research Award, North Dakota State University (November 1, 2016)

Ostby, Stacey M. (Lecturer)

Earl & Dorothy Foster Excellence in Teaching Award, NDSU College of Agriculture (December 2016)
2016 Staff Recognition Team Award, NDSU Staff Senate (March 31, 2016)

**Reynolds Ph.D., Larry (Professor)**

Fellow, American Society of Animal Science (July 1, 2016)

**Swanson, Kendall C. (Professor)**

Top 10 reviewer, Journal of Animal Science (July 2016)

**Swanson, Tara J. (Lecturer)**

Teaching Award of Merit, North American Colleges and Teachers of Agriculture (April 19, 2016)

**Vonnahme, Kimberly A. (Professor)**

ASAS Presidential Pick, American Society of Animal Science (2016)

Eugene R. Dahl Excellence in Research Award, College of Agriculture, Food Systems and Natural Resources (2016)

Jordan A Engberg Endowed Professorship Award, NDSU (2016)

**Wagner, Sarah A. (Professor)**

H. Roald and Janet Lund Excellence in Teaching Award, CAFSNR (2016)

**Ward, Alison (Assistant Professor)**

Gamma Sigma Delta Honor Society membership (2016)

**Ext Animal Science**

**Dahlen, Carl R. (Associate Professor)**

AGSCO Excellence in Extension Award, North Dakota State University Extension Service (2016)

NCTC Alumnus of the Year, Northland Community and Technical College (2016)

NDSU Extension Program Excellence Award; The Ditch Hay Program, North Dakota State University Extension Service (2016)

Outstanding Young Extension Specialist Award, American Society of Animal Science Midwest Section (2016)
Meehan, Miranda A. (Assistant Professor)

Myron and Muriel Johnsrun Excellence in Extension/Outreach, North Dakota State University College of Agriculture (December 8, 2016)

NDSU Extension Program Excellence Award, NDSU Extension Service (October 19, 2016)
Contracts, Grants and Sponsored Research – Department of Animal Sciences

North Dakota State University

January 1, 2016 - December 31, 2016

AES Animal Science

Borowicz, Pawel (Research Assistant Professor)

Funded

Reynolds, Lawrence P. (Senior Personnel:), Caton, Joel (Principal:), Dahlen, Carl (Co-Principal:), McLean, Kyle (Other: Graduate Student), Borowicz, Pawel (Senior Personnel:), Neville, Brian (Senior Personnel:), "Role of Endogenous Retroviruses and Nutritional Management in Placental Syncytium Formation during Early Gestation," Sponsored by National Institute of Food and Agriculture, U.S. Department of Agriculture, Federal, $150,000.00. (2015 - 2017).

Funded

Ward, Alison (Principal:), Borowicz, Pawel (Co-Principal:), "Generation of preliminary data for NIH “Trophoblast Differentiation and Function (R21)” grant proposal," Sponsored by NDSU RCA, $2,600.00. (December 12, 2016 - June 15, 2017).

Not Awarded


Not Awarded

Ward, Alison (Supporting: Collaborator), Dahlen, Carl (Principal:), Borowicz, Pawel (Supporting: Collaborator), Negrin Pereira, Nicolas (Co-Principal:), "Influence of winter feeding strategies during gestation on testicular cell populations in bull calves indicative of future fertility," Sponsored by State Board of Agricultural Research & Education, State, $20,000.00. (2015 - 2016).

Carlin, Kasey R. (Associate Professor)

Funded

Carlin, Kasey, "Effect of implant strategy and supplementation of zilpaterol hydrochloride on the skeletal muscle proteome from beef steaks aged up to 14 days," Sponsored by National Cattleman's Beef Association, State, $40,250.00. (January 2015 - May 2016).

Not Awarded

Carlin, Kasey (Co-Principal:), Maddock, Robert (Principal:), "Relationships among post-mortem metabolism, tenderness, and juiciness as affected by beef carcass size and season," Sponsored by USDA-NIFA-AFRI, Federal, $457,185.00. (2016 - Present).

Not Awarded

Carlin, Kasey (Co-Principal:), Maddock, Robert (Principal:), "Relationships among post-mortem metabolism, tenderness, and juiciness as affected by carcass size," Sponsored by Minnesota Beef Council, State, $39,860.00. (2016 - Present).

Not Awarded

Carlin, Kasey (Co-Principal:), Maddock, Robert (Principal:), "Relationships among post-mortem metabolism, tenderness, and juiciness as affected by carcass size," Sponsored by National Cattleman's Beef Association, $45,464.00. (2016 - Present).

Not Awarded

Carlin, Kasey (Supporting:), Reed, DeMetris (Principal:), Berg, Eric (Co-Principal:), "Will increasing field pea concentrate (Pisum sativum) level in high-concentrate finishing diets improve growth performance, carcass traits, and palatability attributes in Brahman steers?," Sponsored by National Cattleman's Beef Association, Other, $40,000.00. (2016 - 2017).

Newman, David J. (Assistant Professor)

Not Awarded


Animal Science

Bauer, Marc L. (Associate Professor)

Swanson, Kendall (Co-Principal:), Stokka, Gerald (Principal:), Bauer, Marc (Co-Principal:), Berg, Eric (Co-Principal:), Dahlen, Carl (Co-Principal:), Reynolds, Lawrence (Co-Principal:), Ward, Alison (Co-Principal:), Vonnahme, Kimberly (Co-Principal:), "Impact of winter feeding strategies during gestation on productivity and carcass outcomes in beef cattle: calf health through weaning," Sponsored by North Dakota State Board of Agricultural Research and Education, $18,000.00. (2016 - 2017).
Swanson, Kendall (Co-Principal:), Stokka, Gerald (Co-Principal:), Bauer, Marc (Co-Principal:), Berg, Eric (Co-Principal:), Dahl, Carl (Co-Principal:), Reynolds, Lawrence (Co-Principal:), Ward, Alison (Co-Principal:), Vonnahme, Kimberly (Principal:), "Impact of winter feeding strategies during gestation on productivity and carcass outcomes in beef cattle: Uterine blood flow to the developing calf," Sponsored by North Dakota State Board of Agricultural Research and Education, $16,400.00. (2016 - 2017).

Swanson, Kendall (Co-Principal:), Ominski, Kim (Principal:), Vonnahme, Kimberly (Principal:), Reynolds, Lawrence (Co-Principal:), Bauer, Marc (Co-Principal:), Dahl, Carl (Co-Principal:), Stokka, Gerald (Co-Principal:), Ward, Alison (Co-Principal:), "Impact of Winter Feeding and Vaccination Strategies on Carcass Outcomes in Beef Cattle," Sponsored by National Sciences and Engineering Council; Manitoba Beef and Forage Initiatives, Inc. Manitoba Beef Producers, Federal, $67,085.00. (2015 - 2017).

**Berg, Eric P. (Professor)**

*Funded*

"Does Beef Inclusion in a Modern Diet Influence Risk Factors for Obesity-Related Metabolic Disorder?," Sponsored by MN Beef Council, State, $39,865.00. (March 1, 2015 - February 28, 2016).

Swanson, Kendall (Co-Principal:), Stokka, Gerald (Principal:), Bauer, Marc (Co-Principal:), Berg, Eric (Co-Principal:), Dahl, Carl (Co-Principal:), Reynolds, Lawrence (Co-Principal:), Ward, Alison (Co-Principal:), Vonnahme, Kimberly (Co-Principal:), "Impact of winter feeding strategies during gestation on productivity and carcass outcomes in beef cattle: calf health through weaning," Sponsored by North Dakota State Board of Agricultural Research and Education, $18,000.00. (2016 - 2017).

Swanson, Kendall (Co-Principal:), Stokka, Gerald (Co-Principal:), Bauer, Marc (Co-Principal:), Berg, Eric (Co-Principal:), Dahl, Carl (Co-Principal:), Reynolds, Lawrence (Co-Principal:), Ward, Alison (Co-Principal:), Vonnahme, Kimberly (Co-Principal:), "Impact of winter feeding strategies during gestation on productivity and carcass outcomes in beef cattle: Uterine blood flow to the developing calf," Sponsored by North Dakota State Board of Agricultural Research and Education, $16,400.00. (2016 - 2017).

**Not Awarded**

Carlin, Kasey (Supporting:), Reed, DeMetris (Principal:), Berg, Eric (Co-Principal:), "Will increasing field pea concentrate (Pisum sativum) level in high-concentrate finishing diets improve growth performance, carcass traits, and palatability attributes in Brahman steers?," Sponsored by National Cattleman’s Beef Association, Other, $40,000.00. (2016 - 2017).

**Berg, Erika L. (Associate Professor)**

*Funded*


**Not Awarded**
Berg, Erika (Principal:), Hammer, Carolyn (Co-Principal:), Bach-Gorman, Amber (Co-Principal:), "Implementation of Equine Facilitated Psychotherapy to Address Anxiety in Undergraduate Female College Students," Sponsored by Horses and Humans Research Foundation, $82,381.00. (July 13, 2016).

**Caton, Joel S. (Professor)**

**Funded**


**Funded**

Caton, Joel (Senior Personnel: Member of the Coordinating committee), "National Animal Nutrition Program," Sponsored by USDA CSREES, Hatch. (October 2015 - September 2020).

**Funded**

Caton, Joel (Principal:), "Enhancing Management, Production, and Sustainability of Grazing Ruminants in Extensive Landscapes," Sponsored by Hatch, 1757, Regional Project W2012. (March 2015 - September 2019).

**Funded**

Reynolds, Lawrence (Co-Principal:), Caton, Joel (Co-Principal:), "Regulation of fertility in ruminant livestock," Sponsored by ND Hatch Funds. (2014 - 2018).

**Funded**

Reynolds, Lawrence P. (Senior Personnel:), Caton, Joel (Principal:), Dahlen, Carl (Co-Principal:), McLean, Kyle (Other: Graduate Student), Borowicz, Pawel (Senior Personnel:), Neville, Brian (Senior Personnel:), "Role of Endogenous Retroviruses and Nutritional Management in Placental Syncytium Formation during Early Gestation," Sponsored by National Institute of Food and Agriculture, U.S. Department of Agriculture, Federal, $150,000.00. (2015 - 2017).

**Funded**

Caton, Joel (Senior Personnel:), Dahlen, Carl (Principal:), Neville, Bryan (Senior Personnel:), Schauer, Chris (Senior Personnel:), "Improving Beef Cattle Reproduction and Nutritional Management," Sponsored by Hatch, 1745, (October 2012 - September 2017).

**Funded**

Caton, Joel (Principal:), Crouse, Matthew (Co-Principal:), "Maternal Nutrition and Embryonic Survival: Nutrient Transport to the Embryo during day 16 to 50 of gestation," Sponsored by SBARE, $18,983.00. (January 2016 - June 2017).
Funded

Caton, Joel (Co-Principal:), McLean, Kyle (Co-Principal:), Dahlen, Carl (Co-Principal:), "Fetal and Placental Development throughout the First Trimester," Sponsored by SBARE, $6,298.00. (March 2016 - February 2017).

Funded

Caton, Joel (Principal:), Bjertness, Jena, "Maternal and postnatal endocrine and metabolic profiles in sheep based on maternal nutritional plane and rumen-protected arginine supplementation during gestation," $6,240.00. (March 2015 - February 2017).

Funded

Caton, Joel (Principal:), McLean, Kyle (Co-Principal:), "Effects of Rumen-Protection Method on Entry of Lysine into Circulation," Sponsored by Nutriquest, $18,100.00. (January 2014 - December 2016).

Funded

"Impact of Grazing Intensity on Forage Intake and Digestion by Beef Cattle," Sponsored by Midwest Forage Association, Private, $3,000.00. (May 1, 2015 - April 30, 2016).

Not Awarded

"Agronomic Selenium Biofortification to Promote Animal Health, Food Quality, and Food Security," Sponsored by Oregon State University, State, $600,000.00.

Not Awarded


Not Awarded

Ward, Alison (Principal:), Vonnahme, Kimberly (Co-Principal:), Caton, Joel (Co-Principal:), "The effect of maternal over and under nutrition during pregnancy on epigenetic developmental programming of diabetes and obesity," Sponsored by Sanford Health Collaborative Seed Grant, $98,800.00. (2016 - 2017).

Christenson, Lisa A. (Assistant Professor)

Funded


Not Awarded

Christenson, Lisa (Supporting:), Wagner, Sarah (Principal:), Hammer, Carolyn (Supporting:), "Our Oath in Action Grant Proposal," Sponsored by American Veterinary Medical Foundation, Private, $10,000.00. (2016).

Not Awarded


Grazul-Bilska, Anna (Professor)

Funded


Funded

Grazul-Bilska, Anna (Principal:), "Acquisition of image analysis system for biomedical and agricultural studies," Sponsored by 43.NDSU Development Foundation’s Centennial Endowment award, Local, $3,370.00. (January 2016 - October 2016).

Currently Under Review

Vonnahme, Kimberly (Principal:), Grazul-Bilska, Anna (Co-Principal:), "The role of giant trophoblast cells in placental function in ewes," Sponsored by USDA-NIFA-AFR, $150,000.00. (2015 - Present).

Not Awarded


Not Awarded


Hammer, Carolyn (Associate Professor)

Funded

_Funded_

"Hammer Bach-Gorman 2015 NDSU Development Foundation Board of Trustees Endowment Proposal."
Sponsored by NDSU Development Foundation, North Dakota State University, $1,000.00. (April 22, 2015 - August 31, 2016).

_Not Awarded_


_Not Awarded_


_Not Awarded_

Christenson, Lisa (Supporting:), Wagner, Sarah (Principal:), Hammer, Carolyn (Supporting:), "Our Oath in Action Grant Proposal," Sponsored by American Veterinary Medical Foundation, Private, $10,000.00. (2016).

_Not Awarded_

Hammer, C (Principal:), Gunkelman, M (Co-Principal:), Griffin, J (Co-Principal:), "The Equine Digital Cushion and its Relation with Anatomical Changes in the Distal Limb," Sponsored by Morris Animal Foundation, $6,534.00. (2016).

_Not Awarded_

Berg, Erika (Principal:), Hammer, Carolyn (Co-Principal:), Bach-Gorman, Amber (Co-Principal:), "Implementation of Equine Facilitated Psychotherapy to Address Anxiety in Undergraduate Female College Students," Sponsored by Horses and Humans Research Foundation, $82,381.00. (July 13, 2016).

**Hanna, Lauren (Assistant Professor)**

_Funded_

Hanna, Lauren (Principal:), "Building a bioinformatics infrastructure by genetically characterizing a commercial beef cow herd for longevity and efficiency attributes.,” Sponsored by NDSU Bioinformatics Seed Grant, North Dakota State University, $21,750.00. (November 12, 2015 - April 30, 2016).

_Currently Under Review_
Hanna, Lauren (Principal:), Vonnahme, Kimberly (Supporting: Cooperator), Swanson, Kendall (Supporting: Cooperator), Ringwall, Kris (Supporting: Cooperator), "Genetic characterization of efficiency traits in the commercial beef cow herd," Sponsored by Red Angus Foundation, Private, $50,984.00. (2016).

**Currently Under Review**

Hanna, Lauren (Co-Principal:), Vonnahme, Kimberly (Principal:), Swanson, Kendall (Co-Principal:), "Impact of frame size, feed efficiency, and reproductive performance in a commercial beef herd," Sponsored by SBARE, State, $19,500.00. (2016).

**Currently Under Review**

Hanna, Lauren (Co-Principal:), Sun, XIN (Other:), "Objective measurement of beef cattle temperament using video image analysis (VIA) technology," Sponsored by Minnesota Beef Council, Private, $26,900.00. (2016).

**Currently Under Review**

Hanna, Lauren (Principal:), Sun, XIN (Co-Principal:), "Objective measurement of beef cattle temperament using video image analysis (VIA) technology," Sponsored by American College Lab Animal Medicine Foundation, Federal, $19,900.00. (2016).

**Not Awarded**

Hanna, Lauren (Principal:), Dahlen, Carl (Supporting: Collaborator), Wagner, Sarah (Supporting: Collaborator), "Evaluation of Methods to Measure Temperament in Cattle and Their Impacts on Genetic Associations and Predictions," Sponsored by Angus Research Foundation, Private, $43,520.00. (2016).

**Lardy, Greg (Professor)**

**Not Awarded**

Meehan, Miranda (Co-Principal:), Panigrahi, Suranjan (Principal:), Engel, Bernie (Co-Principal:), Misra, Manjit (Co-Principal:), Lardy, Gregory (Co-Principal:), Stokka, Gerald (Co-Principal:), Johal, Gurmukh (Co-Principal:), Engel, Dan (Co-Principal:), Timothy Sellnow (Co-Principal:), "A Symposium on "Strategic direction for Sustainability in crop and animal production"," Sponsored by USDA, NIFA, $50,000.00. (2015 - Present).

**Maddock, Robert (Associate Professor)**

**Funded**


**Not Awarded**
Carlin, Kasey (Co-Principal:), Maddock, Robert (Principal:), "Relationships among post-mortem metabolism, tenderness, and juiciness as affected by beef carcass size and season," Sponsored by USDA-NIFA-AFRI, Federal, $457,185.00. (2016 - Present).

Not Awarded

Carlin, Kasey (Co-Principal:), Maddock, Robert (Principal:), "Relationships among post-mortem metabolism, tenderness, and juiciness as affected by carcass size," Sponsored by Minnesota Beef Council, State, $39,860.00. (2016 - Present).

Not Awarded

Carlin, Kasey (Co-Principal:), Maddock, Robert (Principal:), "Relationships among post-mortem metabolism, tenderness, and juiciness as affected by carcass size," Sponsored by National Cattleman's Beef Association, $45,464.00. (2016 - Present).

Reynolds Ph.D., Larry (Professor)

Funded

Reynolds, Lawrence (Senior Personnel:), Vonnahme, Kimberly (Senior Personnel:), Ominski, Kim (Principal: University of Manitoba), "Impact of cow-calf feeding and vaccination strategies on carcass outcomes in beef cattle," Sponsored by Manitoba Agriculture, Food and Rural Initiatives, State, $261,000.00. (2015 - 2018).

Funded

Reynolds, Lawrence (Co-Principal:), Caton, Joel (Co-Principal:), "Regulation of fertility in ruminant livestock," Sponsored by ND Hatch Funds. (2014 - 2018).

Funded

Reynolds, Lawrence P. (Senior Personnel:), Caton, Joel (Principal:), Dahlen, Carl (Co-Principal:), McLean, Kyle (Other; Graduate Student), Borowicz, Pawel (Senior Personnel:), Neville, Brian (Senior Personnel:), "Role of Endogenous Retroviruses and Nutritional Management in Placental Syncytium Formation during Early Gestation," Sponsored by National Institute of Food and Agriculture, U.S. Department of Agriculture, Federal, $150,000.00. (2015 - 2017).

Funded


Funded

Reynolds, Lawrence P. (Principal:), Conley, Alan J. (Co-Principal: UC-Davis), "Role of Placental, Fetal Adrenal and Fetal Neural Steroids in Parturition and Extra-Uterine Survival," Sponsored by National
Institute of Food and Agriculture, U.S. Department of Agriculture, Federal, $150,000.00. (September 1, 2013 - August 31, 2017).

**Funded**


Swanson, Kendall (Co-Principal:), Stokka, Gerald (Principal:), Bauer, Marc (Co-Principal:), Berg, Eric (Co-Principal:), Dahlen, Carl (Co-Principal:), Reynolds, Lawrence (Co-Principal:), Ward, Alison (Co-Principal:), Vonnahme, Kimberly (Co-Principal:), "Impact of winter feeding strategies during gestation on productivity and carcass outcomes in beef cattle: calf health through weaning," Sponsored by North Dakota State Board of Agricultural Research and Education, $18,000.00. (2016 - 2017).

Swanson, Kendall (Co-Principal:), Stokka, Gerald (Co-Principal:), Bauer, Marc (Co-Principal:), Berg, Eric (Co-Principal:), Dahlen, Carl (Co-Principal:), Reynolds, Lawrence (Co-Principal:), Ward, Alison (Co-Principal:), Vonnahme, Kimberly (Principal:), "Impact of winter feeding strategies during gestation on productivity and carcass outcomes in beef cattle: Uterine blood flow to the developing calf," Sponsored by North Dakota State Board of Agricultural Research and Education, $16,400.00. (2016 - 2017).

Swanson, Kendall (Co-Principal:), Omsinski, Kim (Principal:), Vonnahme, Kimberly (Principal:), Reynolds, Lawrence (Co-Principal:), Bauer, Marc (Co-Principal:), Dahlen, Carl (Co-Principal:), Stokka, Gerald (Co-Principal:), Ward, Alison (Co-Principal:), "Impact of Winter Feeding and Vaccination Strategies on Carcass Outcomes in Beef Cattle," Sponsored by National Sciences and Engineering Council; Manitoba Beef and Forage Initiatives, Inc. Manitoba Beef Producers, Federal, $67,085.00. (2015 - 2017).

**Not Awarded**


**Not Awarded**


**Not Awarded**


**Swanson, Kendall C. (Professor)**

**Funded**

Swanson, Kendall (Co-Principal:), Dahlen, Carl (Principal:), "Use of electronic monitoring for precision management of cow calf and cattle feeding operations," $95,890.00. (May 1, 2016 - July 1, 2017).
Funded

Swanson, Kendall (Co-Principal:), Vonnahme, Kimberly (Co-Principal:), "Role of maternal energy in beef cows," Sponsored by North Dakota Agricultural Utilization Commission, $43,260.00. (April 1, 2016 - April 1, 2017).

Currently Under Review

Hanna, Lauren (Principal:), Vonnahme, Kimberly (Supporting: Cooperator), Swanson, Kendall (Supporting: Cooperator), Ringwall, Kris (Supporting: Cooperator), "Genetic characterization of efficiency traits in the commercial beef cow herd," Sponsored by Red Angus Foundation, Private, $50,984.00. (2016).

Currently Under Review

Hanna, Lauren (Co-Principal:), Vonnahme, Kimberly (Principal:), Swanson, Kendall (Co-Principal:), "Impact of frame size, feed efficiency, and reproductive performance in a commercial beef herd," Sponsored by SBARE, State, $19,500.00. (2016).

Not Awarded

Rahman, Shafiqur, Quadir, Mohi (Co-Principal:), Swanson, Kendall (Co-Principal:), Lee, Chiwon (Co-Principal:), "Fate and transport of zinc and silver nanoparticles (NPs) in livestock manure and their impacts on the environment (air and soil) and crop(s)," Sponsored by AFRI-NIFA, $499,988.00. (October 1, 2016 - September 30, 2019).

Swanson, Kendall (Co-Principal:), Brake, Derek (Principal:), "Effects of postruminal flows of amino acids on small intestinal starch digestion in cattle," $500,000.00. (January 15, 2016 - January 15, 2018).

Swanson, Kendall (Co-Principal:), Stokka, Gerald (Co-Principal:), Bauer, Marc (Co-Principal:), Berg, Eric (Co-Principal:), Dahlern, Carl (Co-Principal:), Reynolds, Lawrence (Co-Principal:), Ward, Alison (Co-Principal:), Vonnahme, Kimberly (Co-Principal:), "Impact of winter feeding strategies during gestation on productivity and carcass outcomes in beef cattle: calf health through weaning," Sponsored by North Dakota State Board of Agricultural Research and Education, $18,000.00. (2016 - 2017).

Swanson, Kendall (Co-Principal:), Stokka, Gerald (Co-Principal:), Bauer, Marc (Co-Principal:), Berg, Eric (Co-Principal:), Dahlern, Carl (Co-Principal:), Reynolds, Lawrence (Co-Principal:), Ward, Alison (Co-Principal:), Vonnahme, Kimberly (Principal:), "Impact of winter feeding strategies during gestation on productivity and carcass outcomes in beef cattle: Uterine blood flow to the developing calf," Sponsored by North Dakota State Board of Agricultural Research and Education, $16,400.00. (2016 - 2017).

Swanson, Kendall (Co-Principal:), Ominski, Kim (Principal:), Vonnahme, Kimberly (Principal:), Reynolds, Lawrence (Co-Principal:), Bauer, Marc (Co-Principal:), Dahlern, Carl (Co-Principal:), Stokka, Gerald (Co-Principal:), Ward, Alison (Co-Principal:), "Impact of Winter Feeding and Vaccination Strategies on Carcass Outcomes in Beef Cattle," Sponsored by National Sciences and Engineering Council; Manitoba Beef and Forage Initiatives, Inc. Manitoba Beef Producers, Federal, $67,085.00. (2015 - 2017).
Swanson, Kendall (Co-Principal:), Anderson, Vern (Co-Principal:), "Effects of fat level in distillers grain fed with corn or barley on steer performance, carcass quality, rumen metabolism and feeding behavior," $151,622.00. (July 1, 2014 - July 1, 2017).

Not Awarded

Ward, Alison (Principal:), Swanson, Kendall (Supporting: Collaborator), Dahlen, Carl (Supporting: Collaborator), "The role of vitamin A on intramuscular fat deposition in finishing cattle," Sponsored by AES Precision Agriculture, State, $97,700.00. (2015 - 2016).

Vonnahme, Kimberly A. (Professor)

Funded

Reynolds, Lawrence (Senior Personnel:), Vonnahme, Kimberly (Senior Personnel:), Ominski, Kim (Principal: University of Manitoba), "Impact of cow-calf feeding and vaccination strategies on carcass outcomes in beef cattle," Sponsored by Manitoba Agriculture, Food and Rural Initiatives, State, $261,000.00. (2015 - 2018).

Funded

Swanson, Kendall (Co-Principal:), Vonnahme, Kimberly (Co-Principal:), "Role of maternal energy in beef cows," Sponsored by North Dakota Agricultural Utilization Commission, $43,260.00. (April 1, 2016 - April 1, 2017).

Currently Under Review


Currently Under Review


Currently Under Review

Vonnahme, Kimberly (Co-Principal:), "The role of giant trophoblast cells in placental function in ewes," Sponsored by NSF, $495,419.00. (2015 - Present).

Currently Under Review

Vonnahme, Kimberly (Principal:), Grazul-Bilska, Anna (Co-Principal:), "The role of giant trophoblast cells in placental function in ewes," Sponsored by USDA-NIFA-AFR, $150,000.00. (2015 - Present).

Currently Under Review
Hanna, Lauren (Principal:), Vonnahme, Kimberly (Supporting: Cooperator), Swanson, Kendall (Supporting: Cooperator), Ringwall, Kris (Supporting: Cooperator), "Genetic characterization of efficiency traits in the commercial beef cow herd," Sponsored by Red Angus Foundation, Private, $50,984.00. (2016).

Currently Under Review

Hanna, Lauren (Co-Principal:), Vonnahme, Kimberly (Principal:), Swanson, Kendall (Co-Principal:), "Impact of frame size, feed efficiency, and reproductive performance in a commercial beef herd," Sponsored by SBARE, State, $19,500.00. (2016).

Swanson, Kendall (Co-Principal:), Stokka, Gerald (Principal:), Bauer, Marc (Co-Principal:), Berg, Eric (Co-Principal:), Dahlen, Carl (Co-Principal:), Reynolds, Lawrence (Co-Principal:), Ward, Alison (Co-Principal:), Vonnahme, Kimberly (Co-Principal:), "Impact of winter feeding strategies during gestation on productivity and carcass outcomes in beef cattle: calf health through weaning," Sponsored by North Dakota State Board of Agricultural Research and Education, $18,000.00. (2016 - 2017).

Swanson, Kendall (Co-Principal:), Stokka, Gerald (Co-Principal:), Bauer, Marc (Co-Principal:), Berg, Eric (Co-Principal:), Dahlen, Carl (Co-Principal:), Reynolds, Lawrence (Co-Principal:), Ward, Alison (Co-Principal:), Vonnahme, Kimberly (Principal:), "Impact of winter feeding strategies during gestation on productivity and carcass outcomes in beef cattle: Uterine blood flow to the developing calf," Sponsored by North Dakota State Board of Agricultural Research and Education, $16,400.00. (2016 - 2017).

Not Awarded

Ward, Alison (Principal:), Vonnahme, Kimberly (Co-Principal:), Caton, Joel (Co-Principal:), "The effect of maternal over and under nutrition during pregnancy on epigenetic developmental programming of diabetes and obesity," Sponsored by Sanford Health Collaborative Seed Grant, $98,800.00. (2016 - 2017).

Swanson, Kendall (Co-Principal:), Ominski, Kim (Principal:), Vonnahme, Kimberly (Principal:), Reynolds, Lawrence (Co-Principal:), Bauer, Marc (Co-Principal:), Dahlen, Carl (Co-Principal:), Stokka, Gerald (Co-Principal:), Ward, Alison (Co-Principal:), "Impact of Winter Feeding and Vaccination Strategies on Carcass Outcomes in Beef Cattle," Sponsored by National Sciences and Engineering Council; Manitoba Beef and Forage Initiatives, Inc. Manitoba Beef Producers, Federal, $67,085.00. (2015 - 2017).

Not Awarded

Ewert, Dan (Principal: 50% budget responsibility), Braaten, Benjamin (Co-Principal: 10% budget responsibility), Brooks, Amanda (Co-Principal: 10% budget responsibility), Hackney, Kyle (Co-Principal: 10% budget responsibility), Nawarathna, Dharmakeerthi (Co-Principal: 10% budget responsibility), Vonnahme, Kimberly (Co-Principal: 10% budget responsibility), "Discovery Based Learning in Multi-Disciplinary Teams: Pilot Funding," Sponsored by North Dakota State University, Local, $80,000.00. (2016).

Wagner, Sarah A. (Professor)

Funded

Not Awarded

Hanna, Lauren (Principal:), Dahlen, Carl (Supporting: Collaborator), Wagner, Sarah (Supporting: Collaborator), "Evaluation of Methods to Measure Temperament in Cattle and Their Impacts on Genetic Associations and Predictions," Sponsored by Angus Research Foundation, Private, $43,520.00. (2016).

Not Awarded

Christenson, Lisa (Supporting:), Wagner, Sarah (Principal:), Hammer, Carolyn (Supporting:), "Our Oath in Action Grant Proposal," Sponsored by American Veterinary Medical Foundation, Private, $10,000.00. (2016).

Ward, Alison (Assistant Professor)

Funded

Ward, Alison (Principal:), Borowicz, Pawel (Co-Principal:), "Generation of preliminary data for NIH “Trophoblast Differentiation and Function (R21)” grant proposal," Sponsored by NDSU RCA, $2,600.00. (December 12, 2016 - June 15, 2017).

Funded


Not Awarded

Ward, Alison (Principal:), "The role of vitamin A on increasing marbling in finishing cattle," Sponsored by Minnesota Beef Council, State, $21,800.00. (December 2016 - May 2018).

Not Awarded


Not Awarded

Ward, Alison (Principal:), "Genetic analysis software," Sponsored by The Centennial Endowment Fund (NDSU Alumni Foundation), North Dakota State University, $3,000.00. (2016 - 2017).

Swanson, Kendall (Co-Principal:), Stokka, Gerald (Principal:), Bauer, Marc (Co-Principal:), Berg, Eric (Co-Principal:), Dahlen, Carl (Co-Principal:), Reynolds, Lawrence (Co-Principal:), Ward, Alison (Co-Principal:), Vonnahme, Kimberly (Co-Principal:), "Impact of winter feeding strategies during gestation on tas.
productivity and carcass outcomes in beef cattle: calf health through weaning." Sponsored by North Dakota State Board of Agricultural Research and Education, $18,000.00. (2016 - 2017).

Swanson, Kendall (Co-Principal:), Stokka, Gerald (Co-Principal:), Bauer, Marc (Co-Principal:), Berg, Eric (Co-Principal:), Dahlen, Carl (Co-Principal:), Reynolds, Lawrence (Co-Principal:), Ward, Alison (Co-Principal:), Vonnahme, Kimberly (Principal:), "Impact of winter feeding strategies during gestation on productivity and carcass outcomes in beef cattle: Uterine blood flow to the developing calf," Sponsored by North Dakota State Board of Agricultural Research and Education, $16,400.00. (2016 - 2017).

Not Awarded

Ward, Alison (Principal:), Vonnahme, Kimberly (Co-Principal:), Caton, Joel (Co-Principal:), "The effect of maternal over and under nutrition during pregnancy on epigenetic developmental programming of diabetes and obesity," Sponsored by Sanford Health Collaborative Seed Grant, $98,800.00. (2016 - 2017).

Swanson, Kendall (Co-Principal:), Ominski, Kim (Principal:), Vonnahme, Kimberly (Principal:), Reynolds, Lawrence (Co-Principal:), Bauer, Marc (Co-Principal:), Dahlen, Carl (Co-Principal:), Stokka, Gerald (Co-Principal:), Ward, Alison (Co-Principal:), "Impact of Winter Feeding and Vaccination Strategies on Carcass Outcomes in Beef Cattle," Sponsored by National Sciences and Engineering Council; Manitoba Beef and Forage Initiatives, Inc. Manitoba Beef Producers, Federal, $67,085.00. (2015 - 2017).

Not Awarded


Not Awarded

Ward, Alison (Supporting: Collaborator), Dahlen, Carl (Principal:), Borowicz, Pawel (Supporting: Collaborator), Negrin Pereira, Nicolas (Co-Principal:), "Influence of winter feeding strategies during gestation on testicular cell populations in bull calves indicative of future fertility," Sponsored by State Board of Agricultural Research & Education, State, $20,000.00. (2015 - 2016).

Not Awarded

Ward, Alison (Principal:), "The effect of maternal nutrient restriction on fetal programming in the muscle of beef cattle," Sponsored by NDSU Bioinformatics Seed Grant Program, North Dakota State University, $15,000.00. (2015 - 2016).

Not Awarded

Ward, Alison (Principal:), Swanson, Kendall (Supporting: Collaborator), Dahlen, Carl (Supporting: Collaborator), "The role of vitamin A on intramuscular fat deposition in finishing cattle," Sponsored by AES Precision Agriculture, State, $97,700.00. (2015 - 2016).
Dahlen, Carl R. (Associate Professor)

**Funded**

Dahlen, Carl (Principal:), Negrin Pereira, N, Neville, B W, "Impact of Injectable Trace Mineral Supplements in Embryo Transfer Programs," Sponsored by Multimin, USA, $175,000.00. (2016 - 2018).

**Funded**

Reynolds, Lawrence P. (Senior Personnel:), Caton, Joel (Principal:), Dahlen, Carl (Co-Principal:), McLean, Kyle (Other: Graduate Student), Borowicz, Pawel (Senior Personnel:), Neville, Brian (Senior Personnel:), "Role of Endogenous Retroviruses and Nutritional Management in Placental Syncytium Formation during Early Gestation," Sponsored by National Institute of Food and Agriculture, U.S. Department of Agriculture, Federal, $150,000.00. (2015 - 2017).

**Funded**

Caton, Joel (Senior Personnel:), Dahlen, Carl (Principal:), Neville, Bryan (Senior Personnel:), Schauer, Chris (Senior Personnel:), "Improving Beef Cattle Reproduction and Nutritional Management," Sponsored by Hatch, 1745, (October 2012 - September 2017).

**Funded**

Swanson, Kendall (Co-Principal:), Dahlen, Carl (Principal:), "Use of electronic monitoring for precision management of cow calf and cattle feeding operations," $95,890.00. (May 1, 2016 - July 1, 2017).

**Not Awarded**


Swanson, Kendall (Co-Principal:), Stokka, Gerald (Principal:), Bauer, Marc (Co-Principal:), Berg, Eric (Co-Principal:), Dahlen, Carl (Co-Principal:), Reynolds, Lawrence (Co-Principal:), Ward, Alison (Co-Principal:), Vonnahme, Kimberly (Co-Principal:), "Impact of winter feeding strategies during gestation on productivity and carcass outcomes in beef cattle: calf health through weaning," Sponsored by North Dakota State Board of Agricultural Research and Education, $18,000.00. (2016 - 2017).

Swanson, Kendall (Co-Principal:), Stokka, Gerald (Co-Principal:), Bauer, Marc (Co-Principal:), Berg, Eric (Co-Principal:), Dahlen, Carl (Co-Principal:), Reynolds, Lawrence (Co-Principal:), Ward, Alison (Co-Principal:), Vonnahme, Kimberly (Principal:), "Impact of winter feeding strategies during gestation on productivity and carcass outcomes in beef cattle: Uterine blood flow to the developing calf," Sponsored by North Dakota State Board of Agricultural Research and Education, $16,400.00. (2016 - 2017).

Swanson, Kendall (Co-Principal:), Ominski, Kim (Principal:), Vonnahme, Kimberly (Principal:), Reynolds, Lawrence (Co-Principal:), Bauer, Marc (Co-Principal:), Dahlen, Carl (Co-Principal:), Stokka, Gerald (Co-Principal:), Ward, Alison (Co-Principal:), "Impact of Winter Feeding and Vaccination Strategies on

Not Awarded

Hanna, Lauren (Principal:), Dahlen, Carl (Supporting: Collaborator), Wagner, Sarah (Supporting: Collaborator), "Evaluation of Methods to Measure Temperament in Cattle and Their Impacts on Genetic Associations and Predictions," Sponsored by Angus Research Foundation, Private, $43,520.00. (2016).

Not Awarded

Ward, Alison (Supporting: Collaborator), Dahlen, Carl (Principal:), Borowicz, Pawel (Supporting: Collaborator), Negrin Pereira, Nicolas (Co-Principal:), "Influence of winter feeding strategies during gestation on testicular cell populations in bull calves indicative of future fertility," Sponsored by State Board of Agricultural Research & Education, State, $20,000.00. (2015 - 2016).

Not Awarded

Ward, Alison (Principal:), Swanson, Kendall (Supporting: Collaborator), Dahlen, Carl (Supporting: Collaborator), "The role of vitamin A on intramuscular fat deposition in finishing cattle," Sponsored by AES Precision Agriculture, State, $97,700.00. (2015 - 2016).

Meehan, Miranda A. (Assistant Professor)

Funded

Meehan, Miranda, "North Dakota Riparian Ecological Site Description Development Project: Phase II," Sponsored by North Dakota Department of Health, State, $110,783.00. (June 1, 2016 - Present).

Funded

Meehan, Miranda (Principal:), Sedivec, Kevin (Other: Collaborator), DeSutter, Thomas (Other: Collaborator), Daigh, Aaron, Augustin, Chris (Other: Collaborator), "USDA NIFA, Hatch project 1009707: Remediation options to enhance ecosystem services of lands in North Dakota," Sponsored by USDA, NIFA, Federal. (June 1, 2016 - Present).

Funded


Funded


Funded
Meehan, Miranda, "Little Missouri River Tributaries Assessment Project Phase II," Sponsored by North Dakota Department of Health, State, $86,164.00. (June 1, 2015 - Present).

**Funded**


**Funded**


**Funded**

Meehan, Miranda (Principal:), Berg, Mary (Co-Principal:), "Land Use of Riparian Ecosystems in the Northern Great Plains," Sponsored by North Dakota Grazing Lands Coalition, North Dakota Corn Council, North Dakota Natural Resource Trust, North Central SARE, Private, $1,500.00. (June 1, 2016 - October 31, 2016).

**Funded**


**Not Awarded**

Meehan, Miranda (Co-Principal:), Panigrahi, Suranjan (Principal:), Engel, Bernie (Co-Principal:), Misra, Manjit (Co-Principal:), Lardy, Gregory (Co-Principal:), Stokka, Gerald (Co-Principal:), Johal, Gurmukh (Co-Principal:), Engel, Dan (Co-Principal:), Timothy Sellnow (Co-Principal:), "A Symposium on "Strategic direction for Sustainability in crop and animal production"," Sponsored by USDA, NIFA, $50,000.00. (2015 - Present).

**Not Awarded**


**Stokka, Gerald L. (Associate Professor)**

**Funded**
Stokka, Gerald (Principal:), Gaspers, J (Co-Principal:), "Evaluation of and innate immune Zelnate® stimulant on feeding behavior, performance and antibody response in weaned beef calves," Sponsored by Zoetis, $5,000.00. (2016).

**Funded**


**Not Awarded**

Meehan, Miranda (Co-Principal:), Panigrahi, Suranjit (Principal:), Engel, Bernie (Co-Principal:), Misra, Manjit (Co-Principal:), Lardy, Gregory (Co-Principal:), Stokka, Gerald (Co-Principal:), Johal, Gurmukh (Co-Principal:), Engel, Dan (Co-Principal:), Timothy Sellnow (Co-Principal:), "A Symposium on "Strategic direction for Sustainability in crop and animal production"," Sponsored by USDA, NIFA, $50,000.00. (2015 - Present).

Swanson, Kendall (Co-Principal:), Stokka, Gerald (Principal:), Bauer, Marc (Co-Principal:), Berg, Eric (Co-Principal:), Dahlen, Carl (Co-Principal:), Reynolds, Lawrence (Co-Principal:), Ward, Alison (Co-Principal:), Vonnahme, Kimberly (Co-Principal:), "Impact of winter feeding strategies during gestation on productivity and carcass outcomes in beef cattle: calf health through weaning," Sponsored by North Dakota State Board of Agricultural Research and Education, $18,000.00. (2016 - 2017).

Swanson, Kendall (Co-Principal:), Stokka, Gerald (Co-Principal:), Bauer, Marc (Co-Principal:), Berg, Eric (Co-Principal:), Dahlen, Carl (Co-Principal:), Reynolds, Lawrence (Co-Principal:), Ward, Alison (Co-Principal:), Vonnahme, Kimberly (Principal:), "Impact of winter feeding strategies during gestation on productivity and carcass outcomes in beef cattle: Uterine blood flow to the developing calf," Sponsored by North Dakota State Board of Agricultural Research and Education, $16,400.00. (2016 - 2017).

Swanson, Kendall (Co-Principal:), Ominski, Kim (Principal:), Vonnahme, Kimberly (Principal:), Reynolds, Lawrence (Co-Principal:), Bauer, Marc (Co-Principal:), Dahlen, Carl (Co-Principal:), Stokka, Gerald (Co-Principal:), Ward, Alison (Co-Principal:), "Impact of Winter Feeding and Vaccination Strategies on Carcass Outcomes in Beef Cattle," Sponsored by National Sciences and Engineering Council; Manitoba Beef and Forage Initiatives, Inc. Manitoba Beef Producers, Federal, $67,085.00. (2015 - 2017).

**Not Awarded**

Stokka, Gerald (Principal:), Gaspers, J (Co-Principal:), "Evaluation of immune response to vaccination protocol on pregnant beef heifers and their offspring," $19,550.00. (2016).

**Not Awarded**

Presentations

North Dakota State University

January 1, 2016 - December 31, 2016

AES Animal Science

Borowicz, Pawel (Research Assistant Professor)

Deka, Priyanka, Borowicz, Pawel, Payne, Scott, Moore, Jayma, Katti, Kalpana, Bezbaruah, Achintya,
International Prairie Student Conference (IPSC) 2016, "Plant Uptake of Engineered Nanomaterials from
Aqueous Environment,” University of Manitoba, Winnipeg, MB, Canada. (August 2016).

Crouse, Matthew S (Author & Presenter), McLean, Kyle J (Author), Crosswhite, Meliissa R (Author), Negrin
Pereira, Nicolas (Author), Ward, Alison (Author), Reynolds, Lawrence (Author), Dahlen, Carl (Author),
Neville, Bryan W (Author), Borowicz, Pawel (Author), Caton, Joel (Author), Western Section American
Society of Animal Science Conference, "Effects of maternal nutritional status on nutrient transporter
expression on bovine utero-placental tissue on days 16 to 50 of gestation,” American Society of Animal
Science, Salt Lake City, UT. (July 19, 2016 - July 23, 2016).

Crouse, Matthew S (Author & Presenter), Caton, Joel (Author), McLean, Kyle J (Author), Borowicz, Pawel
(Author), Reynolds, Lawrence (Author), Dahlen, Carl (Author), Ward, Alison (Author), ADSA ASAS Joint
Annual Meeting, "Isolation and comparison of expression of novel glucose transporters, GLUT3 and
GLUT14, in bovine uteroplastic tissue from days sixteen to fifty of gestation,” American Society of

McLean, Kyle J (Author & Presenter), Crouse, Matthew S (Author), Crosswhite, Mellissa R (Author), Negrin
Pereira, Nicolas (Author), Ward, Alison (Author), Reynolds, Lawrence (Author), Dahlen, Carl (Author),
Neville, Bryan W (Author), Borowicz, Pawel (Author), Caton, Joel (Author), ADSA ASAS Joint Annual
Meeting, "The effects of nutritional restriction on endogenous retroviruses and placentation during the first
50 d of gestation in beef heifers," American Society of Animal Science, Salt Lake City, UT. (July 19, 2016
- July 23, 2016).

Shrestha, S, Poudel, R, Borowicz, Pawel, Zhong, Shaobin, IS-PMPI XVII Congress, "Histopathological study
of compatible and incompatible interactions between barley and the spot blotch fungus Bipolaris

Carlin, Kasey R. (Associate Professor)

Carlin, Kasey, Annual Meeting, "Current Research in Meat Science at NDSU," North Dakota Stockmen's
Association, Minot, ND. (September 2016).

Hoffman, Travis (Assistant Professor)

Hoffman, Travis, Lamb Research Update, "The Cost of Fat in the U.S. Lamb Industry - interim report,"
American Lamb Board, Denver, CO. (October 25, 2016).
Animal Science

Berg, Erika L. (Associate Professor)

Berg, Erika (Author & Presenter), Vaudrin, Jeri (Author), Hammer, Carolyn (Author), Eck, Tate (Author), PATH Intl. Conference and Annual Meeting, "Veteran's Educational Training Horsemanship Program," PATH Intl., Williamsburg, VA. (November 1, 2016 - November 6, 2016).


Caton, Joel S. (Professor)

Caton, Joel, Phibro-Beef NRC International Conference, "Beef Cattle Production in North America: Maintenance Demands for Energy and Protein and Vitamin Recommendations. Ribeirao Preto, Brazil.," Ribeirao Preto, Brazil. (2016).


Crouse, Matthew S (Author & Presenter), McLean, Kyle J (Author), Crosswhite, Mellissa R (Author), Negrin Pereira, Nicolas (Author), Ward, Alison (Author), Reynolds, Lawrence (Author), Dahlen, Carl (Author), Neville, Bryan W (Author), Borowicz, Pawel (Author), Caton, Joel (Author), Western Section American Society of Animal Science Conference, "Effects of maternal nutritional status on nutrient transporter expression on bovine utero-placental tissue on days 16 to 50 of gestation," American Society of Animal Science, Salt Lake City, UT. (July 19, 2016 - July 23, 2016).

Crouse, Matthew S (Author & Presenter), Caton, Joel (Author), McLean, Kyle J (Author), Borowicz, Pawel (Author), Reynolds, Lawrence (Author), Dahlen, Carl (Author), Ward, Alison (Author), ADSA ASAS Joint Annual Meeting, "Isolation and comparison of expression of novel glucose transporters, GLUT3 and GLUT14, in bovine uteroplacental tissue from days sixteen to fifty of gestation," American Society of Animal Science, Salt Lake City, UT. (July 19, 2016 - July 23, 2016).

McLean, Kyle J (Author & Presenter), Crouse, Matthew S (Author), Crosswhite, Mellissa R (Author), Negrin Pereira, Nicolas (Author), Ward, Alison (Author), Reynolds, Lawrence (Author), Dahlen, Carl (Author), Neville, Bryan W (Author), Borowicz, Pawel (Author), Caton, Joel (Author), ADSA ASAS Joint Annual Meeting, "The effects of nutritional restriction on endogenous retroviruses and placentation during the first 50 d of gestation in beef heifers," American Society of Animal Science, Salt Lake City, UT. (July 19, 2016 - July 23, 2016).

Eck, Tate D. (Lecturer)

Berg, Erika (Author & Presenter), Vaudrin, Jeri (Author), Hammer, Carolyn (Author), Eck, Tate (Author), PATH Intl. Conference and Annual Meeting. "Veteran's Educational Training Horsemanship Program," PATH Intl., Williamsburg, VA. (November 1, 2016 - November 6, 2016).

Grazul-Bilska, Anna (Professor)


Grazul-Bilska, Anna, "Placental development during early pregnancy: growth, angiogenesis and steroid receptors," University of Zurich, Switzerland, Zurich, Switzerland. (2016).


Grazul-Bilska, Anna, "Role of nutrition in endocrine and reproductive functions in animal model," Polish Society of Physiology and Society of Reproductive Physiology, Olsztyn, Poland. (2016).
Hammer, Carolyn (Associate Professor)

Berg, Erika (Author & Presenter), Vaudrin, Jeri (Author), Hammer, Carolyn (Author), Eck, Tate (Author), PATH Intl. Conference and Annual Meeting, "Veteran's Educational Training Horsemanship Program," PATH Intl., Williamsburg, VA. (November 1, 2016 - November 6, 2016).


Lardy, Gregory (Professor)

Lardy, Gregory (Author & Presenter), Joint Annual Meeting, "Work-life balance for extension professionals: maybe it should be redefined as 'work-life effectiveness','" ASAS & ADSA, Salt Lake City, Utah. (July 19, 2016 - July 23, 2016).

Lardy, Gregory P (Author & Presenter), Midwest Section, ASAS ADSA, "An administrator’s perspective on meeting changing curriculum needs with limited resources," ASAS & ADSA, Des Moines, IA. (March 14, 2016 - March 16, 2016).

Maddock, Robert (Associate Professor)


Reynolds Ph.D., Lawrence (Professor)

Reynolds, Lawrence, Fargo Nerd Night, "The Real Nightmare and How Animals will Save Us," Fargo Nerd Night, Gastropub, Fargo ND. (October 2016).


Crouse, Matthew S (Author & Presenter), McLean, Kyle J (Author), Crosswhite, Mellissa R (Author), Negrin Pereira, Nicolas (Author), Ward, Alison (Author), Reynolds, Lawrence (Author), Dahlen, Carl (Author),
Neville, Bryan W (Author), Borowicz, Pawel (Author), Caton, Joel (Author), Western Section American Society of Animal Science Conference, "Effects of maternal nutritional status on nutrient transporter expression on bovine utero-placental tissue on days 16 to 50 of gestation," American Society of Animal Science, Salt Lake City, UT. (July 19, 2016 - July 23, 2016).

Crouse, Matthew S (Author & Presenter), Caton, Joel (Author), McLean, Kyle J (Author), Borowicz, Pawel (Author), Reynolds, Lawrence (Author), Dahlen, Carl (Author), Ward, Alison (Author), ADSA ASAS Joint Annual Meeting, "Isolation and comparison of expression of novel glucose transporters, GLUT3 and GLUT14, in bovine uteroplacental tissue from days sixteen to fifty of gestation," American Society of Animal Science, Salt Lake City, UT. (July 19, 2016 - July 23, 2016).

McLean, Kyle J (Author & Presenter), Crouse, Matthew S (Author), Crosswhite, Mellissa R (Author), Negrin Pereira, Nicolas (Author), Ward, Alison (Author), Reynolds, Lawrence (Author), Dahlen, Carl (Author), Neville, Bryan W (Author), Borowicz, Pawel (Author), Caton, Joel (Author), ADSA ASAS Joint Annual Meeting, "The effects of nutritional restriction on endogenous retroviruses and placentation during the first 50 d of gestation in beef heifers," American Society of Animal Science, Salt Lake City, UT. (July 19, 2016 - July 23, 2016).


Swanson, Kendall C. (Professor)

Swanson, Kendall, ND Stockmen's Association Organized Meeting, "Current Research at the Beef Cattle Research Complex," (July 18, 2016).


Swanson, Kendall, Morton County Soil Conservation District Meeting, "Cow Nutrition," Mandan, ND. (January 19, 2016).

Vonnahme, Kimberly A. (Professor)

Vonnahme, Kimberly, NDSU Women in Research, "The power of the placenta: protecting progeny and projecting the postnatal pathway.," Fargo ND. (October 19, 2016).

Vonnahme, Kimberly, Purina Scientific Exchange, "Why maternal feeding impacts more than just the dam.," Fargo ND. (September 28, 2016).
Vonnahme, Kimberly, Western Nutrition Conference., "Why maternal nutrition impacts more than just the dam.," Saskatoon, SK, Canada. (September 22, 2016).

Vonnahme, Kimberly, . Agricultural Bioscience International Conference, "Special Delivery: How the maternal environment can alter nutrient delivery to the offspring in livestock.,“ Fargo, ND. (September 20, 2016).

**Wagner, Sarah A. (Professor)**

Shreffler, Jacob (Author & Presenter), Wagner, Sarah (Author), Young, Jennifer M (Author), EXPLORE Showcase event, "Validation of the Fitbit Accelerometer for Tracking Behavior of Unweaned Pigs," North Dakota State University, North Dakota State University. (November 1, 2016).


Wagner, Sarah (Author & Presenter), Faculty Professional Development Conference, "Ten Teaching Tips From the First Ten Years," North Dakota State University, North Dakota State University. (August 17, 2016).

**Ward, Alison (Assistant Professor)**

Crouse, Matthew S (Author & Presenter), McLean, Kyle J (Author), Crosswhite, Mellissa R (Author), Negrin Pereira, Nicolas (Author), Ward, Alison (Author), Reynolds, Lawrence (Author), Dahlen, Carl (Author), Neville, Bryan W (Author), Borowicz, Pawel (Author), Caton, Joel (Author), Western Section American Society of Animal Science Conference, "Effects of maternal nutritional status on nutrient transporter expression on bovine utero-placental tissue on days 16 to 50 of gestation," American Society of Animal Science, Salt Lake City, UT. (July 19, 2016 - July 23, 2016).

Crouse, Matthew S (Author & Presenter), Caton, Joel (Author), McLean, Kyle J (Author), Borowicz, Pawel (Author), Reynolds, Lawrence (Author), Dahlen, Carl (Author), Ward, Alison (Author), ADSA ASAS Joint Annual Meeting, "Isolation and comparison of expression of novel glucose transporters, GLUT3 and GLUT14, in bovine uteroplacental tissue from days sixteen to fifty of gestation," American Society of Animal Science, Salt Lake City, UT. (July 19, 2016 - July 23, 2016).

McLean, Kyle J (Author & Presenter), Crouse, Matthew S (Author), Crosswhite, Mellissa R (Author), Negrin Pereira, Nicolas (Author), Ward, Alison (Author), Reynolds, Lawrence (Author), Dahlen, Carl (Author), Neville, Bryan W (Author), Borowicz, Pawel (Author), Caton, Joel (Author), ADSA ASAS Joint Annual Meeting, "The effects of nutritional restriction on endogenous retroviruses and placentation during the first 50 d of gestation in beef heifers," American Society of Animal Science, Salt Lake City, UT. (July 19, 2016 - July 23, 2016).

Ext Animal Science

Dahlen, Carl R. (Associate Professor)

Dahlen, Carl, Corn Silage Quality, "2016 Corn Silage Training Program." (December 5, 2016).


Dahlen, Carl, Crosswhite, M R, Fall Extension Conference, "Effects of breeding system of origin (natural service or artificial insemination) on pregnancy rates, distribution of calving, and calf weaning weights of commercial beef cow herds in North Dakota," NDSU, Fargo, ND. (October 18, 2016 - October 21, 2016).

Dahlen, Carl, Antral Follicle Count Workshop, "Applications of Antral Follicle Count to Assisted Reproductive Technologies," USDA MARC, Clay Center, NE. (September 19, 2016 - September 20, 2016).

Dahlen, Carl, Livestock In-Service, "Packages Programs." (September 7, 2016).

Crouse, Matthew S (Author & Presenter), McLean, Kyle J (Author), Crosswhite, Mellissa R (Author), Negrin Pereira, Nicolas (Author), Ward, Alison (Author), Reynolds, Lawrence (Author), Dahlen, Carl (Author), Neville, Bryan W (Author), Borowicz, Pawel (Author), Caton, Joel (Author), Western Section American Society of Animal Science Conference, "Effects of maternal nutritional status on nutrient transporter expression on bovine utero-placental tissue on days 16 to 50 of gestation," American Society of Animal Science, Salt Lake City, UT. (July 19, 2016 - July 23, 2016).

Crouse, Matthew S (Author & Presenter), Caton, Joel (Author), McLean, Kyle J (Author), Borowicz, Pawel (Author), Reynolds, Lawrence (Author), Dahlen, Carl (Author), Ward, Alison (Author), ADSA ASAS Joint Annual Meeting, "Isolation and comparison of expression of novel glucose transporters, GLUT3 and GLUT14, in bovine uteroplacental tissue from days sixteen to fifty of gestation," American Society of Animal Science, Salt Lake City, UT. (July 19, 2016 - July 23, 2016).

McLean, Kyle J (Author & Presenter), Crouse, Matthew S (Author), Crosswhite, Mellissa R (Author), Negrin Pereira, Nicolas (Author), Ward, Alison (Author), Reynolds, Lawrence (Author), Dahlen, Carl (Author), Neville, Bryan W (Author), Borowicz, Pawel (Author), Caton, Joel (Author), ADSA ASAS Joint Annual Meeting, "The effects of nutritional restriction on endogenous retroviruses and placentation during the first 50 d of gestation in beef heifers," American Society of Animal Science, Salt Lake City, UT. (July 19, 2016 - July 23, 2016).


Dahlen, Carl, Purina Beef Specialists Training Meeting, "The 2nd Call; Troubleshooting Poor Conception/Pregnancy Rates," Sioux Falls, SD. (April 26, 2016).


Meehan, Miranda A. (Assistant Professor)

Stokka, Gerald (Coordinator/Organizer), Meehan, Miranda (Coordinator/Organizer), "Public Perceptions of Agriculture and Trends in the Livestock Industry," Hettinger, ND. (October 5, 2016).

Stokka, Gerald (Coordinator/Organizer), Meehan, Miranda (Coordinator/Organizer), "Public Perceptions of Agriculture and Trends in the Livestock Industry," Langdon, ND. (October 5, 2016).

Stokka, Gerald (Coordinator/Organizer), Meehan, Miranda (Coordinator/Organizer), "Public Perceptions of Agriculture and Trends in the Livestock Industry," Minot, ND. (October 5, 2016).

Meehan, Miranda (Author & Presenter), Sedivec, Kevin (Author), Printz, Jeff L (Author), Norland, Jack (Author), X International Rangeland Congress, "Validating riparian state-and-transition models," Saskatoon, Saskatchewan, Canada. (July 18, 2016).


Stokka, Gerald L. (Associate Professor)


Stokka, Gerald (Coordinator/Organizer), Meehan, Miranda (Coordinator/Organizer), "Public Perceptions of Agriculture and Trends in the Livestock Industry," Hettinger, ND. (October 5, 2016).

Stokka, Gerald (Coordinator/Organizer), Meehan, Miranda (Coordinator/Organizer), "Public Perceptions of Agriculture and Trends in the Livestock Industry," Langdon, ND. (October 5, 2016).

Stokka, Gerald (Coordinator/Organizer), Meehan, Miranda (Coordinator/Organizer), "Public Perceptions of Agriculture and Trends in the Livestock Industry," Minot, ND. (October 5, 2016).


Intellectual Contributions

North Dakota State University

January 1, 2016 - December 31, 2016

AES Animal Science

Bairagi, Soumi (PostDoc)

Refereed Journal Articles

Journal Article (Published)


Other Intellectual Contributions

Abstract (Published)


Abstract (Accepted)


Borowicz, Pawel (Research Assistant Professor)

Refereed Journal Articles

Journal Article (Published)


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*

Journal Article (Published)


Journal Article (Published)


Journal Article (Accepted)


Journal Article (Accepted)


Other Intellectual Contributions

Abstract (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)


Extension Publication (Published)


Extension Publication (Published)


Extension Publication (Published)


Extension Publication (Published)


Extension Publication (Published)


Extension Publication (Published)

Abstract (Published)


Abstract (Published)


Abstract (Accepted)


Abstract (Accepted)


Abstract (Accepted)


Proceedings (Accepted)

transporter GLUT3 in bovine utero-placental tissues from days 16 to 50 of gestation. Journal of Animal Science.

Carlin, Kasey R. (Associate Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Not Accepted)*


**Other Intellectual Contributions**

*Abstract (Published)*


*Abstract (Published)*


Newman, David J. (Assistant Professor)

**Refereed Journal Articles**

*Journal Article (Published)*

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Accepted)*


**Animal Science**

**Bauer, Marc L. (Associate Professor)**

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Accepted)*


**Conference Proceedings**

*Conference Proceeding (Published)*

**Other Intellectual Contributions**

*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*


*Book Chapter (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


Berg, Eric P. (Professor)

*Refereed Journal Articles*


*Berg, Erika L. (Associate Professor)*

*Other Intellectual Contributions*


*Book Foreword (Published)*


**Caton, Joel S. (Professor)**

*Refereed Journal Articles*

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


**Conference Proceedings**

*Conference Proceeding (Published)*


**Other Intellectual Contributions**

*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*

*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*


*Book Chapter (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*

Extension Publication (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)


Abstract (Accepted)


Abstract (Accepted)


Proceedings (Accepted)


Book Chapter (Accepted)

Christenson, Lisa A. (Assistant Professor)

Refereed Journal Articles

Journal Article (Published)


Eck, Tate D. (Lecturer)

Other Intellectual Contributions

Abstract (Published)


Grazul-Bilska, Anna (Professor)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)

Journal Article (Published)


Journal Article (Published)


Other Intellectual Contributions

Abstract (Published)


Abstract (Accepted)


Abstract


Abstract


Abstract


Abstract

Grazul-Bilska, A. (2016). Effects of luteinizing hormone (LH) on in vitro lipid droplets (LD) expression in luteal cells in non-pregnant sheep fed different diets. NDSU Undergraduate Excellence in Research and Scholarly Activity.
Abstract


Abstract


Abstract


Abstract


Abstract


Abstract


Hammer, Carolyn (Associate Professor)

Other Intellectual Contributions

Abstract (Published)


Abstract (Published)


Abstract (Published)

Hanna, Lauren (Assistant Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Revising to Resubmit)*


*Journal Article (Revising to Resubmit)*


*Journal Article (Revising to Resubmit)*


**Other Intellectual Contributions**

*Abstract (Published)*


*Abstract (Published)*


*Abstract (Accepted)*

**Lardy, Gregory (Professor)**

**Other Intellectual Contributions**

*Abstract (Published)*


**Maddock, Robert (Associate Professor)**

**Refereed Journal Articles**

*Journal Article (Published)*


**Other Intellectual Contributions**

*Magazine/Trade Publication (Published)*


*Magazine/Trade Publication (Published)*


*Magazine/Trade Publication (Published)*


*Abstract (Published)*


*Magazine/Trade Publication (Published)*

*Magazine/Trade Publication (Published)*


**Redmer, Dale A. (Professor)**

**Refereed Journal Articles**

*Journal Article (Published)*


**Reynolds Ph.D., Lawrence (Professor)**

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*

Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Non-Refereed Journal Articles

Journal Article (Published)


Conference Proceedings

Conference Proceeding (Published)

Other Intellectual Contributions

Abstract (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)


Book Chapter (Published)


Extension Publication (Published)


Extension Publication (Published)


Extension Publication (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)


Book (Published)


Abstract (Accepted)

Abstract (Accepted)


Abstract (Accepted)


Proceedings (Accepted)


Book Chapter (Accepted)


**Swanson, Kendall C. (Professor)**

*Refereed Journal Articles*

*Journal Article (Published)*


*Journal Article (Published)*


Conference Proceedings

Conference Proceeding (Published)


Other Intellectual Contributions

Abstract (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)

Abstract (Published)


Book Chapter (Published)


Book Chapter (Published)


Extension Publication (Published)


Extension Publication (Published)


Extension Publication (Published)


Extension Publication (Published)


Extension Publication (Published)

*Extension Publication (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*

Swanson, K. (2016). *Updates from our research locations* (pp. 5-8). North Dakota Beef Report.

*Magazine/Trade Publication (Published)*


*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*

Swanson, Tara J. (Lecturer)

Other Intellectual Contributions

Abstract (Published)


Vonnahme, Kimberly A. (Professor)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


**Non-Refereed Journal Articles**

*Journal Article (Published)*


**Conference Proceedings**

*Conference Proceeding (Published)*


**Other Intellectual Contributions**

*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*


*Book Chapter (Published)*

*Extension Publication (Published)*


*Extension Publication (Published)*


*Manuscript (Published)*


**Wagner, Sarah A. (Professor)**

*Non-Refereed Journal Articles*

*Journal Article (Submitted)*


*Other Intellectual Contributions*

*Abstract (Published)*


*Proceedings article (Published)*


*Abstract (Accepted)*

**Ward, Alison (Assistant Professor)**

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*

Other Intellectual Contributions

Abstract (Published)


Book Chapter (Published)


Extension Publication (Published)


Extension Publication (Published)


Extension Publication (Published)


Abstract (Published)

Abstract (Published)


Abstract (Published)


Abstract (Accepted)


Book Chapter (Accepted)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


*Journal Article (Published)*


*Journal Article (Published)*


*Other Intellectual Contributions*

Abstract (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)

Abstract (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)


Extension Impact Report (Published)


Extension Publication (Published)

*Extension Publication (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


Dahlen, C. (2016). Interim Report for SBARE Precision Ag Research Funding. ND AG Experiment Station.


Abstract (Published)


Abstract (Published)


Magazine/Trade Publication (Published)


Extension Publication (Published)


Extension Publication (Published)


Extension Publication (Published)


Extension Publication (Published)


Extension Publication (Published)


Extension Publication (Published)


Extension Publication (Published)


*Extension Publication (Published)*


*Magazine/Trade Publication (Published)*


*Abstract (Accepted)*


*Abstract (Accepted)*


*Abstract (Accepted)*


*Proceedings (Accepted)*


*Meehan, Miranda A. (Assistant Professor)*

*Refereed Journal Articles*

*Journal Article (Published)*

Conference Proceedings

Conference Proceeding (Published)


Other Intellectual Contributions

Abstract (Published)


Abstract (Published)


Abstract (Published)


Newsletter (Published)


North Dakota Agricultural Experiment Station Publication (Published)


North Dakota Agricultural Experiment Station Publication (Published)


Extension Impact Report (Published)

Extension Impact Report (Published)


Extension Impact Report (Published)


Extension Impact Report (Published)


Extension Publication (Published)


Extension Publication (Published)


Research Report (Published)


Research Report (Published)


Abstract (Published)


Research Report (Published)


Webbased (Published)

*Abstract (Published)*


*Extension Educational Video (Published)*


*Press Release (Published)*


*Extension Curriculum, Technology (Published)*


*Extension Educational Video (Published)*


*Extension Educational Video (Published)*


*Extension Educational Video (Published)*


*Press Release (Published)*


*Press Release (Published)*


*Press Release (Published)*

156

*Press Release (Published)*

Meehan, M. (2016). Cyanobacteria can be toxic to livestock, wildlife, humans. *NDSU Ag Communications.*

*Newsletter (Published)*


*Newsletter (Published)*


*Press Release (Published)*


*Newsletter (Published)*


*Press Release (Published)*


*Press Release (Published)*


*Press Release (Published)*


*Magazine/Trade Publication (Published)*


*Newsletter (Published)*


*Newsletter (Published)*

*Newsletter (Published)*


*Press Release (Published)*


*Extension Curriculum, Presentations*


*Extension Curriculum, Presentations*


*Extension Curriculum, Presentations*


**Stokka, Gerald L. (Associate Professor)**

*Refereed Journal Articles*

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Accepted)*


Conference Proceedings

Conference Proceeding (Published)


Other Intellectual Contributions

North Dakota Agricultural Experiment Station Publication (Published)

https://www.ndsu.edu/fileadmin/vpag/Annual_Highlights/2016_Annual_Highlights_final.pdf

Abstract (Published)


Extension Publication (Published)


Research Report (Published)


Extension Educational Video (Published)

https://www.facebook.com/livestocksteward/videos/655802874579176/

Abstract (Published)

C. Significant Departmental achievements in research, teaching and outreach during the past year

a. Teaching

A major achievement in 2016 was the conclusion of our 2-year effort to develop an outcomes-based curriculum for our Molecular Pathogenesis Ph.D. program. The new curriculum, the first of its kind in the university, was developed using a backwards design approach, resulting in the seamless integration of learning objectives and assessments. The curriculum will be implemented from fall 2017.

We continued our efforts to enhance teaching effectiveness in our undergraduate curriculum through the implementation of discovery-based learning (DBL) activities. General Microbiology II Laboratory (MICR 352L), a 2-credit course designed entirely around DBL activities, was offered for the second time. This course gave microbiology majors the opportunity to design and carry out small-scale experiments in microbiology. We also made significant changes to our capstone course (MICR 486), pairing small groups (2-3 students) with faculty mentors to guide them on their research project. This change enhanced the DBL experience and resulted in improvements in the quality of end-of-semester poster presentations. One challenge with this new approach was that students felt rushed in completing the experimental design and research project components in a single semester. We will modify the capstone experience in the 2017-18 academic year by separating these components into different semesters.

We provided individual research experiences for 18 undergraduate students, including a McNair scholar and two Duncan scholars. Many of these students had opportunities to present their research and represent NDSU at regional and international meetings. As an example, Abbey Steckler, a Duncan Scholar, received an American Society for Microbiology (ASM) Undergraduate Research Fellowship and presented her work at the international ASM Microbe meeting in Boston and the North Central Branch ASM meeting in Ames. She won first place for her presentation at the branch meeting.

Our commitment to improving teaching effectiveness is demonstrated by our strong participation in pedagogy training. In particular, Drs. Teresa Bergholz, Birgit Pruess, and Neil Dyer participated in the first Gateways ND program cohort in 2016.

Two of our teaching faculty, Tom Gustad and Rachel Richman, received a Bison Ambassador’s Apple Polisher Award for going above and beyond to serve students.

b. Research/Scholarly/Creative Activities

Ongoing research in 2016 was funded through grants from federal (National Institutes of Food and Agriculture, National Institutes of Health, and National Science Foundation) and state (North Dakota Agricultural Products Utilization Commission and North Dakota Department of Commerce) agencies, and addressed problems that are relevant to agriculture, food systems, natural resources, and public health. These include the development of vaccines against swine viruses, the development of novel materials to prevent bacterial biofilm formation on surfaces, the use of steam to decontaminate low moisture foods, characterizing the movement of pathogens across agricultural landscapes, understanding the development of lung fibrosis due to asthma and exposure to agricultural molds, identifying molecular mechanisms leading to obesity, and understanding how an important waterborne pathogen of animals and humans causes infection.

Outputs from department research programs in 2016 included 25 peer-reviewed publications, 27
publications and presentations that were not peer reviewed, and 2 filed patents.

c. Extension/Outreach

The department participated in several outreach activities involving K–12 students. We visited first and fourth grade classrooms at Kennedy Elementary School, bringing microscopes and other equipment to teach about microbes and DNA. We visited Lincoln Elementary Science Day. We hosted 31 area home schoolers and their parents for a day in the department. We prepared and taught microbiology labs for area high-schoolers in Upward Bound, a college access and preparation program funded by the U.S. Department of Education and sponsored by North Dakota State University. It is designed to help students succeed in high school and prepare for continued success in college.

Faculty in the department also provided outreach to regional industries, including advice on compliance with the Food Safety Modernization Act.

d. Service

Dr. Schuh completed an administrative appointment as Interim Dean of the College of Business and continued an administrative appointment as Associate Director of AES. Drs. Schuh and Berry served as directors of the interdisciplinary Cellular and Molecular Biology and Biotechnology programs, respectively. Dr. Pruess was elected president of the local chapter of Gamma Sigma Delta and served as past president of Faculty Senate (term ended in May). Drs. Pruess and Schuh were elected to the Council of College Faculty. Dr. Teresa Bergholz served on the editorial board of Applied and Environmental Microbiology, the leading microbiology journal, and Journal of Food Protection. She also was recognized as a Sentinel of Science for her service to the peer review process (https://www.ndsu.edu/news/view/detail/26505/).

D. Department Goals and Priorities for the past year, including narrative about progress toward those goals.

- Complete the reconfiguration of the graduate program and start on the undergraduate program. Work on the development of an outcomes-based Molecular Pathogenesis Ph.D. program was completed in 2016. The outcomes-based program will begin in fall 2017. Work on redeveloping the undergraduate curriculum began in 2016 and is expected to be completed in summer or fall 2018.
- Develop a more consistent assessment process. This goal is closely tied to the redevelopment of undergraduate and graduate curricula, as assessment is integrated into the new curricula. The outcomes-based Ph.D. program will begin generating assessment data related to the effectiveness of program goals and outcomes from fall 2017. It will take several years to generate useful assessment data.

E. Department Challenges for the past year, including narrative on how those are being addressed.

The loss of open faculty and technical positions to meet the budget allotment and requirement for unprecedented cuts to the 2017-19 biennium budgets represents the most greatest challenge facing the department. To meet this challenge, in fall 2016, the department completed a process of strategic planning to identify research and teaching priorities. These plans will be put into effect in 2017.

F. Department Goals and Priorities for the Coming Year

- To continue the process of redeveloping the undergraduate curriculum
- To identify and compete for funding to support undergraduate and graduate programs
Scheduled Teaching Microbiological Sciences

North Dakota State University

January 1, 2016 - December 31, 2016

<table>
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162
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<td>Bacterial Genetics &amp; Phage</td>
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Awards and Honors – Department of Microbiological Sciences

North Dakota State University

January 1, 2016 - December 31, 2016

Microbiological Sciences

Bergholz, Peter W. (Assistant Professor)

Larsen/Yaggie Excellence in Research Award, College of Agriculture, Food Systems, and Natural Resources (November 2016)
Contracts, Grants and Sponsored Research – Department of Microbiological Sciences

North Dakota State University

January 1, 2016 - December 31, 2016

Microbiological Sciences

Bergholz, Peter W. (Assistant Professor)

Funded


Funded

Bergholz, Peter (Principal:), "Modeling the environmental biology of foodborne pathogens to support the safety of local fresh food in the Upper Great Plains," Sponsored by USDA Hatch Federal Formula Funds, Federal, $0.00. (October 28, 2015 - September 30, 2019).

Funded

Bergholz, Peter, "Dynamics of Listeria monocytogenes populations in environmental reservoirs in the preharvest environment of fresh fruits and vegetables," Sponsored by USDA NIFA Food Safety AFRI, Federal, $147,603.00. (September 1, 2013 - August 30, 2016).

Bergholz, Teresa (Assistant Professor)

Funded


Funded

Bergholz, Teresa (Principal:), Pruess, Birgit (Co-Principal:), "Elucidation of environmental factors that influence attachment of foodborne pathogens to biotic and abiotic surfaces," Sponsored by USDA AFRI Food Safety Foundational Program, Federal, $149,561.00. (January 2015 - January 2017).

Funded
Bergholz, Teresa (Principal:), "Evaluation of methods for detection of Shiga toxin producing E. coli and Salmonella enterica from inoculated cattle fecal samples, retail meat, and fresh produce," Sponsored by Cooperative Sponsorship Agreement with the USDA-ARS, Federal, $20,000.00. (September 2013 - August 2016).

Funded


Not Awarded

"Evaluation of Sanitizers for Fresh Produce to Increase Safety and Shelf-life," Sponsored by ND Department of Agriculture, State, $86,135.00.

Not Awarded


Dorsam, Glenn P. (Associate Professor)


McEvoy, John (Professor)

Funded

McEvoy, John (Principal:), "The role of host glycans in Cryptosporidium development," Sponsored by National Institutes of Health, Federal, $483,286.00. (July 1, 2016 - June 30, 2019).

Funded


Not Awarded

Khan, Eakalak (Principal:), Sivaguru, Jayaraman (Co-Principal:), Simsek, Senay (Co-Principal:), Stone, James (Co-Principal:), Ndiva Mongoh, Mafany (Co-Principal:), Sibi, Mukund (Senior Personnel:), Ulven, Chad (Senior Personnel:), Yadav, Om (Senior Personnel:), McEvoy, John (Senior Personnel:), Quadir, Mohi (Senior Personnel:), "INFEWS/T3: Innovative Solutions to Attenuate Fracturing Effects through Technology (InSAFETY)," Sponsored by National Science Foundation, Federal, $2,999,999.00. (November 1, 2016 - October 31, 2019).

Pruess, Birgit (Professor)

Funded
Pruess, Birgit M (Principal: Supervise and co-ordinate the project), Stafslien, Shane J (Co-Principal: develop the materials at RCA), Schroeder, Meredith (Senior Personnel: perform the experiments in the Pruess lab), "Development of novel anti-microbial materials for clinical and food processing applications," Sponsored by ND Department of Commerce, State, $100,000.00. (June 15, 2016 - December 15, 2017).

Funded

Pruess, Birgit, Stafslien, Shane J (Co-Principal: development of the materials at RCA), "Improvement of novel biofilm inhibiting materials and application in food processing," Sponsored by Agricultural Products and Utilization Commission, State, $74,787.00. (November 1, 2015 - June 30, 2017).

Funded

Bergholz, Teresa (Principal:), Pruess, Birgit (Co-Principal:), "Elucidation of environmental factors that influence attachment of foodborne pathogens to biotic and abiotic surfaces," Sponsored by USDA AFRI Food Safety Foundational Program, Federal, $149,561.00. (January 2015 - January 2017).

Funded

Pruess, Birgit (Co-Principal:), Bergholz, Teresa (Principal:), "Elucidation of environmental factors that influence attachment of foodborne pathogens to biotic and abiotic surfaces," Sponsored by USDA/AFRI, $122,486.00. (December 2014 - 2016).

Ramamoorthy, Sheela (Assistant Professor)

Funded

Voronov, Andriy (Principal:), Ramamoorthy, Sheela (Co-Principal:), Stafslien, Shane (Co-Principal:), "Polymeric Vaccine Adjuvants Against Swine Influenza," Sponsored by ND Agricultural Product Utilization Commission, State, $87,792.00. (April 1, 2015 - September 30, 2017).
Presentations – Department of Microbiological Sciences

North Dakota State University

January 1, 2016 - December 31, 2016

Microbiological Sciences

Bergholz, Peter W. (Assistant Professor)

Bergholz, Peter (Author & Presenter), Biology Seminar Series, "Do extrahost habitats select for genomic diversity in Escherichia coli?," North Dakota State University, Fargo, ND. (December 2, 2016).

Petersen, Morgan L (Author & Presenter), Bergholz, Peter (Author), 76th Meeting of the North Central Branch of the American Society of Microbiology, "Fitness costs associated with expression of fluorescent proteins on growth yields of Escherichia coli in carbon-limited conditions," American Society for Microbiology, Ames, IA. (October 2016).

Bergholz, Peter, Exploring the Microbiome Seminar Series, "Probing the role of the soil microbiome in susceptibility of prairie pothole wetlands to invasion by a foodborne pathogen," North Dakota State University, Fargo, ND. (October 25, 2016).

Bergholz, Peter, BioTechnology Institute Seminar Series, "How does passive dispersal contribute to genomic biodiversity in E. coli?," University of Minnesota, St. Paul, MN, USA. (April 21, 2016).

Bergholz, Peter, Biology Seminar Series, "How does passive dispersal contribute to genomic biodiversity in E. coli?," Minnesota State University - Moorhead, Moorhead, MN. (February 4, 2016).

Dorsam, Glenn P. (Associate Professor)


Ramamoorthy, Sheela (Assistant Professor)


Intellectual Contributions – Department of Microbiological Sciences

North Dakota State University

January 1, 2016 - December 31, 2016

Microbiological Sciences

Bergholz, Peter W. (Assistant Professor)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Other Intellectual Contributions

Abstract (Published)


Abstract (Published)


Abstract (Published)


Bergholz, Teresa (Assistant Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


**Other Intellectual Contributions**

*Abstract*


*Abstract*


*Abstract*


Dorsam, Glenn P. (Associate Professor)

**Non-Refereed Journal Articles**

*Journal Article (Published)*

Gibbs, Penelope S. (Associate Professor)

**Refereed Journal Articles**

*Journal Article (Submitted)*


McEvoy, John (Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Conference Proceedings

Conference Proceeding (Published)


Pruess, Birgit (Professor)

Refereed Journal Articles

Journal Article (Published)


*Journal Article (Published)*


Ramamoorthy, Sheela (Assistant Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*

G. Significant departmental achievements in research, teaching and outreach during the past year

a. Teaching

The new teaching laboratory in Loftsgard 116 was opened in fall 2016. Courses taught in fall 2016 in the new classroom included PLSC 110 (World Food Crops), PLSC 215 (Weed Identification), PLSC 315L (Genetics Lab), and PLSC 320 (Principles of Forage Production). A total of 532 students were enrolled in the four courses. The location of the new teaching laboratory allows students ready access to greenhouses in Waldron Hall and the growth room in Loftsgard Hall.

b. Research/Scholarly/Creative Activities

On average North Dakota produces over 60% of the durum in the United States and over 90% of the ND durum acreage is sown with varieties developed at NDSU. Varieties developed by NDSU generate over $400 million directly to producers annually. Carpio and Joppa, two new varieties developed by the NDSU breeding program are quickly being adopted by producers and have high yield and excellent quality potential.

The NDSU forages research program developed improved management recommendations for alfalfa that lead to an increased forage yield on average of least 0.3 ton/acre/year. Given 0.41 million acres of alfalfa and 1.38 million acres of alfalfa/grass mixtures in North Dakota in 2015 and a price of $100/ton of hay, the improved management recommendations would have resulted in an economic impact of $53.6 million/year.

| Peer Reviewed Publications (published or accepted) | 108 |
| National or International Invited Presentations | 49 |
| Research Grants and Contracts (number that are active) | 171 |
| Cumulative Amount (total value of active grants and contracts): | $8,815,258 |

c. Extension/Outreach

The popular NDSU Extension forum called the Best of the Best in Wheat and Soybean Research and Marketing focuses on providing research based education. In 2016, participants estimated the value of the new knowledge they gained if it was implemented on their farm at $4.56 per acre. The 520 attending growers collectively are farming a total of 553,000 acres. If half of the acres are either sown with wheat or soybean, the total estimated perceived value of this meeting series would be $1.25 million.
Gardeners produce approximately over $55 million of vegetables in North Dakota each year. A team of over 200 families evaluated promising vegetable cultivars in their gardens. Participation in this project led to improved gardening practices, higher yields and healthier diets.

d. Service
  • Dr. Clifford Hall received the Odney Excellence in Teaching award.
  • Dr. Todd West received the Outstanding Faculty Advisor Award during the NDSU Celebration of Faculty Excellence.
  • Dr. Chiwon Lee received the Northern Plains Sustainable Agriculture Society Friend of the Farmer Award.
  • Dr. Richard Horsley was named a Fellow of the Crop Science Society of America.

H. Department goals and priorities for the past year, including narrative about progress toward those goals.
Two breeding pipeline managers were hired in summer 2016 to fulfill the previously identified need of having bioinformaticists to aid plant breeders and geneticists. A major responsibility of these two individuals will be to identify software, methods, and procedures that can be used to efficiently store phenotypic and genotypic data generated by breeders and geneticists in the AES.

I. Department challenges for the past year, including narrative on how those are being addressed.
The research and teaching facilities in Harris Hall are in disrepair and it is not cost-effective to make most repairs or renovations. A new durum wheat mill was purchased, but it cannot be moved into the building without dismantling a doorframe and wall. Ash and odor from the ash ovens are taken up by the ventilation system and deposited throughout the building. Water-flow into some labs has not worked since 2002, making the labs unusable. Additionally, piping is not present to carry distilled water to labs, so it is delivered with buckets from the still in the 3rd-floor men’s restroom.

J. Department goals and priorities for the coming year
  a. Work with faculty and stakeholders to develop a curriculum for a possible new major based around sustainable local food systems. The new major would include the areas of production of crops under sustainable/organic production systems and food science/safety.
  b. Work with the breeding and genetics group in the department to update the curriculum and teaching assignments. Currently, we have no one assigned to teach PLSC 734 (Field Design II) and PLSC 785 (Plant Breeding Program Management).
# Scheduled Teaching Plant Sciences

North Dakota State University

January 1, 2016 - December 31, 2016

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| Fall 2016 | SAFE | 402 | Foodborne Hazards | 1 | 1 | 9 | Vegi, Anuradha |
| Fall 2016 | SAFE | 403 | Food Safety Risk Assessment | 1 | 1 | 6 | Vegi, Anuradha |
| Fall 2016 | SAFE | 404 | Epidemiology/Foodborne Illness | 1 | 1 | 3 | Vegi, Anuradha |
| Fall 2016 | SAFE | 405 | Costs of Food Safety | 1 | 1 | 5 | Nganje PhD, William |
| Fall 2016 | SAFE | 406 | Food Safety Crisis Communicat | 1 | 1 | 4 | Schwarz, Paul B. |
| Fall 2016 | SAFE | 407 | Food Safety Risk Management | 1 | 1 | 6 | Maddock, Robert |
| Fall 2016 | SAFE | 409 | Food Safety Risk Comm. &amp; Ed. | 1 | 1 | 2 | Garden-Robinson, Julie A. |
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Awards and Honors – Department of Plant Sciences

North Dakota State University

January 1, 2016 - December 31, 2016

Ext Plant Sciences

McGinnis, Esther E. (Assistant Professor)

Nominated Andrew Robinson for the Myron and Muriel Johnsrd Excellence in Extension/Outreach Award (November 2016)

NDSU Extension Service Program Excellence Award (October 19, 2016)

Zollinger, Rich K. (Professor)

Fellow, Weed Science Society of America (February 2016)

Plant Sciences

Berti, Marisol T. (Professor)

Best poster award (June 6, 2016)

Marais, Gideon (Associate Professor)

Established a wheat pre-breeding program based on recurrent mass selection; produced an annual nursery of advanced breeding lines (2008+) with pyramided resistance that was supplied to South African spring wheat breeding programs. (2016)

Resistance genes discovered and transferred to common wheat: Russian wheat aphid (Dn7); leaf rust resistance (Lr53, Lr54, Lr56, Lr59, Lr62, Lr66); stem rust resistance (Sr45); stripe rust resistance (Yr35, Yr37, Yr38, Yr42) (2016)

Salt tolerance genes were identified in Thinopyrum distichum chromosomes 2J1d, 3J1d, 4J1d and 5J1d. Disomic addition lines and markers were developed for each target chromosome. Robertsonian translocations were obtained for two target chromosomes. (2016)

West, Todd (Associate Professor)

NDSU Outstanding Faculty Advisor, North Dakota State University (2016)
AES Plant Sciences

Robinson, Andrew P. (Assistant Professor)


Robinson, Andrew, EPA potato tour, "Effects of fumigation by nitrogen on potato production in Minnesota," Becker, MN. (August 16, 2016).


Falde, Steffen, Robinson, Andrew, Secor, Gary, MacRae, Ian, Thompson, Asunta, Potato Association of America, "Remote sensing of potato virus Y," Grand Rapids, MI. (July 31, 2016 - August 4, 2016).


Robinson, Andrew, MN Seed Potato Growers, "Update on 2016 growing season," East Grand Forks, MN. (July 20, 2016).

Robinson, Andrew, RDO Scout School, "Scouting the wonderful world of weeds," Park Rapids, MN. (June 10, 2016).

Robinson, Andrew, Centrol Consulting Round Table, "On weeds and herbicides," Fargo, ND. (March 24, 2016).


Robinson, Andrew, Minnesota Area II Potato Council Short Course, "Blemishes in fresh potatoes," Duelm, MN. (March 1, 2016).
Robinson, Andrew, Minnesota Area II Potato Council Short Course, "Weeds and You," Duelm, MN. (March 1, 2016).

Robinson, Andrew, Potato Leadership Institute, "Potato Production, practices, and challenges in North Dakota and Minnesota," East Grand Forks, MN. (February 19, 2016).


Robinson, Andrew, International Crop Expo, "Blemish Problems in Fresh Potato - What We're Learning." (February 18, 2016).


Robinson, Andrew, NPPGA Research Reporting Conference, "Understanding Phosphorous Acid on Injury to Potato," Grand Forks, ND. (February 16, 2016).

Robinson, Andrew, MN Seed Potato Growers, "Updated on seed potato research and issues," Barnesville, MN. (February 4, 2016).

Robinson, Andrew, Manitoba Potato Days, "Getting the most out of Lorox," Brandon, Manitoba, Canada. (January 28, 2016).

Robinson, Andrew, Manitoba Potato Days, "Understanding phosphorous acid on injury and uptake in tubers," Brandon, Manitoba, Canada. (January 27, 2016).


Sarkar, Dipayan (PostDoc)

Ramakrishna, Ramnarain (Author & Presenter), Sarkar, Dipayan (Author), Shetty, Kalidas (Author), Association for the Advancement of Industrial Crops International Conference, "Evaluation of phenolic
linked anti-hyperglycemic potential of barley (Hordeum vulgare l.) cultivars targeting for the management of early stages type 2 diabetes using in vitro models,” Association for the Advancement of Industrial Crops, Rochester, New York. (September 2016 - Present).


Ext Plant Sciences

McGinnis, Esther E. (Assistant Professor)


McGinnis, Esther, Fall Extension Conference, "Help! What Do I Do with My Master Gardeners?,” Fargo, ND. (October 18, 2016).


McGinnis, Esther, NDSU Yard & Garden Open House, "What’s Wrong with My Tomatoes?,” Fargo, ND. (August 4, 2016).


McGinnis, Esther, Grand Forks Gardening Saturday, "Pollinator Gardens (Talk 1)," Grand Forks, ND. (April 9, 2016).

McGinnis, Esther, Grand Forks Gardening Saturday, "Pollinator Gardens (Talk 2)," Grand Forks, ND. (April 9, 2016).


McGinnis, Esther, West Otter Tail Gardening Day, "Discover Ornamental Grasses (Talk 1)," Fergus, Falls, MN. (April 2, 2016).


McGinnis, Esther, Lake Agassiz Kiwanis Club, "Pollinator Gardens for ND," Fargo, ND. (February 8, 2016).


Ransom, Joel K. (Professor)

Torrez, Veronica Calles (Author & Presenter), Knodel, Janet (Author), Boetel, Mark (Author), French, B. Wade (Author), Fuller, Billy W. (Author), Ransom, Joel (Author), XXV International Congress of Entomology, "Effect of transgenic corn hybrids and a soil insecticide on corn rootworm (Coleoptera: Chrysomelidae) beetle emergence in North Dakota," Entomological Society of America, Orlando, FL. (September 25, 2016 - September 30, 2016).

Plant Sciences

Berti, Marisol T. (Professor)


Johnson, B. L., Hanson, B. K., Kostuik, J., Berti, Marisol, Petersen, P. J., Alexopoulou, E. (Other), Berti, M. T. (Other), Annual Meeting of the Association for the Advancement of Industrial Crops (AAIC), "Industrial hemp (Cannabis sativa L.) stand establishment and yield in North Dakota," Rochester, NY. (September 14, 2016 - September 19, 2016).

Berti, Marisol, Johnson, B. L., Gesch, R. W., Ransom, J., Kandel, H. H., Kazula, M., Wells, M. S., Lenssen, A., Berti, M. T. (Other), Alexopoulou, E. (Other), 28th Annual Meeting of the Association for the Advancement of Industrial Crops (AAIC), "Integrating camelina into corn and soybean cropping systems," Rochester, NY. (September 14, 2016 - September 19, 2016).


Berti, Marisol, Visiting scientist presentation, "Cropping systems for biomass feedstock production in the North Central Region, USA," University of Bologna, Italy. (June 28, 2016).


Chen, Bingcan (Assistant Professor)


Elias, Elias (Professor)


Gramig, Greta G. (Associate Professor)


Hall, Clifford (Professor)


Lakkakula, Prithviraj, Hall, Clifford, Institute of Food Technologists, "Forecasting Market Volumes of Top Categories of Peas and Lentils," NDSU, CHICAGO, USA. (July 16, 2016 - July 18, 2016).

Hatterman-Valenti, Harlene (Professor)

Ghosh, Upasana (Author & Presenter), Chatterjee, Amitava (Author), Hatterman-Valenti, Harlene, Annual Meeting, "Irrigated Potato (Solanum tuberosum) yield and nitrogen losses as influenced by fertilizer management and cultivars," ASA-CSSA-SSSA, Phoenix, AZ. (November 6, 2016 - November 9, 2016).

Helms, Ted (Professor)


McClean, Phillip (Professor)

Gofff, Eric, Reindl, Katie, Johnson, Christina, McClean, Phillip, Offerdahl, Erika, Schroeder, Noah, White, Alan, Society for the Advancement of Biology Education Research Annual Meeting, "Modules as
preparation: An investigation into an online meiosis learning module developed for the Virtual Cell Animation collection," Society for the Advancement of Biology Education Research, Minneapolis, MN. (July 14, 2016 - July 17, 2016).

Rahman, Md Mukhlesur (Assistant Professor)


Rahman, Mukhlesur (Moderator), Mamidi, Sujan (Author), Rahman, Md Mizanur (Author), Brassica 2016 Conference, "Genome-wide association study of high temperature stress induced phenotypes in rapeseed/canola (Brassica napus L.)," 20th Crucifer Genetics Conference, and the 19th Australian Research Assembly on Brassicas, Melbourne, Australia. (October 3, 2016 - October 6, 2016).

F, Danielle (Presenter), Rahman, Mukhlesur (Author), Agricultural Bioscience International Conference 2016, "Breeding for frost tolerance in rapeseed/canola (Brassica napus L.)," Fargo, ND, USA. (September 18, 2016 - September 21, 2016).


Shetty, Kalidas (Professor)

Shetty, Kalidas, IAFP's 5th Latin American Symposium on Food Safety & 7th Food Science, Biotechnology and Safety, "'Food Diversity and Microbiome Enhancement to Traditional Food Systems as Solutions to Global Food Security and Public Health Challenges'," International Association of Food Safety and Mexican Food Science Association, Cancun, Mexico. (November 2016 - Present).


Ramakrishna, Ramnarain (Author & Presenter), Sarkar, Dipayan (Author), Shetty, Kalidas, Agricultural Bioscience International Conference, "'Enhancing phenolic antioxidant profile in barley sprouts by using bioprocessed elicitors for improved bioactive functionality'," Agricultural Bioscience International Conference, Fargo, North Dakota. (September 2016 - Present).


Ramakrishna, Ramnarain (Author & Presenter), Sarkar, Dipayan (Author), Shetty, Kalidas (Author), Association for the Advancement of Industrial Crops International Conference, "'Evaluation of phenolic linked anti-hyperglycemic potential of barley (Hordeum vulgare L.) cultivars targeting for the management of early stages type 2 diabetes using in vitro models'," Association for the Advancement of Industrial Crops, Rochester, New York. (September 2016 - Present).

Christopher, Ashish (Author & Presenter), Sarkar, Dipayan (Author), Shetty, Kalidas (Author), Association for the Advancement of Industrial Crops International Conference, "'Stress-induced enhancement of phenolic antioxidants in grapes (Vitis vinifera L.), targeting bioactive compounds for the management of early stages type 2 diabetes using in vitro models'," Association for the Advancement of Industrial Crops, Rochester, New York. (September 2016 - Present).
stages type 2 diabetes"," Association for the Advancement of Industrial Crops, Rochester, New York. (September 2016 - Present).

Shetty, Kalidas, Agricultural Bioscience International Conference, "Food Metabolic Innovations to Advance Global Food Security and Associated Chronic Disease Challenges", Agricultural Bioscience International Conference, Fargo, North Dakota. (September 2016 - Present).

Christopher, Ashish (Author & Presenter), 2nd NDSU Annual Conference on Food for Health, "Evaluation of Phenolic Antioxidant-linked Functionalities of Emmer Wheat Targeting Dietary Management of Early Stages Type 2 Diabetes", GIFSIA- North Dakota State University, Fargo, North Dakota. (July 2016 - Present).

Ramakrishna, Ramnarain (Author & Presenter), Sarkar, Dipayan (Author), Shetty, Kalidas (Author), 2nd NDSU Annual Conference on Food for Health, "Evaluation of Phenolic Linked Anti-hyperglycemic Potential of Barley Cultivars for Managing Early Stages Type 2 Diabetes", GIFSIA- North Dakota State University, Fargo, North Dakota. (July 2016 - Present).

Orwat, Jordan (Author & Presenter), 2nd NDSU Annual Conference on Food for Health, "Elicitation of Phenolic Antioxidant-Linked Functionality in Dark Germinated Black Bean Sprouts (Phaseolus vulgaris L.) and Screening For Management of Early-Stage Type 2 Diabetes Using In Vitro Models," GIFSIA- North Dakota State University, Fargo, North Dakota. (July 2016 - Present).


Shetty, Kalidas, American Council of Medicinally Active Plants, 7th Annual Conference, "Metabolic Innovations and Fermentation Biology for Medicinally Active Functional Foods", American Council of Medicinally Active Plants-ACMAP, Lima, Peru. (June 2016 - Present).

Sarkar, Dipayan (Author), Christopher, Ashish (Author), Orwat, Jordon (Author), Shetty, Kalidas (Author & Presenter), Food For Health International Conference, "Abiotic Stress-Induced Bioactive Enrichment in Food Crops for Human Health Benefits", Kagoshima University, Kagoshima, Japan. (March 2016 - Present).


Shetty, Kalidas, 19th ADNAT-Association for the Promotion of DNA Fingerprinting and DNA Technologies Convention, "Fermented Food Microbiome for Chronic Disease Management", 19th ADNAT-Association for the Promotion of DNA Fingerprinting and DNA Technologies-ADNAT, Bangalore, India. (February 2016 - Present).

Shetty, Kalidas, Symposium on Recent Advances in Biomedical Sciences, "Metabolic Innovations for Global Food Security & Public Health Challenges", Symbiosis University, Pune, India. (January 2016 - Present).

Shetty, Kalidas, "Systems-Based Metabolic Innovations for Global Food Security & Public Health Challenges", Texas A & M University, College Station, Texas. (October 2015 - Present).

Shetty, Kalidas, “Systems-Based Metabolic Innovations for Global Food Security & Public Health Challenges”. Symbiosis University, Program in Biomedical Sciences and Nutrition, Pune, India. (October 2015 - Present).


Shetty, Kalidas, “Systems-Based Understanding of Global Food Security Challenges with Integration of Urban Living & Green Technologies”. Beary Institute of Technology, Mangalore, India. (February 2015 - Present).


Shetty, Kalidas, 24th Brazilian Food Science Congress and International Conference on Tropical Fruits, “Metabolic Biology & Biotechnology of Tropical Fruit Phytochemicals for Functional Foods & Human Health”, Brazilian Food Science Association, Aracaju-Sergipe, Brazil. (September 2014 - Present).


Shetty, Kalidas, American Council of Medicinally Active Plants (ACMAP) 5th Annual Conference, "‘Crops for Health as Solution to Chronic Diseases: Strategic Vision for Agriculture and Global Food Security’." American Council of Medicinally Active Plants (ACMAP), Fargo, North Dakota. (June 2014 - Present).

Shetty, Kalidas, Chile Tree Nuts Association Conference, "‘Food ecology and Food diversity as rationale to integrate bioactive and functional foods for advancing better human health and global environment’." Chile Tree Nuts Association, Vina Del Mar, Chile. (June 2014 - Present).

Shetty, Kalidas, "‘Metabolic Biology of Bioactive Components of Traditional & Future Foods’." Zhejiang University, Hangzhou, China; Fuli Institute of Food Science and Nutrition., Hangzhou, China. (May 2014 - Present).

Shetty, Kalidas, "‘Systems-Based Innovations as Solutions to Global Food Security & Health Challenges’." Uttarakhand University of Horticulture and Forestry, Ranchuri, India, (May 2014 - Present).

Shetty, Kalidas, "‘Systems-Based Plant & Food Metabolic Innovations to Address Global Food Security & Health Challenges’." University of Mysore, India: Center for Studies in Microbiology, Mysore, India. (March 2014 - Present).

Shetty, Kalidas, "‘Systems-Based Plant & Food Metabolic Innovations to Address Global Food Security & Health Challenges’." University of Pondicherry, Pondicherry, India. (January 2014 - Present).

Shetty, Kalidas, Phuket Sustainability Conference, "‘Systems-Based Innovations to Address Food Security, Health & Ecological Challenges’." Prince of Songkla University, Phuket, Thailand. (January 2014 - Present).

Shetty, Kalidas, 7th INTERNATIONAL FOOD CONVENTION (IFCON) "NSuRE HEALTHY FOODS", "‘Food Security Solutions to Address Global Malnutrition and Chronic Disease Challenges Using Systems-Based Plant Metabolic Innovations’." International Food Convention-India, Mysore, India. (December 2013 - Present).

Shetty, Kalidas, American Council of Medicinally Active Plants (ACMAP), 4th Annual Conference, "‘Strategies for Improving Medicinal Plants Using Metabolic Biology’." American Council of Medicinally Active Plants-ACMAP, Amherst, Massachusetts. (June 2013 - Present).

Shetty, Kalidas, American Oil Chemists Society 104th Annual Meeting and Expo, "‘Biotechnology and Food Security with Focus on Metabolic Innovations for Malnutrition and Chronic Disease Management’." American Oil Chemists Society, Montreal, Canada. (April 2013 - Present).

Simsek, Senay (Associate Professor)


Ambrose, K, Casada, M, Simsek, Senay, NC-213 Meeting, "Intrinsic characteristics of modified DDGS and development of effective handling strategies.," Austin, Texas. (2016).


Malalgoda, M, Ohm, J.B, Meinhardt, S, Simsek, Senay, NDSU Ag Week, "Spring wheat gliadin proteins: have they changed in 100 years?," Fargo, North Dakota. (2016).


West, Todd (Associate Professor)


Zuk, Alan J. (Associate Professor)

Zuk, Alan, Dr. Hatterman-Valenti’s Herbaceous Ornamentals class, "Ornamental grasses," Fargo, ND. (October 7, 2009 - Present).

Zuk, Alan, Master Gardener Training- NDSU Extension, "Using plants to achieve your therapeutic goals.," UND, Grand Forks, ND. (July 29, 2016).

Zuk, Alan, Dakota Garden Expo. - NDSU Extension, "How to do a soil test and understand the results," Bismarck, ND. (April 16, 2016).

Zuk, Alan, Gardening Saturday- NDSU Extension, "How to grow great grass," Grand Forks, ND. (April 9, 2016).


Zuk, Alan, Touchmark Retirement Facility, "Our environment and our health," Fargo, ND. (February 5, 2016).
Intellectual Contributions – Department of Plant Sciences

North Dakota State University

January 1, 2016 - December 31, 2016

AES Plant Sciences

Kumar, Ajay (PostDoc)

**Refereed Journal Articles**

*Journal Article (Published)*


Mehring, Grant (Research Assistant Professor)

**Refereed Journal Articles**

*Journal Article (Accepted)*


Robinson, Andrew P. (Assistant Professor)

**Other Intellectual Contributions**

*Extension Publication (Published)*


*Magazine/Trade Publication (Published)*


*Newsletter (Published)*

Newspaper (Published)


Research Report (Published)


Research Report (Published)


Research Report (Published)


Research Report (Published)


Research Report (Published)


Research Report (Published)


Research Report (Published)


Newspaper (Published)


Newspaper (Published)

Robinson, A. (2016). What’s going on in potatoes [audio recording]. Sound Ag Advice.

News Articles (written about my research and Extension efforts) (Published)

Abstract (Accepted)


Abstract


Abstract


Extension Program


Extension Program


Extension Program


Extension Program


Extension Program


Sarkar, Dipayan (PostDoc)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)


Schroder, Stephan (PostDoc)

**Refereed Journal Articles**

*Journal Article (Published)*


Soltani, Ali (PostDoc)

**Refereed Journal Articles**

*Journal Article (Published)*


Ext Plant Sciences

Kandel, Herman J. (Professor)

**Other Intellectual Contributions**

*Extension Publication (Published)*


*Extension Publication (Published)*

McGinnis, Esther E. (Assistant Professor)

**Other Intellectual Contributions**

*Abstract (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


*Newsletter (Published)*


*Newsletter (Published)*

Newsletter (Published)


Newsletter (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)


**Abstract (Published)**


**Abstract (Published)**


**Abstract (Published)**


**Abstract (Published)**


**Abstract (Published)**


**Extension Publication (Published)**


**Extension Publication (Published)**

Peters, Thomas J. (Assistant Professor)

**Other Intellectual Contributions**

*Research Report (Published)*


*Research Report (Published)*


*Research Report (Published)*


*Research Report (Published)*


Ransom, Joel K. (Professor)

**Other Intellectual Contributions**

*Extension Publication (Published)*


*Abstract (Published)*


*Extension Publication (Published)*

Zollinger, Richard K. (Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


**Other Intellectual Contributions**

*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*


*Broadcast Media (Published)*

Zollinger, R. K. (2016). *Videoconfernece training sessions (1).*

*Extension Publication (Published)*


*Extension Publication (Published)*

*Extension Publication (Published)*


*Newsletter (Published)*


*Research Report (Published)*


*Research Report (Published)*


*Research Report (Published)*


*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*

Abstract (Published)


Extension Publication (Published)


Broadcast Media


Broadcast Media

Zollinger, R. K. (2016). *TV interviews (3).*

Magazine/Trade Publication


Abstract


Plant Sciences

Berti, Marisol T. (Professor)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)

Conference Proceedings

Conference Proceeding (Published)


Other Intellectual Contributions

Extension Publication (Published)


(Published)


(Published)


Book Chapter


Cai, Xiwen (Professor)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Accepted)


Journal Article (Working Paper)

Carena, Marcelo J. (Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


**Other Intellectual Contributions**

*Manuscript (Published)*


*Manuscript (Published)*


*Manuscript (Published)*


*Manuscript (Accepted)*


*Book Chapter (Accepted)*


Manuscript (Submitted)


Chen, Bingcan (Assistant Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


Dai, Wenhao (Associate Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Accepted)*


**Other Intellectual Contributions**

*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*

Elias, Elias (Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


Gramig, Greta G. (Associate Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


Green, Andrew (Assistant Professor)

**Refereed Journal Articles**

*Journal Article (Submitted)*


Hall, Clifford (Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


Other Intellectual Contributions

Book Chapter (Published)


Helms, Ted (Professor)

Refereed Journal Articles

Journal Article (Accepted)


Other Intellectual Contributions

Abstract


Other Intellectual Contributions

Extension Publication (Published)


*Abstract (Published)*


Lee, Chiwon W. (Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


Li, Xuehui (Assistant Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


Marais, Gideon (Associate Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


McClean, Phillip (Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


**Non-Refereed Journal Articles**

*Journal Article (Published)*


Oliver, Rebekah E. (Assistant Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


Osorno, Juan (Associate Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Submitted)*


**Other Intellectual Contributions**

*Extension Publication (Published)*

Rahman, Md Mukhlesur (Assistant Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Accepted)*


*Journal Article (Accepted)*


*Journal Article (Accepted)*


Shetty, Kalidas (Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


232


Simsek, Senay (Associate Professor)

**Refereed Journal Articles**


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*

Simsek, S., Martinez, M. O. (2016). Quality of Dough and Bread Prepared with Sea Salt or Sodium Chloride. 

*JOURNAL OF FOOD PROCESS ENGINEERING, 39*(1), 44-52.


Other Intellectual Contributions

*Extension Publication (Published)*

Thompson, Asunta L. (Associate Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


**Other Intellectual Contributions**

*Abstract (Accepted)*


*Abstract (Accepted)*


*Abstract*


*Book Chapter*


Vegi, Anuradha (Assistant Professor of Practice)

**Refereed Journal Articles**

*Journal Article (Published)*

West, Todd (Associate Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Conference Proceedings*

*Conference Proceeding (Submitted)*


*Conference Proceeding*


**Other Intellectual Contributions**

*Magazine/Trade Publication (Published)*

Zuk, Alan J. (Associate Professor)

**Refereed Journal Articles**

*Journal Article (Published)*

A. Significant Departmental achievements during the past year.

a. Teaching.

- **Changes made since last report to enhance student learning to achieve the intended student learning outcomes for the curriculum.** Several faculty took graduate students to various field days. Departmental faculty delivered at least 5 guest lectures to classes taught in three departments. PPTH 324 had a record enrollment that required a sixth lab section. Volunteer graduate student TAs help the department meet its teaching demand of the class. Del Rio updated PPTH 754 lecture and labs. Brueggeman incorporated whole genome microbial analysis into multiple classes in the college.

- **List new initiatives, innovative teaching approaches (providing evidence of quality improvements in teaching and learning and important recognitions.** Meinhardt continues compiling assessment data on presentations and qualifying exams for the department. Del Rio used “muddiest point” assessment techniques in PPTH 754. Pasche and Markell co-instructed PPTH 790, graduate seminar. They implemented significant changes to enhance seminar quality that were well-received.

b. Research/Scholarly/ Creative

- **Major research accomplishments.** In 2016, departmental faculty:
  - Published 54 refereed papers with at least 17 more “in press” for publication in 2017.
  - Were associated with at least 120 funding lines worth over $5,057,460 to the department over the duration of the grants. Included in this is an NSF CAREER award made to Dr. Brueggeman.
  - Were authors on at least 86 abstracts, proceedings and other edited scientific publications.
  - Were authors on 16 published book chapters and compendium chapters.
  - Gave 12 invited presentations in USA and another 13 invited presentations in assorted international venues in England, Scotland, Australia, Chile, China, Finland, Sweden, & Belgium.

- **Significant additions to research capability**
  - Brueggeman utilized EXOM capture and laser microscopy of stomata for first time in department and probably at NDSU.
  - Several postdoctoral and technical hires were made.
  - Faculty made multiple major equipment purchases, including growth chambers, and made significant upgrades to field equipment.

c. Extension/Outreach.

In 2016, Extension faculty collectively gave 122 Extension presentations and 96 media interviews. They were authors or contributors on 54 non-unique Extension publications and in excess of 81 articles in Crop and Pest Reports, commodity publications and in other popular media publications. In addition, Markell and Friskop co-lead The Eastern Crop Pest Management Scout School, a two-day course designed to improve knowledge base of industry professionals in multiple disciplines. Khan arranged 12 sugarbeet plot tours in the region and organized and participated in 10 segments of a sugarbeet radio program. The Plant Diagnostic Lab processed a record number of samples and began testing for Dickeya soft rot on potato, a new and emerging threat to potato production in the United States.

d. Service. **Brueggeman** served on two USDA-NIFA grant panels and one joint NSF-USDA panel. **Gudmestad** was panel manager for a USDA-NIFA Specialty Crops grant panel. **Khan** chaired the college PTE committee.
Knodel was member of three committees for the 8th International IPM Symposium in Salt Lake City, Utah. These were: Steering Committee, Awards Committee and Media/Outreach Committee. Liu served as chair of APS Molecular and Cellular Phytopathology committee and vice-chair of the APS Host Genetics committee. Markell was chair and was lead organizer for the APS Soybean Cyst Nematode Conference, a national meeting held in Florida, and the Soybean Sudden Death Short Course, held in Minnesota. He also led the Soybean Cyst Nematode Signature Program and organized the 2016 Sunflower Pathology Working Group meeting, held in South Carolina. Pasche chaired national Pulse Crop Working Group. Yan was chair of North Central-1197 Nematology Committee. Zhong was Committee Chair for Durum Coordinated Project of the US wheat and Barley Scab Initiative. Secor was chair of NDSU Greenhouse Operations Committee and chaired the APS Editorial Board project, “Focus on Potato”.

**B. Department Goals and Priorities for the past year, including narrative about progress toward those goals.** The department maintained a high-level of graduate students, which is critical to the health of the department; approximately ½ are Ph.D. students. Faculty did an excellent job meeting the research and outreach needs of the stakeholders.

**C. Department Challenges for the past year, including narrative on how those are being addressed.**

The departmental front office is down 1.5 FTE because of budget constraints and a hiring freeze and is struggling to keep up with work during certain periods. The faculty are down 2.0 FTE, including wheat rust pathology, a position critical to assisting NDSU wheat breeding efforts and helping the department serve the state with regards to leaf, stem and stripe rust diseases. Rasmussen and Friskop are attempting to fill the void. The second faculty vacancy left no instructor for PPTH 457/657 (Landscape Plant Pathology), which is important for undergraduate programs in turf and horticulture. Mr. Jesse Ostrander, the Plant Diagnostician and holder of an M.S. in turf pathology, taught the class in 2016.
# Scheduled Teaching – Plant Pathology

North Dakota State University

January 1, 2016 - December 31, 2016

<table>
<thead>
<tr>
<th>Fall 2016</th>
<th>PPTH Number</th>
<th>Course</th>
<th>Title</th>
<th>Section</th>
<th>Credit Hours</th>
<th>Enrollment</th>
<th>Instructor</th>
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<tbody>
<tr>
<td>Fall 2016</td>
<td>PPTH 324</td>
<td>Introductory Plant Pathology</td>
<td>4</td>
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<td>Plant Disease Epidemiology</td>
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<td>Fungicides: Action/Resistance</td>
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| Spring 2016 | PPTH  | Number | Course | Title | Section | Credit | Enrollment | Instructor |
| Spring 2016 | PPTH  | 454 | Diseases Of Field/Forage Crops | 1 | 7 | Nelson, Berlin D. |
| Spring 2016 | PPTH  | 454 | Diseases Of Field/Forage Crops | 2 | 10 | Nelson, Berlin D. |
| Spring 2016 | PPTH  | 491 | Seminar | 2 | 41 | Markell, Samuel |
| Spring 2016 | PPTH  | 654 | Diseases Of Field/Forage Crops | 1 | 9 | Nelson, Berlin D. |
| Spring 2016 | PPTH  | 654 | Diseases Of Field/Forage Crops | 2 | 16 | Nelson, Berlin D. |
| Spring 2016 | PPTH  | 759 | Host-Parasite Genetics | 1 | 17 | Brueggeman, Robert S. |
| Spring 2016 | PPTH  | 790 | Graduate Seminar | 2 | 17 | Pasche, Julie S. |
| Spring 2016 | PPTH  | 790 | Graduate Seminar | 3 | 4 | Markell, Samuel |
| Spring 2016 | PPTH  | 790 | Graduate Seminar | 3 | 4 | Pasche, Julie S. |
| Spring 2016 | PPTH  | 790 | Graduate Seminar | 1 | 14 | Markell, Samuel |
| Spring 2016 | PPTH  | 790 | Graduate Seminar | 1 | 14 | Pasche, Julie S. |
| Spring 2016 | PPTH  | 790 | Graduate Seminar | 2 | 17 | Markell, Samuel |
| Spring 2016 | PPTH  | 797 | Master's Paper | 1 | 1 | Rasmussen, Jack |
| Spring 2016 | PPTH  | 798 | Master's Thesis | 1 | 10 | Rasmussen, Jack |
| Spring 2016 | PPTH  | 899 | Doctoral Dissertation | 1 | 22 | Rasmussen, Jack |

| Summer 2016 | PPTH  | Number | Course | Title | Section | Credit | Enrollment | Instructor |
| Summer 2016 | PPTH  | 798 | Master's Thesis | 1 | 14 | Rasmussen, Jack |
| Summer 2016 | PPTH  | 899 | Doctoral Dissertation | 1 | 25 | Rasmussen, Jack |
Awards and Honors – Plant Pathology

North Dakota State University

January 1, 2016 - December 31, 2016

Ext Plant Pathology

Khan, Mohamed F. R. (Professor)

Search for Excellence in Crop Production, National Association of County Agricultural Agents (2016)

Plant Pathology

Brueggeman, Robert S. (Associate Professor)

Larson Yaggie, NDSU (2016)

Del Rio Mendoza, Luis E. (Professor)

Barbara Ziesman, PhD dissertation and final exam, University of Alberta, Canada (2016)

Gudmestad, Neil C. (Professor)

Man of All Seasons Lifetime Achievement Award, National Potato Council (2016)
Contracts, Grants and Sponsored Research – Plant Pathology

North Dakota State University

January 1, 2016 - December 31, 2016

AES Plant Pathology

Acevedo, Maricelis (Assistant Professor)

Not Awarded

"CAREER: Spatio-temporal Profiling of Physical and Molecular Components Conferring Host and Non-host Resistance to Wheat Leafy Rust," Sponsored by National Science Foundation, Federal, $624,041.00.

Not Awarded

"Mapping of Wheat Leaf Rust and Stem Rust Resistance Genes in Durum Wheat for Incorporation and Better Utilization of Resistance in Durum Wheat Adapted to ND," Sponsored by ND Wheat Commission, State, $20,937.00.

Not Awarded

"Rust-proofing Dry Edible Beans for the Northern Great Plains via Guided Pre-breeding and Breeding Efforts," Sponsored by ND Department of Agriculture, State, $91,561.00.

Not Awarded


Friskop, Andrew (Principal:), Acevedo, Maricelis (Co-Principal:), "Risk Assessment and Management Strategies for Stripe Rust," Sponsored by North Dakota State Board of Agricultural Research and Education, $14,000.00. (July 1, 2016 - June 30, 2017).

Acevedo, Maricelis, Pasche, Julie, Markell, Samuel (Co-Principal:), Osorno, Juan, "Rust-Proofing Dry Edible Beans for the Northern Great Plains via Guided Pre-Breeding and Breeding Efforts," Sponsored by ND Department of Ag - Specialty crop block grant - USDA, $2,884.00. (October 1, 2015 - June 30, 2017).

Simons, Kristin (PostDoc)

Funded

Zitnick, Kimberly (PostDoc)


Ext Plant Pathology

Friskop, Andrew J. (Assistant Professor)

Funded


Funded


Funded


Not Awarded

"Cereal Aphids/Barley Yellow Dwarf Virus," Sponsored by ND Wheat Commission, State, $11,541.00.

Friskop, Andrew (Co-Principal:), Knodel, Janet (Principal:), "Corn Disease Survey," Sponsored by NDDA, $10,866.00. (July 1, 2016 - June 30, 2017).

Friskop, Andrew (Co-Principal:), Knodel, Janet (Principal:), "Evaluating Management Tools for Cereal Aphids and Barley Yellow Dwarf Virus on Wheat in North Dakota," Sponsored by North Dakota Wheat Commission, $20,570.00. (July 1, 2016 - June 30, 2017).

Friskop, Andrew (Principal:), "Identification and Management of Corn Disease," Sponsored by North Dakota Corn Council Utilization Council, $14,700.00. (July 1, 2016 - June 30, 2017).

Friskop, Andrew (Principal:), Acevedo, Maricelis (Co-Principal:), "Risk Assessment and Management Strategies for Stripe Rust," Sponsored by North Dakota State Board of Agricultural Research and Education, $14,000.00. (July 1, 2016 - June 30, 2017).

Friskop, Andrew (Principal:), "Risk Assessment and Management Strategies for Stripe Rust," Sponsored by North Dakota Wheat Commission, $4,666.00. (July 1, 2016 - June 30, 2017).

Friskop, Andrew (Principal:), "Evaluation of Seed Treatment and Foliar Fungicide in ND Field Crops," Sponsored by BASF Wyandotte Corporation, $18,000.00. (April 1, 2016 - April 30, 2017).

Khan, Mohamed F. R. (Professor)

Funded

Secor, Gary, Bolton, M., Khan, Mohamed, "Monitory sensitivity of Cercospora beticola to folieer fungicides in sugarbeet fields of Minnesota and North Dakota.," Sponsored by Sugar Beet Research and Education Board of MN and ND, $29,296.00. (2016 - Present).

Funded


Funded


Funded


Funded


Not Awarded


Not Awarded


Khan, M., "Evaluating Fungicides for Controlling Diseases of Sugarbeet," Sponsored by Gift Funds From Chemical and Sugar Companies, $146,000.00. (2016 - Present).


Knodel, Janet J. (Associate Professor)

Funded

Knodel, Janet, Ransom, Joel, Boetel, Mark, "Identification of Bt Resistance in Corn Rootworms in North Dakota," Sponsored by North Dakota Corn Council, Other, $33,580.00. (July 2016 - June 2017).

Funded

"Evaluation of Bt-traits in Corn Hybrids for Control of Rootworm in ND," Sponsored by ND Corn Utilization Council, State, $29,510.00. (July 1, 2015 - June 30, 2016).

Funded

"Management of Soybean Aphids and Interaction with Soybean Cyst," Sponsored by ND Soybean Council, State, $10,158.00. (July 1, 2015 - June 30, 2016).

Funded

"Efficacy and Economics of Insecticide Seed Treatments for Management of Wireworms and Seed Corn Maggots in Sunflowers," Sponsored by National Sunflower Association, Federal, $9,820.00. (May 1, 2015 - April 30, 2016).

Funded

Not Awarded


Not Awarded

"Soybean Entomology in the North Central Region: Management and Outreach for New and Existing Pests," Sponsored by South Dakota State University, State, $40,000.00.

Knodel, J., Beauzay, P. B., "Corn Insecticide Trials," Sponsored by Bayer CropScience, $4,000.00. (2016 - Present).


Friskop, Andrew (Co-Principal:), Knodel, Janet (Principal:), "Corn Disease Survey," Sponsored by NDDA, $10,866.00. (July 1, 2016 - June 30, 2017).

Friskop, Andrew (Co-Principal:), Knodel, Janet (Principal:), "Evaluating Management Tools for Cereal Aphids and Barley Yellow Dwarf Virus on Wheat in North Dakota," Sponsored by North Dakota Wheat Commission, $20,570.00. (July 1, 2016 - June 30, 2017).
Knodel, Janet, Markell, Samuel (Co-Principal:), Helms, Ted, Beauzay, P, "Management of Soybean Aphids and Interaction with Soybean Cyst Nematode," Sponsored by North Dakota Soybean Council, $0.00. (July 1, 2016 - June 30, 2017).

Knodel, Janet, Markell, Samuel (Co-Principal:), "Management of Soybean Aphids and Interaction with Soybean Cyst Nematode," Sponsored by North Dakota Soybean Council, $0.00. (July 1, 2016 - June 30, 2017).


Markell, Samuel (Associate Professor)

Funded


Funded


Funded


Funded


Funded


Funded

Pasche, Julie (Principal:), Markell, Samuel (Co-Principal:), Wunsch, Michael (Co-Principal:), Cooper, Kelly (Co-Principal:), "Dry Edible Bean Disease Research," Sponsored by Northarvest Bean Growers Association, Local, $48,097.00. (June 1, 2016 - May 31, 2017).
Pasche, Julie, Markell, Samuel, "Efficacy of Foliar Applications for the Control of Common Bacterial Blight under Field Conditions," State, $12,270.00. (June 1, 2016 - May 31, 2017).

Pasche, Julie (Co-Principal:), Markell, Samuel (Co-Principal:), McPhee, Kevin (Co-Principal:), "Pulse Crops Working Group," Sponsored by North Central Region Integrated Pest Management Center, Federal, $19,846.00. (March 1, 2016 - February 28, 2017).


Qi, L, Markell, Samuel (Co-Principal:), "Applying Genomic Tools to Accelerate Breeding for Disease Resistance in Confection Sunflower," Sponsored by National Sunflower Association, $73,717.00. (October 1, 2016 - December 31, 2018).


Pasche, Julie, Markell, Samuel (Co-Principal:), Wunsch, Michael, Cooper, K, Osorno, Juan, "Dry Edible Bean Disease Research," Sponsored by Northarvest Bean Growers Association, $4,520.00. (July 1, 2016 - June 30, 2017).
Pasche, Julie, Markell, Samuel (Co-Principal:), Wunsch, Michael, Cooper, K, Osorno, Juan, "Dry Edible Bean Disease Research," Sponsored by Northarvest Bean Growers Association - SBARE, $0.00. (July 1, 2016 - June 30, 2017).


Knodel, Janet, Markell, Samuel (Co-Principal:), "Management of Soybean Aphids and Interaction with Soybean Cyst Nematode," Sponsored by North Dakota Soybean Council, $0.00. (July 1, 2016 - June 30, 2017).

Knodel, Janet, Markell, Samuel (Co-Principal:), Helms, Ted, Beauzay, P, "Management of Soybean Aphids and Interaction with Soybean Cyst Nematode," Sponsored by North Dakota Soybean Council, $0.00. (July 1, 2016 - June 30, 2017).

Yan, Guiping, Berti, Marisol, Markell, Samuel (Co-Principal:), "Screening Cover Crops to Reduce Soybean Cyst Nematode in Infected Field," Sponsored by North Dakota Soybean Council, $0.00. (July 1, 2016 - June 30, 2017).


Markell, Samuel (Principal:), Malvick, D, "Sudden Death Syndrome Short Course: 2016," Sponsored by North Dakota Soybean Council, $18,050.00. (July 1, 2016 - June 30, 2017).

Acevedo, Maricelis, Pasche, Julie, Markell, Samuel (Co-Principal:), Osorno, Juan, "Rust-Proofing Dry Edible Beans for the Northern Great Plains via Guided Pre-Breeding and Breeding Efforts," Sponsored by ND Department of Ag - Specialty crop block grant - USDA, $2,884.00. (October 1, 2015 - June 30, 2017).

Pasche, Julie, Markell, Samuel (Co-Principal:), Cooper, K, Osorno, Juan, "Efficacy of Foliar Applications for the Control of Common Bacterial Blight Under Field Conditions," Sponsored by North Dakota Crop Protection Product Harmonization, $4,520.00. (June 1, 2016 - May 1, 2017).


Pasche, Julie, Wunsch, Michael, Markell, Samuel (Co-Principal:), "In-Furrow Fungicide Applications for the Management of Root Rot in Field Peas and Dry Beans," $0.00. (March 2016 - February 2017).

Markell, Samuel (Principal:), "Service Order #4 - Evaluation of Elite Sunflower Germplasm for Rust Resistance," $1,500.00. (February 21, 2016 - December 31, 2016).


Pasche, Julie (Principal:), Wunsch, Michael, Markell, Samuel, "Evaluating In-Furrow Fungicide Applications for the Management of Root Rot in Field Peas and Dry Edible Beans," Sponsored by North Dakota Department of Agriculture, $14,829.00. (July 2015 - June 2016).


**Plant Pathology**

**Brueggeman, Robert S. (Associate Professor)**

*Funded*

Pasche, Julie (Principal:), Brueggeman, Robert (Co-Principal:), "Population structure and aggressiveness of Aphanomyces euteiches on field pea in North Dakota," Sponsored by North Dakota Department of Agriculture, State, $115,341.00. (October 1, 2016 - September 30, 2018).

*Funded*

Ganesh Pillai, Rajani (Senior Personnel:), Bezbaruah, Achintya (Principal:), Brueggeman, Robert (Co-Principal:), "Center for Technology Research for Agricultural Food Safety and Security under Changing Global Climate," Sponsored by North Dakota State University Office of Research and Creative Activity, North Dakota State University, $40,000.00. (September 2016 - June 2017).

*Funded*

Liu, Zhaohui (Principal: Management and supervising), Brueggeman, Robert, "Bacterial Leaf Streak (BLS) of Barley," Sponsored by American Malting Barley Association, Private, $5,000.00. (July 1, 2016 - June 30, 2017).

*Funded*

**Funded**


**Not Awarded**

"Coordination of the NABSEN and Collaborative Screening of Western US Barley Germplasm," Sponsored by Agriculture Research Service, Federal, $15,688.00.

**Not Awarded**


**Not Awarded**

"Genomic Discovery and Assisted Breeding to Improve Barley for Core and Niche Environments," Sponsored by University of Minnesota, State, $284,285.00.

**Not Awarded**


**Not Awarded**

"Rpg4-mediated Ug99 Resistance in Barley: PTI Priming of Integrated Decoy Elicited ETI," Sponsored by NIFA, Federal, $403,244.00.

Brueggeman, Robert (Principal:), Sponsored by American Malting Barley Association, $18,000.00. (2016 - Present).

Brueggeman, Robert (Principal:), Sponsored by American Malting Barley Association, $18,000.00. (2016 - Present).

Brueggeman, Robert (Co-Principal::), Friesen, T (Principal::), Sponsored by Montana Wheat and Barley Commission, $32,000.00. (2016 - Present).


Brueggeman, Robert (Principal::), Sponsored by North Dakota Barley Council, $11,359.00. (2016 - Present).

Brueggeman, Robert (Principal::), Sponsored by North Dakota Barley Council, $36,000.00. (2016 - Present).

Brueggeman, Robert (Principal::), Sponsored by NSF-ND EPSCoR, $16,017.00. (2016 - Present).
Brueggeman, Robert (Principal:), Sponsored by SBARE, $15,957.00. (2016 - Present).

Brueggeman, Robert (Principal:), Sponsored by USDA-ARS, $100,000.00. (2016 - Present).

Brueggeman, Robert (Principal:), Sponsored by USDA-ARS USWBSI, $67,172.00. (2016 - Present).


**Del Rio Mendoza, Luis E. (Professor)**

*Funded*


*Not Awarded*


*Not Awarded*

"Improving Resistance to Sclerotinia Sclerotiorum in Spring Canola," Sponsored by Agriculture Research Service, Federal, $81,474.00.

*Not Awarded*


**Gudmestad, Neil C. (Professor)**

*Funded*


*Funded*


*Funded*

Funded


Funded

"Metam Sodium Control of Verticillium Wilt in High OM and Fine-textured Soils," Sponsored by MN Area II Potato Growers, State, $30,000.00. (July 1, 2014 - October 30, 2016).

Funded


Not Awarded


Not Awarded

"Management of Potato Mop Top Tuber Necrosis Using Cultivars that do not Express the Disease," Sponsored by ND Department of Agriculture, State, $48,915.00.

Not Awarded

"Metam Sodium Control of Verticillium Wilt in High OM and Fine-textured Soils," Sponsored by Northern Plains Potato Growers Association, Federal, $35,000.00.

Not Awarded


Liu, Zhaohui (Assistant Professor)

Funded


Funded

Liu, Zhaohui (Principal: Management and supervising), Brueggeman, Robert, "Bacterial Leaf Streak (BLS) of Barley," Sponsored by American Malting Barley Association, Private, $5,000.00. (July 1, 2016 - June 30, 2017).

Funded

Funded


Not Awarded


Not Awarded


Not Awarded


Not Awarded


Liu, Zhaohui, Zhong, Shaobin, Sponsored by Indigo, $12,000.00. (2016 - Present).

Liu, Zhaohui, Sponsored by Indigo, $2,001.00. (2016 - Present).

Liu, Zhaohui, Sponsored by Monsanto, $4,630.00. (2016 - Present).

Liu, Zhaohui, Sponsored by Monsanto, $5,896.00. (2016 - Present).

Liu, Zhaohui, Sponsored by ND State Board of Agriculture Research and Education, $26,666.00. (2016 - Present).


Liu, Zhaohui, Sponsored by ND Wheat Commission, $35,000.00. (2016 - Present).

Nelson, Berlin D. (Professor)

Funded

Funded


Funded


Funded


Funded


Funded


Funded


Funded


Funded


Funded

Nelson, Berlin, Osorno, Juan, Pasche, Julie, "Soybean cyst nematode outreach and characterization of the genetic basis for resistance," Sponsored by USDA Specialty Crop Block Grant, $100,000.00. (October 1, 2014 - June 30, 2016).

Funded


Pasche, Julie S. (Assistant Professor)

Pasche, Julie (Principal:), Karasev, Alexander (Co-Principal:), "Characterization of a New Pea Seedborne Mosaic Virus Variant Affecting North Dakota Field Peas," Sponsored by North Dakota Department of Agriculture, State, $142,406.00. (October 1, 2016 - September 30, 2018).

Funded

Pasche, Julie (Principal:), Brueggeman, Robert (Co-Principal:), "Population structure and aggressiveness of Aphanomyces euteiches on field pea in North Dakota," Sponsored by North Dakota Department of Agriculture, State, $115,341.00. (October 1, 2016 - September 30, 2018).

Funded

Pasche, Julie (Principal:), "Continued Fusarium Root Rot Research Targeting the Pathogen Complex Affecting Field Pea and Lentil," Sponsored by USA Dry Pea and Lentil Council, Private, $15,360.00. (July 1, 2016 - December 31, 2017).

Funded

Pasche, Julie (Co-Principal:), Wunsch, Michael (Principal:), Cooper, Kelly (Co-Principal:), "Seed-borne bacterial blight of field peas: Impact assessment and management," Sponsored by Northern Pulse Growers Association, $9,000.00. (March 1, 2016 - December 31, 2017).

Funded

Pasche, Julie (Principal:), "Post-Doctoral Support for Research on Root Rot of Field Pea," Sponsored by Northern Pulse Growers Association, Local, $18,500.00. (July 1, 2016 - June 30, 2017).
Pasche, Julie (Co-Principal:), Wunsch, Michael (Co-Principal:), "Evaluation of Seed Treatment with Streptomycin for Management of Seed-Borne Bacterial Blight in Field Peas," Sponsored by Minor Use Pesticide Fund Grant Program, State, $9,000.00. (April 1, 2016 - June 30, 2017).


Pasche, Julie (Principal:), Markell, Samuel (Co-Principal:), Wunsch, Michael (Co-Principal:), Cooper, Kelly (Co-Principal:), "Dry Edible Bean Disease Research," Sponsored by Northarvest Bean Growers Association, Local, $48,097.00. (June 1, 2016 - May 31, 2017).

Pasche, Julie (Principal:), "Dry Edible Bean Disease Research," Sponsored by State Board of Agricultural Research and Education, State, $23,683.00. (June 1, 2016 - May 31, 2017).

Pasche, Julie, Markell, Samuel, "Efficacy of Foliar Applications for the Control of Common Bacterial Blight under Field Conditions," State, $12,270.00. (June 1, 2016 - May 31, 2017).

Pasche, Julie (Principal:), "Assessing the Importance of Aphanomyces Root Rot in North Dakota Field Pea and Lentil Production," Sponsored by Northern Pulse Growers Association, Local, $36,200.00. (May 1, 2016 - April 30, 2017).

Pasche, Julie (Principal:), "Efficacy of In-Furrow Fungicide Applications for the Control of Fusarium Root Rot in Field Peas," Sponsored by Northern Pulse Growers Association, Local, $12,000.00. (May 1, 2016 - April 30, 2017).
Pasche, Julie, Wunsch, Michael, "In-Furrow Fungicide Applications for the Management of Root Rot in Field Peas and Dry Edible Beans," Sponsored by Minor Use Pesticide Fund Grant Program, State, $18,916.00. (March 1, 2016 - February 28, 2017).

Funded

Pasche, Julie (Co-Principal:), Markell, Samuel (Co-Principal:), McPhee, Kevin (Co-Principal:), "Pulse Crops Working Group," Sponsored by North Central Region Integrated Pest Management Center, Federal, $19,846.00. (March 1, 2016 - February 28, 2017).

Funded


Funded

Nelson, Berlin, Osorno, Juan, Pasche, Julie, "Soybean cyst nematode outreach and characterization of the genetic basis for resistance," Sponsored by USDA Specialty Crop Block Grant, $100,000.00. (October 1, 2014 - June 30, 2016).

Funded


Not Awarded

Pasche, Julie (Co-Principal:), Dipak, Santra (Principal:), McPhee, Kevin (Co-Principal:), Harveson, Robert (Co-Principal:), Bradshaw, Jeff (Co-Principal:), Mathew, Febina (Co-Principal:), Varenhorst, Adam (Co-Principal:), Coyne, Clarice (Co-Principal:), "Genetic Improvement for Sustainable Pea Production in the United States," Sponsored by USDA, Federal, $797,906.00. (March 1, 2016 - February 28, 2019).

Pasche, Julie, Markell, Samuel (Co-Principal:), Wunsch, Michael, Cooper, K, Osorno, Juan, "Dry Edible Bean Disease Research," Sponsored by Northarvest Bean Growers Association, $4,520.00. (July 1, 2016 - June 30, 2017).

Pasche, Julie, Markell, Samuel (Co-Principal:), Wunsch, Michael, Cooper, K, Osorno, Juan, "Dry Edible Bean Disease Research," Sponsored by Northarvest Bean Growers Association - SBARE, $0.00. (July 1, 2016 - June 30, 2017).


Acevedo, Maricelis, Pasche, Julie, Markell, Samuel (Co-Principal:), Osorno, Juan, "Rust-Proofing Dry Edible Beans for the Northern Great Plains via Guided Pre-Breeding and Breeding Efforts," Sponsored by ND Department of Ag - Specialty crop block grant - USDA, $2,884.00. (October 1, 2015 - June 30, 2017).

Pasche, Julie, Markell, Samuel (Co-Principal:), Cooper, K, Osorno, Juan, "Efficacy of Foliar Applications for the Control of Common Bacterial Blight Under Field Conditions," Sponsored by North Dakota Crop Protection Product Harmonization, $4,520.00. (June 1, 2016 - May 1, 2017).

Pasche, Julie, Wunsch, Michael, Markell, Samuel (Co-Principal:), "In-Furrow Fungicide Applications for the Management of Root Rot in Field Peas and Dry Beans," $0.00. (March 2016 - February 2017).


Pasche, Julie (Principal:), Wunsch, Michael, Markell, Samuel, "Evaluating In-Furrow Fungicide Applications for the Management of Root Rot in Field Peas and Dry Edible Beans," Sponsored by North Dakota Department of Agriculture, $14,829.00. (July 2015 - June 2016).

Pasche, Julie (Co-Principal:), Markell, Samuel (Principal:), "Dry Edible Beans Disease Research," Sponsored by North Dakota State Board of Agricultural Research and Education, $7,016.00. (June 2015 - May 2016).


Pasche, Julie (Principal:), Chapara-Ramana, V, "Efficacy of In-Furrow Fungicide Applications for the Control of Fusarium Root Rot in Field Peas," Sponsored by Northern Pulse Growers Association, $10,725.00. (May 2015 - April 2016).


Secor, Gary A. (Professor)

Funded


Funded

Secor, Gary, Robinson, Andrew, "Managing blemish problems to improve marketing of fresh potatoes," Sponsored by North Dakota Department of Ag, Specialty Crop Block Grant, $23,336.00. (2016 - Present).

Funded

Funded


Funded


Funded

Thompson, Asunta (Co-Principal:), Secor, Gary (Co-Principal:), "Development of a mitigation strategy to soft rotting pathogens affecting seed potato production," Sponsored by North Dakota Department of Agriculture Specialty Crop Block Grants, State, $47,880.00. (October 1, 2016 - September 30, 2018).

Funded

Robinson, Andrew, Yan, Guiping, Secor, Gary, "Identify the cause of potato emergence disorder for infested fields in Minnesota," Sponsored by Minnesota Department of Agriculture. (November 1, 2015 - June 30, 2018).

Funded


Yan, Guiping (Assistant Professor)

Funded

Yan, Guiping (Principal:), "Detection and management of plant-parasitic nematodes on field crops (ND02232)," Sponsored by HATCH. (October 1, 2016 - September 30, 2021).

Funded


Funded
Robinson, Andrew, Yan, Guiping, Secor, Gary, "Identify the cause of potato emergence disorder for infested fields in Minnesota," Sponsored by Minnesota Department of Agriculture. (November 1, 2015 - June 30, 2018).  

Funded

W., DeJong (Principal:), A., Charkowski (Co-Principal:), S., Gray (Co-Principal:), Yan, Guiping (Co-Principal:), "Biological and economic impacts of comprehensive and sustainable management practices," Sponsored by USDA-NIFA-SCRI, $94,751.00. (September 1, 2016 - August 31, 2017).  

Funded


Funded

Yan, Guiping (Principal:), "Developing a qPCR assay to determine population densities of root-lesion nematodes (Pratylenchus penetrans) in soils to be planted to potato," Sponsored by Northern Plains Potato Growers Association/MN Area II Potato Growers, $20,000.00. (May 1, 2016 - June 30, 2017).  

Funded

Yan, Guiping, Khan, M, "Plant-parasitic nematodes on sugarbeet in North Dakota and Minnesota," Sponsored by Sugarbeet Research and Education Board of MN & ND. (May 1, 2016 - June 30, 2017).  

Funded

Yan, Guiping, "Screening wheat varieties for resistance to root-lesion nematode (Pratylenchus neglectus) in North Dakota," Sponsored by State Board of Agricultural Research & Education. (May 1, 2016 - June 30, 2017).  

Funded


Funded


Funded

Funded


Funded


Funded


Funded


Funded

Yan, Guiping (Principal:), "Selectivity and efficacy test of seed dressing fluensulfone formulations in soybeans seeds," Sponsored by Adama, $20,000.00. (November 1, 2016 - April 30, 2017).

Funded

Yan, Guiping (Principal:), A., Plaisance (Co-Principal:), "Majestence application programs for nematode control and yield/quality effects in North Dakota potato," Sponsored by Marrone Bio Innovations, $5,600.00. (March 18, 2016 - January 30, 2017).

Funded

Yan, Guiping (Principal:), A., Plaisance (Co-Principal:), "Velum Prime in-furrow potato nematode management program with Movento," Sponsored by Bayer CropScience, $10,000.00. (March 4, 2016 - January 30, 2017).

Funded


Funded

Funded

Yan, Guiping, "Developing a qPCR assay to determine population densities of root-lesion nematodes (Pratylenchus penetrans) in soils to be planted to potato," Sponsored by Northern Plains Potato Growers Association and MN Area II Potato Growers. (May 1, 2015 - June 30, 2016).

Funded


Funded


Funded

Yan, Guiping, "Plant-parasitic nematodes on wheat in North Dakota," Sponsored by State Board of Agricultural Research & Education. (May 1, 2015 - June 30, 2016).

Funded

Yan, Guiping, Khan, M, "Survey to detect presence or absence of sugarbeet cyst nematode in North Dakota and Minnesota," Sponsored by Sugarbeet Research and Education Board of MN & ND. (May 1, 2015 - June 30, 2016).

Funded


Funded


Yan, Guiping, Berti, Marisol, Markell, Samuel (Co-Principal:), "Screening Cover Crops to Reduce Soybean Cyst Nematode in Infected Field," Sponsored by North Dakota Soybean Council, $0.00. (July 1, 2016 - June 30, 2017).


Zhong, Shaobin (Associate Professor)

Funded


Liu, Zhaohui, Zhong, Shaobin, Sponsored by Indigo, $12,000.00. (2016 - Present).

Zhong, Shaobin (Principal:), "Screening of spring wheat lines from Monsanto for Fusarium head blight resistance," Sponsored by Monsanto, $7,938.00. (March 2016 - October 2017).

Zhong, Shaobin, "DON accumulation in PI 344467 during FHB infection," Sponsored by ND Wheat Commission, $20,000.00. (July 2016 - June 2017).


Zhaohui, Liu (Principal:), Zhong, Shaobin (Co-Principal:), "Foliar Non-pathogenicity Tests of Indigo Strains," Sponsored by Indigo, $3,000.00. (July 2016 - August 2016).
Presentations
North Dakota State University
January 1, 2016 - December 31, 2016

Ext Plant Pathology

Khan, Mohamed F. R. (Professor)


Khan, M., IIRB Pests and Diseases Meeting, "Effectiveness and Use of Fungicide Seed Treatments at Controlling Rhizoctonia Solani," Landskrona and Borgeby. (September 8, 2016 - September 9, 2016).


Khan, M. F. R., Indian Phytopathological Society Meeting, "Taking the University to the People," New Delhi, India. (February 23, 2016 - February 26, 2016).

Knodel, Janet J. (Associate Professor)


Torrez, Veronica Calles (Author & Presenter), Knodel, Janet (Author), Boetel, Mark (Author), French, B. Wade (Author), Fuller, Billy W. (Author), Ransom, Joel (Author), XXV International Congress of Entomology, "Effect of transgenic corn hybrids and a soil insecticide on corn rootworm (Coleoptera: Chrysomelidae) beetle emergence in North Dakota," Entomological Society of America, Orlando, FL. (September 25, 2016 - September 30, 2016).
Markell, Samuel (Associate Professor)


Plant Pathology

Brueggeman, Robert S. (Associate Professor)


Del Rio Mendoza, Luis E. (Professor)


Gudmestad, Neil C. (Professor)

Bauske, Mitch, 100th Meeting of the Potato Association of America. (2016).


Meinhardt, Steven (Associate Professor)

Meinhardt, Steven, Malalgoda, Maneka (Author & Presenter), Ohm, J B (Author), Meinhardt, S W (Author), Chao, S (Author), Simsek, S (Author), America Association of Cereal Chemists - International Annual Meeting, "Cluster analysis of historical and modern hard red spring wheat cultivars based on parentage and HPLC of gluten proteins.," American Association of Cereal Chemists, Savannah, GA, USA. (October 23, 2016 - October 26, 2016).

Meinhardt, Steven, Ohm, J B (Author), Meinhardt, S W (Author), Simsek, S (Author), American Association of Cereal Chemists - International Annual Meeting, "Quantification of peptides causing celiac disease in historical and modern hard red spring wheat cultivars.," American Association of Cereal Chemists, Savannah, GA, USA. (October 23, 2016 - October 26, 2016).

Meinhardt, Steven, Malalgoda, Maneka (Author & Presenter), Ohm, J B (Author), Meinhardt, S W (Author), Chao, S (Author), Simsek, S (Author), Agricultural Bioscience International Conference, "Analysis of historical and modern hard red spring wheat cultivars based on parentage and HPLC of gluten proteins using Ward’s clustering method.," Fargo, ND, USA. (September 18, 2016 - September 21, 2016).

Meinhardt, Steven, Malalgoda, Maneka (Author & Presenter), Ohm, J B (Author), Meinhardt, S W (Author), Simsek, S (Author), Second Annual Food for Health Conference, "Detection of peptides causing celiac disease in historical and modern hard red spring wheats.," NDSU - Global Institute of Food Security and International Agriculture, Fargo, ND, USA. (July 10, 2016 - July 13, 2016).

Meinhardt, Steven, Malalgoda, Maneka (Author & Presenter), Ohm, J B (Author), Meinhardt, S W (Author), Simsek, S (Author), The 13th International Hydrocolloids Conference, "Gliadin functionality in the gluten network: role of omega-gliadin proteins.," University of Guelph, Canada. (May 16, 2016 - May 20, 2016).

Pasche, Julie S. (Assistant Professor)


Wunsch, M, Pasche, Julie (Other), Northern Pulse Growers Association Annual Meeting, "Disease Detective." (January 25, 2016).


Pasche, Julie, North Dakota Dry Edible Bean Seed Growers Association, "Update on Dry Bean Disease Research in North Dakota," Fargo, ND. (January 14, 2016).

Secor, Gary A. (Professor)


Secor, Gary, EUPHRESCO III Dickeya/Pectobacterium, "Predicting Dickeya by post-harvest seed lot testing: a real world study," Helsinki, Finland. (November 11, 2016).


Secor, Gary, Simposio Internacional: Enfrentando al enemigo: "El virus Y de la papa (PVY) una amenaza en la produccion de tuberculo semilla de papa," Osorno, Chile. (August 9, 2016).

Secor, Gary, European Association for Potato Research Pathology and Pest Section, "Tracking Dickeya in North America," Dundee, Scotland. (August 9, 2016).


Secor, Gary, Pepsico National WebEx, "BMP for potato seed handling and treatments.." (January 29, 2016).


Yan, Guiping (Assistant Professor)


Huang, D, Yan, Guiping, American Phytopathological Society Annual Meeting, "Real-time and conventional PCR assays for identifying the stubby root nematode Paratrichodorus allius," Tampa, FL. (July 30, 2016 - August 3, 2016).


Yan, Guiping. Northern Plains Potato Growers Association Potato Research Reporting Conference. "Developing a qPCR assay to determine population densities of root-lesion nematodes (Pratylenchus penetrans) in soils to be planted to potato," Grand Forks, ND. (February 16, 2016).

Zhong, Shaobin (Associate Professor)


Intellectual Contributions

North Dakota State University

January 1, 2016 - December 31, 2016

AES Plant Pathology

Acevedo, Maricelis (Assistant Professor)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)


Other Intellectual Contributions

Abstract


Abstract


Baidoo, Richard (PostDoc)

Refereed Journal Articles

Journal Article (Published)

Chitrampalam, Periasamy (PostDoc)

Other Intellectual Contributions

Abstract (Published)


Chittem, Kishore (PostDoc)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)


Huang, Danqiong (PostDoc)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Accepted)

*Journal Article (Accepted)*


**Jain, Shalu** (PostDoc)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


**Other Intellectual Contributions**

*Abstract*


**Ext Plant Pathology**

**Friskop, Andrew J.** (Assistant Professor)

**Non-Refereed Journal Articles**

*Journal Article*

Other Intellectual Contributions

Book Chapter (Published)


Book Chapter (Published)


Book Chapter (Published)


Extension Publication (Published)


Extension Publication (Published)


Book Chapter (In Preparation; Not Yet Submitted)


Abstract

Book Chapter


Book Chapter


Extension Publication


Extension Publication


Extension Publication


Extension Publication


Proceedings Papers


Popular Press Articles


Abstract

**Abstract**


**Abstract**


**Abstract**


**Khan, Mohamed F. R. (Professor)**

**Non-Refereed Journal Articles**

*Journal Article (Accepted)*


*Journal Article*


*Journal Article*


*Journal Article*


*Journal Article*

*Journal Article*


*Other Intellectual Contributions*

*Extension Publication (Published)*


*Research Report (Published)*


*Research Report (Published)*


*Research Report (Published)*


*Research Report (Published)*


*Abstract*


*Abstract*

**Abstract**

Khan, M. F. R. (2016). *Taking the University to the People*. Indian Phytopathological Society.

**Extension Publication**


**Extension Publication**


**Extension Publication**


**Extension Publication**


**Extension Publication**


**Knodel, Janet J. (Associate Professor)**

**Non-Refereed Journal Articles**

**Journal Article**

Journal Article


Other Intellectual Contributions

Extension Publication (Published)


Abstract (Published)


Extension Publication (Published)


Proceedings Papers (In Preparation; Not Yet Submitted)


Abstract


Abstract


**Abstract**


**Abstract**


**Book Chapter**


**Invited to review Extension Publications**


**Popular Press Article**


**Research Report**


**Research Report**


**Research Report**

Research Report


Research Report


Research Report


Research Report


Research Report


Research Report


Research Report


Research Report


Research Report


Reviewed Extension Publication


*Popular Press Article*


*Research Report*


*Extension Publication*

Knodel, J., Lubenow, L. (2016). *Cereal Leaf Beetle, Oulema melanopus (L.) (Coleoptera: Chrysomelidae)*. NDSU Ext. Ser..

*Invited to review Extension Publications*


*Reviewed Extension Publication*


*Popular Press Article*


*Popular Press Article*


*Reviewed Extension Publication*


*Reviewed Extension Publication*

*Reviewed Extension Publication*


*Reviewed Extension Publication*


*Reviewed Extension Publication*


*Reviewed Extension Publication*


Markell, Samuel (Associate Professor)

*Refereed Journal Articles*

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


**Journal Article (Published)**


**Journal Article (Accepted)**


**Journal Article (Accepted)**


**Journal Article (Submitted)**


**Non-Refereed Journal Articles**

**Journal Article (Published)**


**Journal Article (Published)**


**Journal Article (Published)**

Journal Article (Published)


Other Intellectual Contributions

Abstract (Published)


Abstract (Published)


Article (Published)


Article (Published)


Article (Published)


Article (Published)


Article (Published)


Article (Published)


*Article (Published)*


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Book Chapter (Published)


Book Chapter (Published)


Book Chapter (Published)


Popular Press Article (Published)


Popular Press Article (Published)


Abstract (Published)


Book Chapter (In Preparation; Not Yet Submitted)


Abstract


Book Chapter


Book Chapter


Extension Publication

Popular Press Article


Popular Press Article


Popular Press Article


Popular Press Article


Popular Press Article


Abstract


Abstract


Popular Press Article


Abstract


**Abstract**


**Abstract**


**Abstract**


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**Abstract**


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**Abstract**


**Abstract**


**Abstract**


**Plant Pathology**

**Brueggeman, Robert S. (Associate Professor)**

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


**Non-Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Accepted)*


*Journal Article (Accepted)*


*Journal Article (Accepted)*


*Journal Article (Accepted)*


*Journal Article*


*Journal Article*


*Journal Article*


*Journal Article*


*Journal Article*

Steffenson, B. J., Solanki, S., Brueggeman, R. S. Landraces From Mountainous Regions of Switzerland are Sources of Important Genes for Stem Rust Resistance in Barley. *Alpine Botnay*. Accepted: 2016.

*Journal Article*


*Journal Article*


*Journal Article*


*Other Intellectual Contributions*

Abstract (Published)

Abstract (Accepted)


Abstract


Abstract


Abstract


Abstract


Abstract


Abstract

Abstract


Abstract


Abstract


Abstract


Extension Publication


Proceedings Papers


Abstract


Abstract

**Abstract**


**Abstract**


**Del Rio Mendoza, Luis E. (Professor)**

**Non-Refereed Journal Articles**

**Journal Article**


**Other Intellectual Contributions**

**Abstract**


**Abstract**


**Abstract**


**Abstract**

Proceeding paper


**Gudmestad, Neil C. (Professor)**

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


**Non-Refereed Journal Articles**

*Journal Article*


*Journal Article*


*Journal Article*


*Journal Article*


*Journal Article*


*Journal Article*


*Journal Article*


*Journal Article*


*Other Intellectual Contributions*

*Abstract*


*Liu, Zhaohui (Assistant Professor)*

*Refereed Journal Articles*

*Journal Article (Published)*

Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Non-Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)

Conference Proceedings

Conference Proceeding (Published)


Other Intellectual Contributions

Extension Publication (Published)


Extension Publication (Published)


Abstract (Accepted)


Abstract


Abstract


Abstract


Abstract

Abstract


Abstract


Meinhardt, Steven (Associate Professor)

Refereed Journal Articles

Journal Article (Published)


Nelson, Berlin D. (Professor)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)


Journal Article (Published)

Journal Article (Published)


Journal Article (Published)


Non-Refereed Journal Articles

Journal Article (Published)


Conference Proceedings

Conference Proceeding (Accepted)


Other Intellectual Contributions

Abstract (Published)


Magazine/Trade Publication (Published)


Magazine/Trade Publication (Published)

Popular Press Article (Published)


Popular Press Article (Published)


Popular Press Article (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)


Extension Publication


Abstract


Pasche, Julie S. (Assistant Professor)

Refereed Journal Articles

Journal Article (Published)

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Submitted)*


*Non-Refereed Journal Articles*

*Journal Article (Published)*


*Other Intellectual Contributions*

*Abstract (Published)*


*Extension Publication (Published)*

*Extension Publication (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


*Magazine/Trade Publication (Published)*

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*Magazine/Trade Publication (Published)*


*Magazine/Trade Publication (Published)*


*Magazine/Trade Publication (Published)*


*Popular Press Article (Published)*


*Magazine/Trade Publication (Published)*


*Magazine/Trade Publication (Published)*


*Magazine/Trade Publication (Published)*


*Magazine/Trade Publication (Published)*


*Magazine/Trade Publication (Published)*

Extension Publication (Accepted)


Abstract (Accepted)


Abstract (Accepted)


Abstract (Accepted)


Popular Press Article


Popular Press Article


Popular Press Article


Abstract


Abstract

*Extension Publication*


**Rasmussen, Jack (Professor)**

*Non-Refereed Journal Articles*

*Journal Article (Published)*


**Secor, Gary A. (Professor)**

*Refereed Journal Articles*

*Journal Article (Published)*


*Non-Refereed Journal Articles*

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


**Other Intellectual Contributions**

**Abstract (Accepted)**


**Abstract (Accepted)**


**Abstract**


**Abstract**


**Yan, Guiping (Assistant Professor)**

**Refereed Journal Articles**

**Journal Article (Published)**


**Journal Article (Published)**


**Journal Article (Published)**

Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Accepted)


Non-Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)

Journal Article (Accepted)


Journal Article (In Preparation; Not Yet Submitted)


Journal Article (In Preparation; Not Yet Submitted)


Other Intellectual Contributions

Abstract (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)


**Abstract (Published)**


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Abstract (Published)


Extension Publication (Published)


Extension Publication (Published)


Extension Publication (Published)


Extension Publication (Published)


Magazine/Trade Publication (Published)


Magazine/Trade Publication (Published)


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**Research Report (Published)**


**Research Report (Published)**


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Research Report (Published)


Research Report (Published)


Research Report (Published)


Research Report (Published)


Research Report (Published)


Research Report (Published)

Abstract (Published)


Abstract (Published)


Abstract (Published)


Book Chapter (Submitted)


Zhong, Shaobin (Associate Professor)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


*Journal Article (Published)*


*Non-Refereed Journal Articles*

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (In Preparation; Not Yet Submitted)*


*Journal Article*


*Journal Article*

Journal Article


Journal Article


Journal Article


Other Intellectual Contributions

Research Report


Research Report


Research Report


Abstract


Abstract

Zhao, M., Leng, Y., Chao, S., Xu, S. S., Zhong, S. (2016). *Molecular mapping of QTL for FHB resistance introgressed into durum wheat* (pp. 105). St. Louis, MO:.

Abstract

Shrestha, S., Poudel, R., Borowicz, P., Zhong, S. (2016). *Histopathological study of compatible and incompatible interactions between barley and the spot blotch fungus Bipolaris sorokiniana* (pp. 7-211). Portland, OR:

Abstract

A. Significant Departmental achievements in research, teaching and outreach during the past year

a. Teaching:
K. Changes made since last report to enhance student learning to achieve the intended student learning outcomes for the curriculum.

The School (i) updated the matrix of classes for assessing learning outcomes (LO), (ii) established LOs and assessment matrix for Range Science, and (iii) revised LOs and matrices for Soil Science and Natural Resources Management. Also, the “communication” LO was assessed in seven courses, including the SNRS common capstone experience. Students were evaluated for their abilities in written, oral, and graphic communication. A majority of students (85%) met expectations. In addition, faculty assessed learning outcomes that were of particular importance in courses in each of the three undergraduate majors. Based on assessment in 2016, improvements were made, especially in “lack of math preparation.”

L. List new initiatives, innovative teaching approaches (providing evidence of quality improvements in teaching and learning).

New initiatives included: (i) adding “Sustainability” as an undergraduate emphasis area in NRM, which is a topic of high demand; (ii) discussing and developing cross-disciplinary degree(s) in the SNRS; (iii) revising the NRM webpage and other recruitment materials; (iv) visiting high schools and other venues to promote the SNRS; (vi) the creation of an Advisory Committee for NRM; and (vii) endeavoring to create assessment plans for all graduate programs of the School.

b. Research/Scholarly/Creative Activities

Research productivity, in terms of publications and grants, has increased every year over the last 5 years. In 2016, there were 94 peer-reviewed papers published by the School’s faculty, or 4.09 papers per faculty member, which is up from 2015 when it was 3.5. Also, faculty are collaborating more extensively across the School’s disciplines, where 43 peer-reviewed publications were coauthored by two or more SNRS faculty.

In 2016, there was $8,425,836 budgeted to active grants, which was up from $6,925,326 in 2015. The 2016 expenditures from these grants was $2,098,863, compared to $1,977,638 in 2015. Of the 117 active grants in 2016, 34% were funded by commodity groups. Active grant funds from commodities was $1,427,508 in 2016, with soybean ($543k), corn ($412k), sugarbeet ($269k), sunflower ($109k), and wheat (87k) as primary sources.

Research of SNRS was very visible in 2016, with frequent highlights in issues of CSA News (the premier professional magazine for crop, soil and agronomic sciences), and other national and regional popular press publications, including Progressive Farmer (510,000 subscribers), Successful Farming (390,000 subscribers), Ag Week, Soybean Grower Magazine, Corn Talk, and Farm and Ranch Guide.

Research highlights for Entomology included the development and refinement of an NDAWN degree-day model to predict sugarbeet plant root maggot outbreaks. Grower adoption of NDSU management recommendations for root maggot outbreaks resulted in a 46% reduction in plant injury, increasing revenues by over $4 Million. Also, Dr. Harris was awarded a USDA-NIFA grant to organize and host an international conference entitled, Achieving Durable Resistance to Wheat Pests and Diseases, which was held in
Minneapolis. This highly successful conference brought together twenty keynote speakers from the USA (11), Canada (2), Australia (2), Europe (2), and the UK (3). This conference also drew 95 attendees from sixteen countries (USA, Canada, Mexico, Bolivia, Argentina, Uruguay, South Africa, Morocco, United Kingdom, France, The Netherlands, Denmark, Sweden, Germany, Switzerland, and Australia).

In 2016, Range Science started work on improving coal mine reclamation. This interdisciplinary (Range/Soils) reclamation research is a five-year, $1.1 million state- and industry-funded study. Additionally, Range Science worked with Entomology to secure $839,000 to identify pollinator distributions across ND, and to work on restoring pollinator species.

The Soil Health program continued to grow and thrive in 2016. A highlight was linking the Soil Health Agricultural Research and Extension (SHARE) farm with the National Corn Growers Soil Health Partnership program, elevating the national recognition of the NDSU Soil Health program. In fertility, crop recalibrations continued and incorporated various technologies, such as infrared detectors and drone-based remote prediction for in-season fertilizer demand and yield. Optimization of fertilizer timing and placement has huge potentials to save ND farmers, where only a 5% gain in efficiency can automatically save ND $25 Million annually. Additionally, soils research continued on restoring prime agricultural lands after being impacted by brine and oil spills.

c. Extension/Outreach
Since 2012, extension faculty of the School have increased productivity through the programs they plan and deliver, and presentations made. In 2016, SNRS extension faculty had at least 13,549 face-to-face interactions, which is a tremendous achievement, considering ND has approximately 30,000 family farms and ranches. Extension program highlights included efforts in range and pasture management, youth education in range camp and range judging, soil fertility and soil health, urban forestry, and prediction and management of pest outbreaks. A new initiative in 2016 was how SNRS Extension faculty addressed the challenge of reaching an audience in an effective manner. Dr. Abbey Wick has taken low-tech, fate-to-face; and high-tech, social media and video approaches to reach farmers with the message of improving soil health. Using this approach, over 130 thousand people have become engaged in soil health programming.

d. Service
Faculty of the SNRS are recognized regionally, nationally, and internationally with their expert advice sought extensively. In 2016, faculty of the SNRS served on 11 editorial boards, contributed expert opinion on policy to multiple government agencies, served on 4 national grant panels, and provided hundreds of peer-reviews for over 50 journals.

B. Department Goals and Priorities for the past year, including narrative about progress toward those goals.

Goal 1: Continue to define the SNRS structure (e.g. program lead definition) – Progress: SNRS Faculty Meeting Bylaws and Graduate Student Policies were created and approved in 2016.

Goal 2: Successful onboarding and orientation of new Soil Health Assistant Professor – Progress: Dr. Caley Gasch was recruited and hired in 2016.

Goal 3: Student recruitment and retention at undergraduate and graduate levels – Progress: Initiated several measures to improve enrollment.

C. Department Challenges for the past year, including narrative on how those are being addressed.
The state’s budget was the greatest challenge of 2016. Two allotments were imposed on NDSU, ND AES, and Extension. The VP Ag Affairs, with the Extension director and the CAFSNR chairs/heads/directors helped develop and implement strategies to deal with unprecedented budget reductions of more than 14%. The plan allows flexibility and research to continue in order to serve the critical missions of the ND AES and Ext. One significant challenge over the next few years will be maintaining graduate enrollments with grant funds being diverted to support research specialist.

D. Department Goals and Priorities for the Coming Year

1) Articulate the importance of tenure.  
2) Improve enrollments.  
3) Revise SNRS PTE policy.
### Scheduled Teaching School of Natural Resource Sciences

North Dakota State University

January 1, 2016 - December 31, 2016

<table>
<thead>
<tr>
<th>Fall 2016</th>
<th>ENT</th>
<th>Course Number</th>
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<th>Credit Hours</th>
<th>Enrollment</th>
<th>Instructor</th>
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<td>ENT</td>
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<td>Insects, Humans &amp; Environment</td>
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<td>Voldseth, Deirdre A.</td>
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<td>Boetel Ph.D., Mark A.</td>
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<td>Knodel, Janet J.</td>
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| Fall 2016 | RNG  | Course | Title | Section | Credit | Enrollment | Instructor |
| Fall 2016 | RNG  | 136 | Introduction/Range Management | 1 | 61 | Limb, Ryan |
| Fall 2016 | RNG  | 213 | Rangeland Sampling Techniques | 1 | 9 | Hovick, Torre J. |
| Fall 2016 | RNG  | 225 | Nat Resource &amp; Agro-Ecosystems | 1 | 3 | 8 | Hargiss, Christina L. |
| Fall 2016 | RNG  | 454 | Wetland Resources Management | 1 | 3 | 3 | DeKeyser, Shawn |
| Fall 2016 | RNG  | 456 | Range Habitat Management | 1 | 10 | Limb, Ryan |
| Fall 2016 | RNG  | 654 | Wetland Resources Management | 1 | 3 | 2 | DeKeyser, Shawn |
| Fall 2016 | RNG  | 656 | Range Habitat Management | 1 | 7 | Limb, Ryan |
| Fall 2016 | RNG  | 765 | Analysis Of Ecosystems | 1 | 3 | 10 | McGranahan, Devan A. |
| Fall 2016 | RNG  | 790 | Graduate Seminar | 1 | 4 | Harmon, Jason P. |
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| Spring 2016 | NRM  | 421 | Environmental Outreach Methods | 1 | 17 | Hargiss, Christina L. |
| Spring 2016 | NRM  | 453 | Rangeland Resource/Watershed M | 1 | 21 | Norland, Jack E. |
| Spring 2016 | NRM  | 462 | NRM/Range Planning | 1 | 17 | Hargiss, Christina L. |
| Spring 2016 | NRM  | 621 | Environmental Outreach Methods | 1 | 6 | Hargiss, Christina L. |
| Spring 2016 | NRM  | 653 | Rangeland Resource/Watershed M | 1 | 6 | Norland, Jack E. |
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| Spring 2016 | NRM  | 701 | Terrestrial Resources Management | 1 | 1 | DeKeyser, Shawn |
| Spring 2016 | NRM  | 792 | Graduate Teaching Experience | 1 | 2 | Hargiss, Christina L. |
| Spring 2016 | NRM  | 797 | Master's Paper | 1 | 1 | DeKeyser, Shawn |
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Awards and Honors – School of Natural Resource Sciences

North Dakota State University

January 1, 2016 - December 31, 2016

School of Natural Resource Sciences

Cihacek, Larry J. (Associate Professor)

2016 Conservation Research Award (July 29, 2016)

Outstanding Program Award, Congress of Student Organizations (May 6, 2016)

Gasch, Caley (Assistant Professor)

Master’s Level Memorial Scholarship, American Society of Mining and Reclamation (2016)

Goos, R J. (Professor)

H. Roald and Janet Lund Excellence in Teaching Award, College of Agriculture, Food Systems, and Natural Resources, NDSU (December 8, 2016)

Hargiss, Christina L. (Assistant Professor)

Earl and Dorothy Foster Teaching Excellence Award, NDSU CAFSNR (2016)

Excellent in Course Assessment, NDSU Office of Teaching and Learning (2016)

North American Teachers of College and Agriculture (2016)

William J. and Angelyn A. Austin Excellence in Advising Award, NDSU CAFSNR (2016)

Hovick, Torre J. (Assistant Professor)

Outstanding Young Professional, National Society for Range Management (2016)
Boetel Ph.D., Mark A. (Professor)

Funded


Funded


Funded

Knodel, Janet, Ransom, Joel, Boetel, Mark, "Identification of Bt Resistance in Corn Rootworms in North Dakota," Sponsored by North Dakota Corn Council, Other, $33,580.00. (July 2016 - June 2017).

Funded


Funded


Chatterjee, Amitava (Assistant Professor)

Funded


Funded

"Soil and Water Management for Corn Production Under Fargo Clay," Sponsored by ND Corn Utilization Council, State, $15,000.00. (July 1, 2015 - June 30, 2016).

Funded


Not Awarded

"Can we Increase Soybean Yield with Biological Seed Inoculations?," Sponsored by ND Soybean Council, State, $8,275.00.

Not Awarded

"Comparison of Dry Bean Cultivars' Response to Inoculation for Yield, Quality and Nitrogen Fixation Potentials," Sponsored by Northarvest Bean Growers Association, Private, $17,487.00.

Not Awarded

"Dry Bean Cultivars' Response to Rhizobium Inoculation for Yield, Protein Content and Nitrogen Fixation Potential," Sponsored by ND Department of Agriculture, State, $72,036.00.

Not Awarded


Not Awarded

"Optimizing Dry Phosphorus and Starter Fertilizers Application Rates and Placement Methods in Potato Production," Sponsored by ND Department of Agriculture, State, $71,500.00.

Not Awarded


Not Awarded

"Yield Response and Nitrogen Fixation Potentials of Field Pea Cultivars in Response to Inoculation," Sponsored by ND Department of Agriculture, State, $47,570.00.

Not Awarded

Limb, Ryan (Principal:), DeSutter, Thomas (Co-Principal:), Daigh, Aaron (Co-Principal:), Chatterjee, Amitava (Co-Principal:), Wick, Abbey (Co-Principal:), Roberts, David (Co-Principal:), Sedivec, Kevin (Co-Principal:), "Demonstrating the impacts of grassland to row crops on soil health in the northern Great Plains," Sponsored by USDA NRCS, Federal, $499,404.00. (January 2015 - December 2018).

Not Awarded

Ext School of Natural Resource Sci

Franzen, Dave W. (Professor)

Funded


Funded

Franzen, David, "Evaluation of DMP as a nitrification inhibitor," Sponsored by BASF, $20,000.00. (October 1, 2016 - October 1, 2017).

Funded


Funded


Funded


Funded


Funded


Funded


Sedivec, Kevin K. (Professor)

Meehan, Miranda (Principal:), Sedivec, Kevin (Other: Collaborator), DeSutter, Thomas (Other: Collaborator), Daigh, Aaron, Augustin, Chris (Other: Collaborator), "USDA NIFA, Hatch project 1009707: Remediation options to enhance ecosystem services of lands in North Dakota," Sponsored by USDA, NIFA, Federal. (June 1, 2016 - Present).

Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Management practices to improve soil and vegetation parameters on reclaimed North Dakota coal mine lands," Private, $120,000.00. (June 2016 - May 2021).

Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Management practices to improve soil and vegetation parameters on reclaimed North Dakota coal mine lands," Private, $120,000.00. (June 2016 - May 2021).

Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Management practices to improve soil and vegetation parameters on reclaimed North Dakota coal mine lands," Private, $120,000.00. (June 2016 - May 2021).

Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Management practices to improve soil and vegetation parameters on reclaimed North Dakota coal mine lands," Sponsored by North Dakota Industrial Commission - Lignite Research Council, State, $578,187.00. (June 2016 - May 2021).


Funded

Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Reclamation options for legacy brine waste pits in north central North Dakota," Sponsored by North Dakota Industrial Commission - Oil and Gas Research Council, State, $309,508.00. (October 2015 - June 2017).

Funded


Funded

Limb, Ryan, Daigh, Aaron, Sedivec, Kevin, "Land reclamation on Bakken oil and gas contaminated sites in North Dakota," Sponsored by North Dakota Industrial Commission - Oil and Gas Research Council, State, $200,000.00. (2014 - 2016).

Not Awarded

Limb, Ryan (Principal:), DeSutter, Thomas (Co-Principal:), Daigh, Aaron (Co-Principal:), Chatterjee, Amitava (Co-Principal:), Wick, Abbey (Co-Principal:), Roberts, David (Co-Principal:), Sedivec, Kevin (Co-Principal:), "Demonstrating the impacts of grassland to row crops on soil health in the northern Great Plains," Sponsored by USDA NRCS, Federal, $499,404.00. (January 2015 - December 2018).

Not Awarded

Limb, Ryan (Principal:), Geaumont, Benjamin (Co-Principal:), DeSutter, Thomas (Co-Principal:), DeKeyser, Edward (Co-Principal:), Harris, Marion (Co-Principal:), Sedivec, Kevin (Co-Principal:), "Management strategies to improve Conservation Reserve Program habitat quality and livestock grazing value," Sponsored by North Dakota Industrial Commission - Outdoor Heritage Program, State, $949,569.00. (May 2014 - May 2017).

Wick, Abbey F. (Assistant Professor)

Funded


Funded

Daigh, Aaron (Co-Principal:), DeJong-Hughes, J (Principal:), Malvick, D (Co-Principal:), Wick, A (Co-Principal:), Glogoza, P (Co-Principal:), "Maximizing soil warming and health under different tillage practices in a corn-soybean rotation," Sponsored by Minnesota Corn Growers, $13,296.00. (2016 - 2018).
Funded

Daigh, Aaron (Co-Principal:), DeJong-Hughes, J (Principal:), Malvick, D (Co-Principal:), Wick, A (Co-Principal:), Glogoza, P (Co-Principal:), "Maximizing soil warming and health under different tillage practices in a corn-soybean rotation," Sponsored by Minnesota Soybean Growers, $32,698.00. (2016 - 2017).

Funded

Daigh, Aaron (Principal:), DeJong-Hughes, J (Co-Principal:), Wick, A (Co-Principal:), "Maximizing soil warming and health under different tillage practices in a corn-soybean rotation," Sponsored by North Dakota Soybean Council, $47,155.00. (2016 - 2017).

Funded

Wick, Abbey (Principal:), Casey, Francis (Co-Principal:), "Wheat Response to Salinity/Soil Health," Sponsored by ND Wheat Commission, State, $20,970.00. (July 1, 2016 - October 31, 2017).

Funded

Berti, Marisol T (Principal:), Wick, Abbey (Co-Principal:), "Enhancing Soil Health with Cover Crops in North Dakota Training Program," Sponsored by University of Minnesota, State, $71,012.00. (October 1, 2015 - September 30, 2017).

Funded

DeSutter, Thomas, Chatterjee, Wick, Abbey, "Improving Soil Health and Productivity of Sodic Soils," Sponsored by ND Soybean Council, $29,211.00. (July 1, 2016 - June 30, 2017).

Funded


Funded

Wick, Abbey (Principal:), Casey, Francis (Co-Principal:), Ripplinger, David (Co-Principal:), "Research and Extension Efforts at the Soil Health and Agriculture Research Extension (SHARE) Farm (year 4)," Sponsored by ND Soybean Council, State, $82,513.00. (July 1, 2016 - June 30, 2017).

Funded


Funded

Daigh, Aaron (Co-Principal:), DeJong-Hughes, J (Principal:), Wick, A (Co-Principal:), "Maximizing soil warming and health under different tillage practices in a corn-soybean rotation," Sponsored by Minnesota Soybean Council, $6,835.00. (2015 - 2016).
**Funded**

Daigh, Aaron (Principal:), DeJong-Hughes, J (Co-Principal:), Wick, A (Co-Principal:), "Maximizing soil warming and health under different tillage practices in a corn-soybean rotation," Sponsored by North Dakota Corn Council, $16,505.00. (2015 - 2016).

**Funded**

Daigh, Aaron (Principal:), DeJong-Hughes, J (Co-Principal:), Wick, A (Co-Principal:), "Maximizing soil warming and health under different tillage practices in a corn-soybean rotation," Sponsored by North Dakota Soybean Council, $51,155.00. (2015 - 2016).

**Not Awarded**

DeSutter, Thomas, Clay, Daigh, Aaron, Steele, Dean, Casey, Francis, Chatterjee, Wick, Abbey, Hopkins, Roberts, David, Malo, Reese, Carlson, Xu, Yiwen, Chang, Schumacher, Reiks, "Cover Cropping Techniques for Improving Soil Health and the Managing of Saline and Sodic Soils within the Northern Great Plains," Sponsored by NRCS CIG, $988,279.00. (September 2016 - September 2019).

**Not Awarded**

Limb, Ryan (Principal:), DeSutter, Thomas (Co-Principal:), Daigh, Aaron (Co-Principal:), Chatterjee, Amitava (Co-Principal:), Wick, Abbey (Co-Principal:), Roberts, David (Co-Principal:), Sedivec, Kevin (Co-Principal:), "Demonstrating the impacts of grassland to row crops on soil health in the northern Great Plains," Sponsored by USDA NRCS, Federal, $499,404.00. (January 2015 - December 2018).

Wick, Abbey, Gasch, Caley, Jacobson, Wilson, "Ag at the Zoo," Sponsored by ND Soybean Growers, $5,000.00. (December 19, 2016).

Wick, Abbey, Gasch, Caley, Jacobson, Wilson, "Ag at the Zoo," Sponsored by ND Corn Growers, $5,000.00. (December 6, 2016).


**Office of the Provost**

Fauske, Gerald (Research Scientist)

**Funded**

Rider, David (Principal:), Fauske, Gerald (Co-Principal:), "Exotic Wood Borer and Exotic Lepidoptera Survey," Sponsored by USDA-APHIS, $11,150.00. (2016).

Funded

Rider, David (Principal:), Fauske, Gerald (Co-Principal:), "Survey for the Dakota skipper, Hesperia dakotae (Skinner), at the Brown Ranch, Richland Co., ND.," Sponsored by The Nature Conservancy, MN ND SD, $7,139.00. (2016).

School of Natural Resource Sci

Casey, Francis (Professor)

Funded

Wick, Abbey (Principal:), Casey, Francis (Co-Principal:), "Wheat Response to Salinity/Soil Health," Sponsored by ND Wheat Commission, State, $20,970.00. (July 1, 2016 - October 31, 2017).

Funded

Wick, Abbey (Principal:), Casey, Francis (Co-Principal:), Ripplinger, David (Co-Principal:), "Research and Extension Efforts at the Soil Health and Agriculture Research Extension (SHARE) Farm (year 4)," Sponsored by ND Soybean Council, State, $82,513.00. (July 1, 2016 - June 30, 2017).

Funded


Funded


Not Awarded

DeSutter, Thomas, Clay, Daigh, Aaron, Steele, Dean, Casey, Francis, Chatterjee, Wick, Abbey, Hopkins, Roberts, David, Malo, Reese, Carlson, Xu, Yiwen, Chang, Schumacher, Reiks, "Cover Cropping Techniques for Improving Soil Health and the Managing of Saline and Sodic Soils within the Northern Great Plains," Sponsored by NRCS CIG, $988,279.00. (September 2016 - September 2019).

Cihacek, Larry J. (Associate Professor)

Funded

Saini-Eidukat, Bernhardt (Co-Principal:), Rahman, Shafiqur (Principal:), Ringwall, Kris (Co-Principal:), Cihacek, Larry (Co-Principal:), "NDSU-RCA," Sponsored by Quantification of Road Dust and Its Effect on Soil Quality, $59,956.00. (2014 - 2016).
**Funded**


**Not Awarded**

"A Farmer Friendly Decision Support Tool for Evaluating the Impact of Cover Crops, Tillage systems, Crop Rotations and Residue on Soil Organic Matter Content and Soil Health," Sponsored by Ohio State University, State, $40,963.00.

Daigh, Aaron L. (Assistant Professor)

**Funded**

Meehan, Miranda (Principal:), Sedivec, Kevin (Other: Collaborator), DeSutter, Thomas (Other: Collaborator), Daigh, Aaron, Augustin, Chris (Other: Collaborator), "USDA NIFA, Hatch project 1009707: Remediation options to enhance ecosystem services of lands in North Dakota," Sponsored by USDA, NIFA, Federal. (June 1, 2016 - Present).

**Funded**

Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Management practices to improve soil and vegetation parameters on reclaimed North Dakota coal mine lands," Private, $120,000.00. (June 2016 - May 2021).

**Funded**

Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Management practices to improve soil and vegetation parameters on reclaimed North Dakota coal mine lands," Private, $120,000.00. (June 2016 - May 2021).

**Funded**

Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Management practices to improve soil and vegetation parameters on reclaimed North Dakota coal mine lands," Private, $120,000.00. (June 2016 - May 2021).

**Funded**

Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Management practices to improve soil and vegetation parameters on reclaimed North Dakota coal mine lands," Private, $60,000.00. (June 2016 - May 2021).

**Funded**

Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Management practices to improve soil and vegetation parameters on reclaimed North Dakota coal mine lands," Sponsored by North Dakota Industrial Commission - Lignite Research Council, State, $578,187.00. (June 2016 - May 2021).
Funded

Daigh, Aaron (Co-Principal:), Meehan, M A (Principal:), Augustine, C (Co-Principal:), DeSutter, T (Co-Principal:), "Amending soils for successful remediation of brine spills on range and crop lands," Sponsored by USDA – CARE, $200,000.00. (2016 - 2018).

Funded

Daigh, Aaron (Co-Principal:), DeJong-Hughes, J (Principal:), Malvick, D (Co-Principal:), Wick, A (Co-Principal:), Glogoza, P (Co-Principal:), "Maximizing soil warming and health under different tillage practices in a corn-soybean rotation," Sponsored by Minnesota Corn Growers, $13,296.00. (2016 - 2018).

Funded

Daigh, Aaron (Co-Principal:), McGranahan, D (Principal:), Rahman, S (Co-Principal:), "Dust Research Funding Request," Sponsored by Dickinson Research and Extension Center, $58,352.00. (2016 - 2017).

Funded

Daigh, Aaron (Principal:), DeSutter, Thomas (Co-Principal:), "Harvesting Soil Salts from Soybean Production Fields: Evaluating a New Method," Sponsored by North Dakota Soybean Council, $19,482.00. (2016 - 2017).

Funded


Funded

Daigh, Aaron (Co-Principal:), DeJong-Hughes, J (Principal:), Malvick, D (Co-Principal:), Wick, A (Co-Principal:), Glogoza, P (Co-Principal:), "Maximizing soil warming and health under different tillage practices in a corn-soybean rotation," Sponsored by Minnesota Soybean Growers, $32,698.00. (2016 - 2017).

Funded

Daigh, Aaron (Principal:), DeJong-Hughes, J (Co-Principal:), Wick, A (Co-Principal:), "Maximizing soil warming and health under different tillage practices in a corn-soybean rotation," Sponsored by North Dakota Soybean Council, $47,155.00. (2016 - 2017).

Funded


Funded

Daigh, Aaron (Supporting: post-doctoral associate with senior and junior author on manuscripts, coordinating soil and plant sampling efforts, and quarterly reports), Morton, L W (Principal:), Helmers, M J (Principal:), "Climate change, mitigation, and adaptation in corn-based cropping systems," Sponsored by USDA-NIFA-AFRI-CAP, $19,992,144.00. (2012 - 2017).

Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Reclamation options for legacy brine waste pits in north central North Dakota," Sponsored by North Dakota Industrial Commission - Oil and Gas Research Council, State, $309,508.00. (October 2015 - June 2017).

Daigh, Aaron (Co-Principal:), DeJong-Hughes, J (Principal:), Wick, A (Co-Principal:), "Maximizing soil warming and health under different tillage practices in a corn-soybean rotation," Sponsored by Minnesota Soybean Council, $6,835.00. (2015 - 2016).

Daigh, Aaron (Principal:), DeJong-Hughes, J (Co-Principal:), Wick, A (Co-Principal:), "Maximizing soil warming and health under different tillage practices in a corn-soybean rotation," Sponsored by North Dakota Corn Council, $16,505.00. (2015 - 2016).

Daigh, Aaron (Principal:), DeJong-Hughes, J (Co-Principal:), Wick, A (Co-Principal:), "Maximizing soil warming and health under different tillage practices in a corn-soybean rotation," Sponsored by North Dakota Soybean Council, $51,155.00. (2015 - 2016).

Daigh, Aaron (Co-Principal:), Chatterjee, A (Principal:), "Soil and water management for soybean production under Fargo Clay," Sponsored by North Dakota Corn Council, $15,000.00. (2015 - 2016).

Daigh, Aaron (Co-Principal:), Chatterjee, A (Principal:), "Soil and water management for soybean production under Fargo Clay," Sponsored by North Dakota Soybean Council, $17,155.00. (2015 - 2016).

Daigh, Aaron (Co-Principal:), McGranahan, D A (Principal:), Goreham, G A (Co-Principal:), Ransom, J (Co-Principal:), "Fugitive dust impacts on plants and landowner/citizen perceptions of Bakken development," Sponsored by North Dakota State University internal Dust Grant, $59,980.00. (2014 - 2016).
Limb, Ryan, Daigh, Aaron, Sedivec, Kevin, "Land reclamation on Bakken oil and gas contaminated sites in North Dakota," Sponsored by North Dakota Industrial Commission - Oil and Gas Research Council, State, $200,000.00. (2014 - 2016).

Not Awarded

McGranahan, Devan (Principal:), Yurkonis, K (Co-Principal:), Carr, Patrick (Co-Principal:), Travers, Steven (Co-Principal:), Daigh, Aaron (Co-Principal:), "A climate variability 'stress test' for crops and rangelands in the Northern Great Plains," Sponsored by USDA-NIFA/AFRI, Federal, $348,096.00. (January 1, 2016 - December 31, 2020).

Not Awarded

McGranahan, Devan (Principal:), Daigh, Aaron (Co-Principal:), Limb, Ryan (Co-Principal:), Dixon, C (Co-Principal:), "Connecting duff and soil moisture with soil heating, hydrophobicity in Northern Plains grassland," Sponsored by USDI–Joint Fire Science Program, Other, $292,450.00. (January 1, 2016 - December 31, 2019).


Not Awarded

DeSutter, Thomas, Clay, Daigh, Aaron, Steele, Dean, Casey, Francis, Chatterjee, Wick, Abbey, Hopkins, Roberts, David, Malo, Reese, Carlson, Xu, Yiwen, Chang, Schumacher, Reiks, "Cover Cropping Techniques for Improving Soil Health and the Managing of Saline and Sodic Soils within the Northern Great Plains," Sponsored by NRCS CIG, $988,279.00. (September 2016 - September 2019).

Not Awarded

Limb, Ryan (Principal:), DeSutter, Thomas (Co-Principal:), Daigh, Aaron (Co-Principal:), Chatterjee, Amitava (Co-Principal:), Wick, Abbey (Co-Principal:), Roberts, David (Co-Principal:), Sedivec, Kevin (Co-Principal:), "Demonstrating the impacts of grassland to row crops on soil health in the northern Great Plains," Sponsored by USDA NRCS, Federal, $499,404.00. (January 2015 - December 2018).

Not Awarded


DeKeyser, Shawn (Associate Professor)

Funded

DeKeyser, Edward, "Calculating Ecosystem Services and Values of Wetland within an Agriculture Setting," Sponsored by DOI/USGS, $79,000.00. (September 15, 2016 - September 14, 2019).

Funded
Hargiss, Christina (Principal:), DeKeyser, Edward (Co-Principal:), "Assessment of change over time at reference condition wetlands in North Dakota," Sponsored by ND Dept. of Health/EPA, $20,000.00. (March 1, 2016 - December 31, 2017).

**Funded**

DeKeyser, E S (Principal:), Hargiss, Christina (Co-Principal:), "National Wetland Condition Assessment and its Intensification in the Prairie Pothole Region of North Dakota," Sponsored by EPA Region VIII, $90,000.00. (2015 - 2017).

**Funded**


**Not Awarded**


**Not Awarded**

Limb, Ryan (Principal:), Geaumont, Benjamin (Co-Principal:), DeSutter, Thomas (Co-Principal:), DeKeyser, Edward (Co-Principal:), Harris, Marion (Co-Principal:), Sedivec, Kevin (Co-Principal:), "Management strategies to improve Conservation Reserve Program habitat quality and livestock grazing value," Sponsored by North Dakota Industrial Commission - Outdoor Heritage Program, State, $949,569.00. (May 2014 - May 2017).

**Funded**

DeSutter, Thomas M. (Associate Professor)

Meehan, Miranda (Principal:), Sedivec, Kevin (Other: Collaborator), DeSutter, Thomas (Other: Collaborator), Daigh, Aaron, Augustin, Chris (Other: Collaborator), "USDA NIFA, Hatch project 1009707: Remediation options to enhance ecosystem services of lands in North Dakota," Sponsored by USDA, NIFA, Federal. (June 1, 2016 - Present).

**Funded**


**Funded**

Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Management practices to improve soil and vegetation parameters on reclaimed North Dakota coal mine lands," Private, $120,000.00. (June 2016 - May 2021).

**Funded**
Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Management practices to improve soil and vegetation parameters on reclaimed North Dakota coal mine lands," Private, $120,000.00. (June 2016 - May 2021).

Funded

Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Management practices to improve soil and vegetation parameters on reclaimed North Dakota coal mine lands," Private, $60,000.00. (June 2016 - May 2021).

Funded

Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Management practices to improve soil and vegetation parameters on reclaimed North Dakota coal mine lands," Sponsored by North Dakota Industrial Commission - Lignite Research Council, State, $578,187.00. (June 2016 - May 2021).

Funded

Daigh, Aaron (Principal:), DeSutter, Thomas (Co-Principal:), "Harvesting Soil Salts from Soybean Production Fields: Evaluating a New Method," Sponsored by North Dakota Soybean Council, $19,482.00. (2016 - 2017).

Funded


Funded


Funded

DeSutter, Thomas, Chatterjee, Wick, Abbey, "Improving Soil Health and Productivity of Sodic Soils," Sponsored by ND Soybean Council, $29,211.00. (July 1, 2016 - June 30, 2017).

Funded


Funded
Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Reclamation options for legacy brine waste pits in north central North Dakota," Sponsored by North Dakota Industrial Commission - Oil and Gas Research Council, State, $309,508.00. (October 2015 - June 2017).

Funded

Norland, J (Principal:), Hargiss, Christina (Co-Principal:), DeSutter, T (Co-Principal:), Strand, M (Co-Principal:), "Road Dusts: Their Abatement and Impacts on Human Health," Sponsored by NDSU Internal Grant for Dust Research in Western North Dakota, $59,580.00. (2014 - 2016).

Funded


Funded

"Improving Soil Health and Productivity of Sodic Soils," Sponsored by ND Soybean Council, State, $37,405.00. (July 1, 2015 - June 30, 2016).

Not Awarded

"Cover Cropping Techniques for Improving Soil Health and the Managing of Saline and Sodic Soils Within the Northern Great Plains," Sponsored by Natural Resources Conservation Service, Federal, $974,022.00.

Not Awarded

"Mitigating the Unexpected Consequences of Climate and Land-use Changes on Northern Great Plains Fragile Soils," Sponsored by South Dakota State University, State, $1,463,246.00.

Not Awarded

"Workforce Development for Mitigating the Unexpected Consequences of Climate and Economic Induced Land Use Changes," Sponsored by South Dakota State University, State, $1,720,853.00.

Not Awarded

DeSutter, Thomas, Clay, Daigh, Aaron, Steele, Dean, Casey, Francis, Chatterjee, Wick, Abbey, Hopkins, Roberts, David, Malo, Reese, Carlson, Xu, Yiwen, Chang, Schumacher, Reiks, "Cover Cropping Techniques for Improving Soil Health and the Managing of Saline and Sodic Soils within the Northern Great Plains," Sponsored by NRCS CIG, $988,279.00. (September 2016 - September 2019).

Not Awarded

Limb, Ryan (Principal:), DeSutter, Thomas (Co-Principal:), Daigh, Aaron (Co-Principal:), Chatterjee, Amitava (Co-Principal:), Wick, Abbey (Co-Principal:), Roberts, David (Co-Principal:), Sedivec, Kevin (Co-Principal:), "Demonstrating the impacts of grassland to row crops on soil health in the northern Great Plains," Sponsored by USDA NRCS, Federal, $499,404.00. (January 2015 - December 2018).
Not Awarded

Limb, Ryan (Principal:), Geaumont, Benjamin (Co-Principal:), DeSutter, Thomas (Co-Principal:), DeKeyser, Edward (Co-Principal:), Harris, Marion (Co-Principal:), Sedivec, Kevin (Co-Principal:), "Management strategies to improve Conservation Reserve Program habitat quality and livestock grazing value," Sponsored by North Dakota Industrial Commission - Outdoor Heritage Program, State, $949,569.00. (May 2014 - May 2017).

Foster, Stephen P. (Professor)

Funded

Foster, Stephen (Principal:), "Quantitative Nutrient Allocation in Larval Hessian Fly on Susceptible and Resistant Wheat," Sponsored by NIFA, Federal, $133,443.00. (March 1, 2016 - February 28, 2018).

Gasch, Caley (Assistant Professor)

Funded

Gasch, Caley (Co-Principal:), Dobre, Mariana (Principal:), Brooks, Erin (Co-Principal:), Strawn, Daniel (Co-Principal:), Brown, David (Co-Principal:), "Phosphorus management in forested ecosystems," Sponsored by Foundational Grants Program, USDA-NIFA, Federal, $492,089.00. (March 1, 2016 - December 31, 2019).

Funded

Gasch, Caley (Principal:), "Demonstration rhizotrons for observing plant roots and plant-soil interactions," Sponsored by North Dakota Grain Dealers Educational Foundation, State, $468.00. (October 1, 2016 - September 30, 2017).

Funded

Gasch, Caley (Co-Principal:), Brown, David (Principal:), Kalsits, Lee (Co-Principal:), Mazzola, Mark (Co-Principal:), "Precision application of organic amendments for improved soil quality in replanted apple orchards," Sponsored by BIOAg Grant Program, Center for Sustaining Agriculture and Natural Resources, State, $40,000.00. (June 1, 2016 - June 30, 2017).

Not Awarded


Wick, Abbey, Gasch, Caley, Jacobson, Wilson, "Ag at the Zoo," Sponsored by ND Soybean Growers, $5,000.00. (December 19, 2016).

Wick, Abbey, Gasch, Caley, Jacobson, Wilson, "Ag at the Zoo," Sponsored by ND Corn Growers, $5,000.00. (December 6, 2016).

Goos, R J. (Professor)

Funded
"Development of a Ureide Tissue Test for Soybeans," Sponsored by ND Soybean Council, State, $9,980.00. (July 1, 2015 - June 30, 2016).

Hargiss, Christina L. (Assistant Professor)

Funded


Funded

Hargiss, Christina (Principal:), Norland, J E (Co-Principal:), "Ecosystem Impacts and Environmental Stakeholder Perceptions of the Fargo Project," Sponsored by City of Fargo, $95,133.00. (2015 - 2018).

Funded

Hargiss, Christina (Principal:), DeKeyser, Edward (Co-Principal:), "Assessment of change over time at reference condition wetlands in North Dakota," Sponsored by ND Dept. of Health/EPA, $20,000.00. (March 1, 2016 - December 31, 2017).

Funded


Funded


Funded


Funded

DeKeyser, E S (Principal:), Hargiss, Christina (Co-Principal:), "National Wetland Condition Assessment and its Intensification in the Prairie Pothole Region of North Dakota," Sponsored by EPA Region VIII, $90,000.00. (2015 - 2017).

Funded

Hargiss, Christina, "ND WRRI Fellowship to Alexis Steinman," Sponsored by North Dakota Water Resources Research Institute, $2,400.00. (2015 - 2016).

Funded

Funded

Norland, J (Principal:), Hargiss, Christina (Co-Principal:), DeSutter, T (Co-Principal:), Strand, M (Co-Principal:), "Road Dusts: Their Abatement and Impacts on Human Health," Sponsored by NDSU Internal Grant for Dust Research in Western North Dakota, $59,580.00. (2014 - 2016).

Not Awarded


Not Awarded


Harmon, Jason P. (Associate Professor)

Funded

Limb, Ryan (Principal:), Hovick, Torre (Co-Principal:), Harmon, Jason (Co-Principal:), Geaumont, Benjamin (Co-Principal:), "Monitoring native pollinator communities throughout North Dakota: Status and management considerations for species of conservation concern," Sponsored by North Dakota Department of Agriculture, State, $699,100.00. (October 2016 - April 2021).

Funded

Limb, Ryan (Principal:), Hovick, Torre (Co-Principal:), Harmon, Jason (Co-Principal:), Kral, Katherine (Co-Principal:), "Influence of land-use practices on site occupancy of Monarchs (Danaus plesippus), Dakota Skippers (Hesperia dacotae) and other prairie dependent butterflies," Sponsored by USDI Fish & Wildlife Service, Federal, $87,441.00. (May 2015 - April 2020).

Funded


Funded

Limb, Ryan (Principal:), Hovick, Torre (Co-Principal:), Harmon, Jason (Co-Principal:), "Influence of land-use practices on site occupancy of Dakota Skippers (Hesperia dacotae) and other prairie dependent butterflies," Sponsored by North Dakota Game & Fish, State, $42,000.00. (July 2016 - July 2017).

Funded

Harmon, Jason, Wick, A F, DeSutter, T, "Interpretation and sharing of information from soybean and pest pressure response to salinity (Year 4)," Sponsored by North Dakota Soybean Council, $33,571.00. (July 2016 - June 2017).

Harmon, Jason, Wick, A F, Prischmann-Voldseth, D A, DeSutter, T, "From the ground up: how do soil salinity gradients damage soybeans, contribute to arthropod pest infestations and impact soil nitrogen reserves? (Year 3)," Sponsored by North Dakota Soybean Council, $45,413.00. (2015 - June 2016).

Limb, Ryan (Principal:), Harmon, Jason (Co-Principal:), Hovick, Torre (Co-Principal:), McGranahan, Devan (Co-Principal:), Neville, Bryan (Co-Principal:), "Restoring ecosystem services through heterogeneity-based land management," Sponsored by USDA AFRI, $498,828.00. (January 2016 - December 2019).

McGranahan, Devan (Principal:), Kirkwood, M (Co-Principal:), Gillam, Erin (Co-Principal:), Rahman, Shafiqur (Co-Principal:), Fischer, Dominic (Co-Principal:), Hovick, Torre (Co-Principal:), Harmon, Jason (Co-Principal:), "A proposal to create a Center for Global Change Impacts at North Dakota State University," Sponsored by Office of the President's Grand Challenge Initiative, North Dakota State University, $990,892.00. (2016).

Harris, Marion (Professor)


Harris, Marion, "Dissection and Deployment of Sustainable Disease and Pest Resistance in Wheat," Sponsored by NIFA, Federal, $48,400.00. (November 2015 - May 2017).

Not Awarded

"Protecting the Insect Pollinators of North Dakota's Iconic Prairie Orchid," Sponsored by NDSU Development Foundation, North Dakota State University, $6,000.00.

Not Awarded

Limb, Ryan (Principal:), Geaumont, Benjamin (Co-Principal:), DeSutter, Thomas (Co-Principal:), DeKeyser, Edward (Co-Principal:), Harris, Marion (Co-Principal:), Sedivec, Kevin (Co-Principal:), "Management strategies to improve Conservation Reserve Program habitat quality and livestock grazing value," Sponsored by North Dakota Industrial Commission - Outdoor Heritage Program, State, $949,569.00. (May 2014 - May 2017).

Hopkins, David G. (Associate Professor)

Funded

Hopkins, David G (Principal: Sampling design, mentoring graduate student, outreach), Steele, Dean E (Co-Principal: Development of evapotranspiration maps; sampling design), "Evaluating Soil Health using Remotely Sensed Evapotranspiration on the Benchmark Barnes Soils of North Dakota," Sponsored by Cass County Soil and Water Conservation District (SWCD), Local, $10,500.00. (June 1, 2015 - Present).

Funded

Hopkins, David G (Principal: PI, sampling design, mentor to graduate student, outreach), Steele, Dean D (Co-Principal: development of evapotranspiration maps, sampling design), "Evaluating Soil Health using Remotely Sensed Evapotranspiration on the Benchmark Barnes Soils of North Dakota," Sponsored by USDA/NRCS Soil Survey Division, Federal, $95,637.00. (September 3, 2015 - September 30, 2017).

Funded


Not Awarded


Hovick, Torre J. (Assistant Professor)

Funded

Limb, Ryan (Principal:), Hovick, Torre (Co-Principal:), Harmon, Jason (Co-Principal:), Geaumont, Benjamin (Co-Principal:), "Monitoring native pollinator communities throughout North Dakota: Status and management considerations for species of conservation concern," Sponsored by North Dakota Department of Agriculture, State, $699,100.00. (October 2016 - April 2021).

Funded

Limb, Ryan (Principal:), Hovick, Torre (Co-Principal:), Harmon, Jason (Co-Principal:), Kral, Katherine (Co-Principal:), "Influence of land-use practices on site occupancy of Monarchs (Danaus plesippus), Dakota

**Funded**


**Funded**


**Funded**


**Funded**


**Funded**

Limb, Ryan (Principal:), Hovick, Torre (Co-Principal:), Harmon, Jason (Co-Principal:), "Influence of land-use practices on site occupancy of Dakota Skippers (Hesperia dacotae) and other prairie dependent butterflies," Sponsored by North Dakota Game & Fish, State, $42,000.00. (July 2016 - July 2017).

**Not Awarded**

Limb, Ryan (Principal:), Harmon, Jason (Co-Principal:), Hovick, Torre (Co-Principal:), McGranahan, Devan (Co-Principal:), Neville, Bryan (Co-Principal:), "Restoring ecosystem services through heterogeneity-based land management," Sponsored by USDA AFRI, $498,828.00. (January 2016 - December 2019).

**Not Awarded**

McGranahan, Devan (Principal:), Kirkwood, M (Co-Principal:), Gillam, Erin (Co-Principal:), Rahman, Shafiqur (Co-Principal:), Fischer, Dominic (Co-Principal:), Hovick, Torre (Co-Principal:), Harmon, Jason (Co-Principal:), "A proposal to create a Center for Global Change Impacts at North Dakota State University," Sponsored by Office of the President's Grand Challenge Initiative, North Dakota State University, $990,892.00. (2016).

**Limb, Ryan (Assistant Professor)**

**Funded**

Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Management practices to improve soil and vegetation parameters on reclaimed North Dakota coal mine lands," Private, $120,000.00. (June 2016 - May 2021).
Funded

Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Management practices to improve soil and vegetation parameters on reclaimed North Dakota coal mine lands," Private, $120,000.00. (June 2016 - May 2021).

Funded

Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Management practices to improve soil and vegetation parameters on reclaimed North Dakota coal mine lands," Private, $120,000.00. (June 2016 - May 2021).

Funded

Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Management practices to improve soil and vegetation parameters on reclaimed North Dakota coal mine lands," Private, $60,000.00. (June 2016 - May 2021).

Funded

Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Management practices to improve soil and vegetation parameters on reclaimed North Dakota coal mine lands," Sponsored by North Dakota Industrial Commission - Lignite Research Council, State, $578,187.00. (June 2016 - May 2021).

Funded

Limb, Ryan (Principal:), Hovick, Torre (Co-Principal:), Harmon, Jason (Co-Principal:), Geaumont, Benjamin (Co-Principal:), "Monitoring native pollinator communities throughout North Dakota: Status and management considerations for species of conservation concern," Sponsored by North Dakota Department of Agriculture, State, $699,100.00. (October 2016 - April 2021).

Funded

Limb, Ryan (Principal:), Hovick, Torre (Co-Principal:), Harmon, Jason (Co-Principal:), Kral, Katherine (Co-Principal:), "Influence of land-use practices on site occupancy of Monarchs (Danaus plesippus), Dakota Skippers (Hesperia dacotae) and other prairie dependent butterflies," Sponsored by USDI Fish & Wildlife Service, Federal, $87,441.00. (May 2015 - April 2020).

Funded

Limb, Ryan (Principal:), "Lepidoptera monitoring on the Dakota Prairie National Grasslands," Sponsored by U.S. Forest Service, Federal, $10,000.00. (September 2014 - September 2019).

Funded

Limb, Ryan (Principal:), Hovick, Torre (Co-Principal:), Harmon, Jason (Co-Principal:), "Influence of land-use practices on site occupancy of Dakota Skippers (Hesperia dacotae) and other prairie dependent butterflies," Sponsored by North Dakota Game & Fish, State, $42,000.00. (July 2016 - July 2017).

Funded

Limb, Ryan (Principal:), Sedivec, Kevin (Co-Principal:), Daigh, Aaron (Co-Principal:), DeSutter, Thomas (Co-Principal:), "Reclamation options for legacy brine waste pits in north central North Dakota," Sponsored by North Dakota Industrial Commission - Oil and Gas Research Council, State, $309,508.00. (October 2015 - June 2017).

Funded

Limb, Ryan, Daigh, Aaron, Sedivec, Kevin, "Land reclamation on Bakken oil and gas contaminated sites in North Dakota," Sponsored by North Dakota Industrial Commission - Oil and Gas Research Council, State, $200,000.00. (2014 - 2016).

Not Awarded

McGranahan, Devan (Principal:), Daigh, Aaron (Co-Principal:), Limb, Ryan (Co-Principal:), Dixon, C (Co-Principal:), "Connecting duff and soil moisture with soil heating, hydrophobicity in Northern Plains grassland," Sponsored by USDI–Joint Fire Science Program, Other, $292,450.00. (January 1, 2016 - December 31, 2019).

Not Awarded

Limb, Ryan (Principal:), Harmon, Jason (Co-Principal:), Hovick, Torre (Co-Principal:), McGranahan, Devan (Co-Principal:), Neville, Bryan (Co-Principal:), "Restoring ecosystem services through heterogeneity-based land management," Sponsored by USDA AFRI, $498,828.00. (January 2016 - December 2019).

Not Awarded

Limb, Ryan (Principal:), DeSutter, Thomas (Co-Principal:), Daigh, Aaron (Co-Principal:), Chatterjee, Amitava (Co-Principal:), Wick, Abbey (Co-Principal:), Roberts, David (Co-Principal:), Sedivec, Kevin (Co-Principal:), "Demonstrating the impacts of grassland to row crops on soil health in the northern Great Plains," Sponsored by USDA NRCS, Federal, $499,404.00. (January 2015 - December 2018).


Not Awarded

Limb, Ryan (Principal:), DeSutter, Thomas (Co-Principal:), DeKeyser, Edward (Co-Principal:), Harris, Marion (Co-Principal:), Sedivec, Kevin (Co-Principal:), "Management strategies to improve Conservation Reserve Program habitat quality and livestock grazing value," Sponsored by North Dakota Industrial Commission - Outdoor Heritage Program, State, $949,569.00. (May 2014 - May 2017).

Not Awarded

Kennedy, Patricia (Principal:), Limb, Ryan (Co-Principal:), Taylor, Robert (Co-Principal:), "How Effective is Fire at Enhancing Columbia Sharp-tailed Grouse Habitat with and without Grazing by Domestic and

McGranahan, Devan A. (Assistant Professor)

Funded

Speiss, J (Co-Principal:), McGranahan, Devan (Co-Principal: candidate managed 100 percent of award), Daigh, A L (Co-Principal:), Rahman, S (Co-Principal:), "Bakken dust research,” Sponsored by Dickinson Research Extension Center, State, $50,000.00. (May 2016 - September 30, 2016).

Funded

McGranahan, Devan (Principal: candidate managed 100 percent of award), Goreham, Gary (Co-Principal:), Daigh, A L (Co-Principal:), Ransom, Joel (Co-Principal:), "Fugitive dust impacts on plants and landowner/citizen perceptions of Bakken development,” Sponsored by Office of the President, North Dakota State University, $59,980.00. (October 1, 2014 - September 30, 2016).

Not Awarded

McGranahan, Devan (Principal:), "CAREER: Fescue and fire in grasslands as a cross-continental model of plant response to global environmental change,” Sponsored by National Science Foundation, Federal, $808,530.00. (January 1, 2016 - December 31, 2021).

Not Awarded

McGranahan, Devan (Principal:), Yurkonis, K (Co-Principal:), Carr, Patrick (Co-Principal:), Travers, Steven (Co-Principal:), Daigh, Aaron (Co-Principal:), "A climate variability ‘stress test’ for crops and rangelands in the Northern Great Plains,” Sponsored by USDA-NIFA/AFRI, Federal, $348,096.00. (January 1, 2016 - December 31, 2020).

Not Awarded

McGranahan, Devan (Principal:), Daigh, Aaron (Co-Principal:), Limb, Ryan (Co-Principal:), Dixon, C (Co-Principal:), "Connecting duff and soil moisture with soil heating, hydrophobicity in Northern Plains grassland,” Sponsored by USDI–Joint Fire Science Program, Other, $292,450.00. (January 1, 2016 - December 31, 2019).

Not Awarded

McGranahan, Devan (Principal:), Kirkwood, M (Co-Principal:), Gillam, Erin (Co-Principal:), Rahman, Shafiquur (Co-Principal:), Fischer, Dominic (Co-Principal:), Hovick, Torre (Co-Principal:), Harmon, Jason (Co-Principal:), "A proposal to create a Center for Global Change Impacts at North Dakota State University,” Sponsored by Office of the President’s Grand Challenge Initiative, North Dakota State University, $990,892.00. (2016).
Norland, Jack E. (Associate Professor)

**Funded**


**Funded**


**Funded**

Hargiss, Christina (Principal:), Norland, J E (Co-Principal:), "Ecosystem Impacts and Environmental Stakeholder Perceptions of the Fargo Project," Sponsored by City of Fargo, $95,133.00. (2015 - 2018).

**Funded**

Norland, J (Principal:), Hargiss, Christina (Co-Principal:), DeSutter, T (Co-Principal:), Strand, M (Co-Principal:), "Road Dusts: Their Abatement and Impacts on Human Health," Sponsored by NDSU Internal Grant for Dust Research in Western North Dakota, $59,580.00. (2014 - 2016).

**Funded**


**Funded**

Norland, Jack (Co-Principal:), Sedivec, K (Co-Principal:), "Research into Different Seed Mixes Used for Revegetating Pipeline Construction Corridors in Native Grasslands," Sponsored by Alliance Pipeline LCC, $70,000.00. (2012 - 2016).

**Not Awarded**


**Not Awarded**

Mahalingam, Ganapathy, Srivastava, Malini (Principal:), Reed, Wendy (Principal:), Aly Ahmed, Bakr, Christenson, Michael, Cwiak, Carol, Fischer, Dominic, Ge, Yue, Kim, Young, Kirkwood, Matthew, Kirkwood, Meghan, Strand, Michael, Urness, Cindy, Norland, Jack (Principal:), Zhang, Lei, Day,
Rider, David A. (Professor)

**Funded**


**Funded**


**Funded**

Rider, David (Principal:), Fauske, Gerald (Co-Principal:), "Exotic Wood Borer and Exotic Lepidoptera Survey," Sponsored by USDA-APHIS, $11,150.00. (2016).

**Funded**

Rider, David (Principal:), Fauske, Gerald (Co-Principal:), "Survey for the Dakota skipper, Hesperia daktotae (Skinner), at the Brown Ranch, Richland Co., ND.," Sponsored by The Nature Conservancy, MN ND SD, $7,139.00. (2016).

Voldseth, Deirdre A. (Associate Professor)

**Funded**


**Funded**


**Funded**


Funded

Voldseth, Deirdre, "Soybean aphid insecticide trial," Sponsored by Dow AgroSciences, $10,000.00. (2016).
Presentations – School of Natural Resource Sciences

North Dakota State University

January 1, 2016 - December 31, 2016

AES School of Natural Resource Sci

Boetel Ph.D., Mark A. (Professor)

Torrez, Veronica Calles (Author & Presenter), Knodel, Janet (Author), Boetel, Mark (Author), French, B. Wade (Author), Fuller, Billy W. (Author), Ransom, Joel (Author), XXV International Congress of Entomology, "Effect of transgenic corn hybrids and a soil insecticide on corn rootworm (Coleoptera: Chrysomelidae) beetle emergence in North Dakota," Entomological Society of America, Orlando, FL. (September 25, 2016 - September 30, 2016).

Boetel, Mark (Author & Presenter), Schroeder, Allen J. (Author), Rikhus, Jacob J. (Author), North American Sugarbeet Researchers' Tour, "Sugarbeet root maggot management research in the Red River Valley," North Dakota State University, St. Thomas, ND. (August 10, 2016).


Rikhus, Jacob J. (Author & Presenter), Boetel, Mark (Author), Schroeder, Allen J. (Author), 46th Annual Sugarbeet Research Reporting Session, "Timing and rate impacts on Thimet performance for root maggot control," North Dakota State University, Fargo, ND. (January 12, 2016).

Chatterjee, Amitava (Assistant Professor)

Chatterjee, Amitava (Author & Presenter), Daigh, Aaron (Author), Thapa, Resham (Author), Subedi, Keshab (Author), Cattanach, Norman (Other), Annual Meeting, "Adoption of subsurface tile drainage under Fargo Clay soils," ASA-CSSA-SSSA, Phoenix, AZ. (November 6, 2016 - November 9, 2016).

Chatterjee, Amitava (Author & Presenter), Thapa, Resham (Author), Annual Meeting, "Can We Increase Spring Wheat (Triticum aestivum L.) Grain and Protein Yields with Urease and Nitrification Inhibitors?" ASA-CSSA-SSSA, Phoenix, AZ. (November 6, 2016 - November 9, 2016).


Ghosh, Upasana (Author & Presenter), Chatterjee, Amitava (Author), Hatterman-Valenti, Harlene, Annual Meeting, "Irrigated Potato (Solanum tuberosum) yield and nitrogen losses as influenced by fertilizer management and cultivars," ASA-CSSA-SSSA, Phoenix, AZ. (November 6, 2016 - November 9, 2016).


Ext School of Natural Resource Sci

Franzen, David W. (Professor)


Sedivec, Kevin K. (Professor)


Meehan, Miranda (Author & Presenter), Sedivec, Kevin (Author), Printz, Jeff L (Author), Norland, Jack (Author), X International Rangeland Congress, "Validating riparian state-and-transition models," Saskatoon, Saskatchewan, Canada. (July 18, 2016).

Tomlinson, Hannah (Author & Presenter), Klaustermeier, Aaron (Author), Limb, Ryan, Daigh, Aaron (Author), Sedivec, Kevin (Author), DeSutter, Thomas (Author), North Dakota Reclamation Conference, "Evaluation of soil treatment techniques on remediated brine spill sites in western North Dakota," Dickinson, ND. (February 2016).


DeSutter, Thomas, O'Brien, Peter, Ritter, Samantha, Derby, Nathan, Horssager, Kevin, Casey, Francis, Wick, Abbey, Khan, Eakalak, International Meetings of the ASA-CSSA-SSSA, "Construction of large-scale research plots at a remediation site using thermal desorption," ASA-CSSA-SSSA, Phoenix, AZ. (November 6, 2016 - November 9, 2016).
"Construction of large-scale research plots at a remediation site using thermal desorption," ASA-CSSA-SSSA, Phoenix, AZ. (November 6, 2016 - November 9, 2016).

O'Brien, Peter, DeSutter, Thomas, Derby, Nathan, Casey, Francis, Ritter, Samantha, Wick, Abbey, Khan, Eakalak, International Meetings of the ASA-CSSA-SSSA, "Surface energy balance over soils remediated using thermal desorption. 5-min rapid talk," ASA-CSSA-SSSA, Phoenix, AZ. (November 6, 2016 - November 9, 2016).

O'Brien, Peter, DeSutter, Thomas, Derby, Nathan, Casey, Francis, Ritter, Samantha, Wick, Abbey, Khan, Eakalak, International Meetings of the ASA-CSSA-SSSA, "Surface energy balance over soils remediated using thermal desorption. 5-min rapid talk," ASA-CSSA-SSSA, Phoenix, AZ. (November 6, 2016 - November 9, 2016).

O'Brien, Peter, DeSutter, Thomas, Ritter, Samantha, Casey, Francis, Wick, Abbey, Khan, Eakalak, North Dakota Soil and Water Summit and Field Trip, "Remediation of soils following an oil release in Mountrail County, North Dakota," NDSU, Medora, ND. (June 14, 2016 - June 15, 2016).


Bohrer, Stefanie (Author & Presenter), Limb, Ryan (Author), Daigh, Aaron (Author), Wick, Abbey (Author), Volk, Jay (Author), North Dakota Reclamation Conference, "The impact of soil compaction and vegetation diversity on reclaimed mined-lands in central North Dakota," Dickinson, ND. (February 2016).

Bohrer, Stefanie (Author & Presenter), Limb, Ryan (Author), Daigh, Aaron (Author), Wick, Abbey (Author), Volk, Jay (Author), Society for Range Management, "Vegetation composition and soil properties on 40 years of reclaimed surface coal mine sites," Corpus Christi, TX. (February 2016).


Office of the Provost

Fauske, Gerald (Research Scientist)

Ritchison, Daryl, National Honor Society Induction, "Leading a Life of Passion," Campbell-Tintah High School, Campbell, MN. (May 9, 2016).


Ritchison, Daryl, Kiwanis Weekly Meeting, ""Normal,"" Fargo, ND. (April 18, 2016).

Ritchison, Daryl, Ladies Ag Night, "Voices of the 1930s; When the Soil Blew Away," Wahpeton, ND. (April 7, 2016).


Ritchison, Daryl, Ag Show, "A Look at the 2016 Growing Season," Fargo, ND. (February 9, 2016).


Ritchison, Daryl, Ransom County, "NDAWN Training and A Look into the 2016 Growing Season," Ransom County Extension, Lisbon, ND. (February 3, 2016).


School of Natural Resource Sci

Casey, Francis (Professor)


DeSutter, Thomas, O'Brien, Peter, Ritter, Samantha, Derby, Nathan, Horsager, Kevin, Casey, Francis, Wick, Abbey, Khan, Eakalak, Matthees-Dose, Heather, International Meetings of the ASA-CSSA-SSSA, "Construction of large-scale research plots at a remediation site using thermal desorption," ASA-CSSA-SSSA, Phoenix, AZ. (November 6, 2016 - November 9, 2016).

DeSutter, Thomas, O'Brien, Peter, Ritter, Samantha, Derby, Nathan, Horsager, Kevin, Casey, Francis, Wick, Abbey, Khan, Eakalak, Matthees-Dose, Heather, International Meetings of the ASA-CSSA-SSSA, "Construction of large-scale research plots at a remediation site using thermal desorption," ASA-CSSA-SSSA, Phoenix, AZ. (November 6, 2016 - November 9, 2016).

O'Brien, Peter, DeSutter, Thomas, Derby, Nathan, Casey, Francis, Ritter, Samantha, Wick, Abbey, Khan, Eakalak, International Meetings of the ASA-CSSA-SSSA, "Surface energy balance over soils remediated using thermal desorption. 5-min rapid talk," ASA-CSSA-SSSA, Phoenix, AZ. (November 6, 2016 - November 9, 2016).

Casey, Francis, Northern Plains Climate Hub, "SHARE Farm Research and Extension," NDSU, Mooreton, ND. (November 2, 2016).


O'Brien, Peter, DeSutter, Thomas, Ritter, Samantha, Casey, Francis, Wick, Abbey, Khan, Eakalak, North Dakota Soil and Water Summit and Field Trip, "Remediation of soils following an oil release in Mountrail County, North Dakota," NDSU, Medora, ND. (June 14, 2016 - June 15, 2016).


Cihacek, Larry J. (Associate Professor)


Cihacek, Larry (Author & Presenter), Dickinson Research Extension Center Noon Seminar, "Updates on soil testing and soil test recommendations," NDSU Dickinson Research Extension Center, Dickinson, ND. (June 13, 2016 - Present).

Cihacek, Larry (Author & Presenter), 2106 North Central Dakota Ag Show, "Managing soil health to increase productivity," Rugby Changer of Commerce, Rugby, ND. (February 5, 2016 - Present).


Datta, Sumon (Author & Presenter), Rahman, Shafiqur (Author), Borhan, Ms. Saidul (Author), Saini-Eidukat, Bernhardt (Author), Cihacek, Larry (Author), 2016 ASABE Annual International Meeting, "Quantification and characterization of particulate matter generated from unpaved roads in the oil development area of western North Dakota," ASABE, Orlando, Florida. (July 17, 2016 - July 20, 2016).

Landblom, Douglas (Author & Presenter), Senturklu, Songul (Author), Cihacek, Larry (Author), Brevik, Erik (Author), 2016 European Geosciences Union Meetings, "Effect of a 5-year multi-crop rotation on mineral N and hard red spring wheat yield, protein, test weight and economics in western North Dakota, USA," European Geosciences union, Vienna, Austria. (April 17, 2016 - April 22, 2016).
Daigh, Aaron L. (Assistant Professor)

Chatterjee, Amitava (Author & Presenter), Daigh, Aaron (Author), Thapa, Resham (Author), Subedi, Keshab (Author), Cattanach, Norman (Other), Annual Meeting, "Adoption of subsurface tile drainage under Fargo Clay soils," ASA-CSSA-SSSA, Phoenix, AZ. (November 6, 2016 - November 9, 2016).

Tomlinson, Hannah (Author & Presenter), Klaustrmeyer, Aaron (Author), Limb, Ryan, Daigh, Aaron (Author), Sedivec, Kevin (Author), DeSutter, Thomas (Author), North Dakota Reclamation Conference, "Evaluation of soil treatment techniques on remediated brine spill sites in western North Dakota," Dickinson, ND. (February 2016).

Tomlinson, Hannah (Author & Presenter), Klaustrmeyer, Aaron (Author), Limb, Ryan (Author), Daigh, Aaron (Author), Sedivec, Kevin (Author), DeSutter, Thomas (Author), Society for Range Management, "Evaluation of soil treatment techniques on remediated brine spill sites in western North Dakota," Corpus Christi, TX. (February 2016).

Bohrer, Stefanie (Author & Presenter), Limb, Ryan (Author), Daigh, Aaron (Author), Wick, Abbey (Author), Volk, Jay (Author), North Dakota Reclamation Conference, "The impact of soil compaction and vegetation diversity on reclaimed mined-lands in central North Dakota," Dickinson, ND. (February 2016).

DeKeyser, Edward (Associate Professor)


DeSutter, Thomas M. (Associate Professor)


DeSutter, Thomas, School of Natural Resource Sciences Seminar Symposium, "Integrated research," North Dakota State University, Fargo, ND. (2016).

Graber, K, Hargiss, Christina, Norland, J, DeSutter, T, Strand, M, North Dakota Water Quality Monitoring Conference, "Road Dust Abatement Techniques in Western North Dakota.," Bismarck, ND. (2016).

DeSutter, Thomas, School of Natural Resources Sciences Graduate Student Research Symposium, "Integrated research," NDSU. (December 9, 2016).


DeSutter, Thomas, O'Brien, Peter, Ritter, Samantha, Derby, Nathan, Horsager, Kevin, Casey, Francis, Wick, Abbey, Khan, Eakalak, Matthees-Dose, Heather, International Meetings of the ASA-CSSA-SSSA, "Construction of large-scale research plots at a remediation site using thermal desorption," ASA-CSSA-SSSA, Phoenix, AZ. (November 6, 2016 - November 9, 2016).

DeSutter, Thomas, O'Brien, Peter, Ritter, Samantha, Derby, Nathan, Horsager, Kevin, Casey, Francis, Wick, Abbey, Khan, Eakalak, Matthees-Dose, Heather, International Meetings of the ASA-CSSA-SSSA, "Construction of large-scale research plots at a remediation site using thermal desorption," ASA-CSSA-SSSA, Phoenix, AZ. (November 6, 2016 - November 9, 2016).


O'Brien, Peter, DeSutter, Thomas, Derby, Nathan, Casey, Francis, Ritter, Samantha, Wick, Abbey, Khan, Eakalak, International Meetings of the ASA-CSSA-SSSA, "Surface energy balance over soils remediated using thermal desorption. 5-min rapid talk," ASA-CSSA-SSSA, Phoenix, AZ. (November 6, 2016 - November 9, 2016).

O'Brien, Peter, DeSutter, Thomas, Derby, Nathan, Casey, Francis, Ritter, Samantha, Wick, Abbey, Khan, Eakalak, International Meetings of the ASA-CSSA-SSSA, "Surface energy balance over soils remediated using thermal desorption. 5-min rapid talk," ASA-CSSA-SSSA, Phoenix, AZ. (November 6, 2016 - November 9, 2016).

Kolars, K., Jia, X., Steele, D., Scherer, T., DeSutter, Thomas, 10th International Drainage Symposium, "Modifying the checkbook irrigation scheduling model for high water table conditions to manage subsurface drained and subirrigated fields," Minneapolis, MN. (September 7, 2016 - September 9, 2016).
Kolars, K., Jia, X., Steele, D. D., Scherer, T. F., DeSutter, Thomas, 10th International Drainage Symposium, "Modifying the checkbook irrigation scheduling model for high water table conditions to manage subsurface drained and subirrigated fields," Minneapolis, MN. (September 7, 2016 - September 9, 2016).

Steele, Dean (Author), Kolars, Kelsey (Author & Presenter), Jia, Xinhu (Author), Scherer, Thomas (Author), DeSutter, Thomas (Author), 10th International Drainage Symposium, "Modifying the checkbook irrigation scheduling model for high water table conditions to manage subsurface drained and subirrigated fields," ASABE, Minneapolis, MN. (September 7, 2016 - September 9, 2016).

DeSutter, Thomas, Harmon, J., Cass County Salinity Management Field Day, "Crop response to salinity and pest pressures," Embden, ND. (August 30, 2016).

DeSutter, Thomas, Headwaters Resources breakfast, "Gypsum use in agriculture," Washburn, ND. (August 17, 2016).

DeSutter, Thomas, Saline and Sodic Soil Management Workshop and Field Tour, "Soil testing for saline/sodic soils. What should I ask for? What do the numbers mean? Tile these areas?" Mitchell, SD. (July 7, 2016).


Ripplinger, D., DeSutter, Thomas, NDSU-UMN Extension Soil Health Tour, "Crop response on saline soils and the bottom line," Barney, ND. (June 29, 2016).

O'Brien, Peter, DeSutter, Thomas, Ritter, Samantha, Casey, Francis, Wick, Abbey, Khan, Eakalak, North Dakota Soil and Water Summit and Field Trip, "Remediation of soils following an oil release in Mountrail County, North Dakota," NDSU, Medora, ND. (June 14, 2016 - June 15, 2016).


Tomlinson, Hannah (Author & Presenter), Klaustermeier, Aaron (Author), Limb, Ryan, Daigh, Aaron (Author), Sedivec, Kevin (Author), DeSutter, Thomas (Author), North Dakota Reclamation Conference, "Evaluation of soil treatment techniques on remediated brine spill sites in western North Dakota," Dickinson, ND. (February 2016).

Tomlinson, Hannah (Author & Presenter), Klaustermeier, Aaron (Author), Limb, Ryan (Author), Daigh, Aaron (Author), Sedivec, Kevin (Author), DeSutter, Thomas (Author), Society for Range Management, "Evaluation of soil treatment techniques on remediated brine spill sites in western North Dakota," Corpus Christi, TX. (February 2016).


DeSutter, Thomas, Soil and Water Workshop, "Sodium remediation strategies: Facts to gather, methods to correct and what to expect," NDSU Research and Extension, Fargo, ND. (January 20, 2016).

Hargiss, Christina L. (Assistant Professor)


Hargiss, Christina, School of Natural Resource Sciences Symposium, "Conservation of the cog and wheel - the legacy of Leopold and his land ethic," Fargo, ND. (2016).


Hargiss, Christina, Bonnell, K L, Norland, J, Region 5 National Association for Interpreters Regional Conference, "Gauging the Perceptions of High School Students in Different Demographics on Environmental Education Topics," Bismarck, ND. (2016).


Bonnell, Kory, Hargiss, Christina, Norland, Jack, Minnesota Association for Environmental Education, "How do students in rural, urban cluster and large metropolitan areas perceive the environment?," Collegeville, MN. (2016).

Bonnell, Kory, Hargiss, Christina, Norland, Jack, Solving Real World Problems - An NDSU Interdisciplinary Celebration of Research, "How does students in rural, urban cluster and large metropolitan/inner city areas perceive the environment?," Fargo, ND. (2016).

Comeau, P, Hargiss, Christina, Norland, J, Wallace, A, Bormann, A, North American Association of Environmental Educators Conference, "Human Figure Drawing and Facial Recognition Reimagined to Attempt to Understand the Roots of Plant Blindness," Madison, WI. (2016).

Hargiss, Christina (Author & Presenter), Region 5 National Association for Interpreters Regional Conference, "Inspiring through Education," Bismarck, ND. (2016).


Graber, K, Hargiss, Christina, Norland, J, DeSutter, T, Strand, M, North Dakota Water Quality Monitoring Conference, "Road Dust Abatement Techniques in Western North Dakota.," Bismarck, ND. (2016).


Comeau, Paula, Norland, Jack, Hargiss, Christina, Wallace, A., Bormann, A., Solving Real World Problems - An NDSU Interdisciplinary Celebration of Research, "Understanding plant blindness: simplified mental models may be reducing the ability of children to accurately see plants," Fargo, ND. (2016).


Harmon, Jason P. (Associate Professor)


Kral, Katherine (Author & Presenter), Hovick, Torre (Author), Limb, Ryan (Author), Harmon, Jason (Author), North Dakota Society for Range Management, "Conservation concerns and preliminary density estimates for grassland butterflies in North Dakota," Bismarck, ND. (October 2016).

Bendel, Cayla (Author & Presenter), Hovick, Torre (Author), Limb, Ryan, Harmon, Jason (Author), North Dakota Society for Range Management, "Floristic resource availability influences bumblebee interaction networks in working landscapes," Bismarck, ND. (October 2016).


Kral, Katherine (Author & Presenter), Hovick, Torre (Author), Limb, Ryan, Harmon, Jason (Author), Dixon, Cami (Author), Society for Range Management, "Density estimates for grassland butterflies in the Northern Great Plains," Corpus Christi, TX. (February 2016).

Bendel, Cayla (Author & Presenter), Hovick, Torre (Author), Limb, Ryan, Harmon, Jason (Author), Society for Range Management, "The effects of grazing management practices on butterfly and bee community composition," Corpus Christi, TX. (February 2016).

Harris, Marion (Professor)


Hopkins, David G. (Associate Professor)

Bohn, Meyer (Author & Presenter), Hopkins, David (Author), Steele, Dean (Author), Tuscherer, S (Author), Soil Science Society of America annual meeting, "Novel approaches to quantify and combat soil degradation," Phoenix, AZ. (2016).


Hopkins, David G (Author & Presenter), NDSU Extension Service Soil and Soil Water Workshop, "Odd but important North Dakota soil facts: (the P in Clorpt)," NDSU Extension Service, Fargo, ND. (January 20, 2016).


Hovick, Torre J. (Assistant Professor)


Kral, K., Hovick, T., Limb, R., Harmon, J., United States Fish and Wildlife North Dakota Inventory and Monitoring meeting, "Inventory of Prairie Dependent Butterflies in North Dakota," Jamestown, ND. (2016).


Mack, Wyatt (Author & Presenter), Geaumont, Benjamin (Author), Hovick, Torre (Author), Lipinski, Amanda (Author), Limb, Ryan, Sedivec, Kevin (Author), Society for Range Management, "Community associations of grassland birds on grazed mixed-grass prairie occupied by black-tailed prairie dogs," Corpus Christi, TX. (February 2016).

Kral, Katherine (Author & Presenter), Hovick, Torre (Author), Limb, Ryan, Harmon, Jason (Author), Dixon, Cami (Author), Society for Range Management, "Density estimates for grassland butterflies in the Northern Great Plains," Corpus Christi, TX. (February 2016).

Naber, Sabine (Author & Presenter), Limb, Ryan (Author), Hovick, Torre (Author), Society for Range Management, "Influence of grazing on abundance and diversity of grassland birds in the northern tallgrass prairie," Corpus Christi, TX. (February 2016).

Bendel, Cayla (Author & Presenter), Hovick, Torre (Author), Limb, Ryan, Harmon, Jason (Author), Society for Range Management, "The effects of grass management practices on butterfly and bee community composition," Corpus Christi, TX. (February 2016).

Limb, Ryan (Assistant Professor)


Kral, Katherine (Author & Presenter), Hovick, Torre (Author), Limb, Ryan (Author), Harmon, Jason (Author), North Dakota Society for Range Management, "Conservation concerns and preliminary density estimates for grassland butterflies in North Dakota," Bismarck, ND. (October 2016).

Bendel, Cayla (Author & Presenter), Hovick, Torre (Author), Limb, Ryan, Harmon, Jason (Author), North Dakota Society for Range Management, "Floristic resource availability influences bumblebee interaction networks in working landscapes," Bismarck, ND. (October 2016).

Endreson, Megan (Author & Presenter), Limb, Ryan (Author), North Dakota Society for Range Management, "Management strategies to reduce Kentucky bluegrass," Bismarck, ND. (October 2016).


Mack, Wyatt (Author & Presenter), Geaumont, Benjamin (Author), Hovick, Torre (Author), Lipinski, Amanda (Author), Limb, Ryan, Sedivec, Kevin (Author), Society for Range Management, "Community associations of grassland birds on grazed mixed-grass prairie occupied by black-tailed prairie dogs," Corpus Christi, TX. (February 2016).

Kral, Katherine (Author & Presenter), Hovick, Torre (Author), Limb, Ryan, Harmon, Jason (Author), Dixon, Cami (Author), Society for Range Management, "Density estimates for grassland butterflies in the Northern Great Plains," Corpus Christi, TX. (February 2016).


Tomlinson, Hannah (Author & Presenter), Klaustermeier, Aaron (Author), Limb, Ryan, Daigh, Aaron (Author), Sedivec, Kevin (Author), DeSutter, Thomas (Author), North Dakota Reclamation Conference, "Evaluation of soil treatment techniques on remediated brine spill sites in western North Dakota," Dickinson, ND. (February 2016).

Naber, Sabine (Author & Presenter), Limb, Ryan (Author), Hovick, Torre (Author), Society for Range Management, "Influence of grazing on abundance and diversity of grassland birds in the northern tallgrass prairie," Corpus Christi, TX. (February 2016).

Tomlinson, Hannah (Author & Presenter), Klaustermeier, Aaron (Author), Limb, Ryan (Author), Daigh, Aaron (Author), Sedivec, Kevin (Author), DeSutter, Thomas (Author), Society for Range Management, "Evaluation of soil treatment techniques on remediated brine spill sites in western North Dakota," Corpus Christi, TX. (February 2016).

Bohrer, Stefanie (Author & Presenter), Limb, Ryan (Author), Daigh, Aaron (Author), Volk, Jay (Author), North Dakota Reclamation Conference, "The impact of soil compaction and vegetation diversity on reclaimed mined-lands in central North Dakota," Dickinson, ND. (February 2016).

Bohrer, Stefanie (Author & Presenter), Limb, Ryan (Author), Daigh, Aaron (Author), Wick, Abbey (Author), Volk, Jay (Author), Society for Range Management, "Vegetation composition and soil properties on 40 years of reclaimed surface coal mine sites," Corpus Christi, TX. (February 2016).
McGranahan, Devan A. (Assistant Professor)


Spiess, J (Author), Brennan, A (Author), Merritt, F (Author), Cabello, J (Author), Lawrence, R (Author), Moore, R (Author), Zietz, S (Author), Sims, C (Author), Daigh, A (Author), McGranahan, Devan (Author), Whippo, C (Author), North Dakota Reclamation Conference, "The dispersal of road dust and its effect on crop physiology," Dickinson, ND. (February 22, 2016 - February 23, 2016).


Spiess, J W (Author), McGranahan, Devan (Author), Daigh, A (Author), Whippo, C (Author), Society for Range Management, "Assessing the impact of fugitive road dust in the Bakken region of North Dakota," Corpus Christi, TX. (February 2, 2016).

McGranahan, Devan (Author & Presenter), Ramaano, R (Author), Tedder, M J (Author), Kirkman, K P (Author), Society for Range Management, "Variation in grassland fuel curing in South Africa," Corpus Christi, TX. (February 2, 2016).

Norland, Jack E. (Associate Professor)


Graber, K, Hargiss, Christina, Norland, J, DeSutter, T, Strand, M, North Dakota Reclamation Conference, "Effectiveness of Road Dust Abateiments Techniques in Western North Dakota," Dickinson, ND. (2016).

Hargiss, Christina, Bonnell, K L, Norland, J, Region 5 National Association for Interpreters Regional Conference, "Gauging the Perceptions of High School Students in Different Demographics on Environmental Education Topics," Bismarck, ND. (2016).


Bonnell, Kory, Hargiss, Christina, Norland, Jack, Minnesota Association for Environmental Education, "How do students in rural, urban cluster and large metropolitan areas perceive the environment?," Collegeville, MN. (2016).

Bonnell, Kory, Hargiss, Christina, Norland, Jack, Solving Real World Problems - An NDSU Interdisciplinary Celebration of Research, "How do students in rural, urban cluster, and large metropolitan/inner city areas perceive the environment?," Fargo, ND. (2016).

Comeau, P, Hargiss, Christina, Norland, J, Wallace, A, Bormann, A, North American Association of Environmental Educators Conference, "Human Figure Drawing and Facial Recognition Reimagined to Attempt to Understand the Roots of Plant Blindness," Madison, WI. (2016).


Graber, K, Hargiss, Christina, Norland, J, DeSutter, T, Strand, M, North Dakota Water Quality Monitoring Conference, "Road Dust Abatement Techniques in Western North Dakota.," Bismarck, ND. (2016).


Comeau, Paula, Norland, Jack, Hargiss, Christina, Wallace, A., Bormann, A., Solving Real World Problems - An NDSU Interdisciplinary Celebration of Research, "Understanding plant blindness: simplified mental models may be reducing the ability of children to accurately see plants," Fargo, ND. (2016).


Meehan, Miranda (Author & Presenter), Sedivec, Kevin (Author), Printz, Jeff L (Author), Norland, Jack (Author), X International Rangeland Congress, "Validating riparian state-and-transition models," Saskatoon, Saskatchewan, Canada. (July 18, 2016).


Norland, Jack, Prairie Reconstruction Initiative Symposium, "Panel member “Other Research and Experiences” in Prairies from Scratch Symposium.," USFWS, Fergus Falls, MN. (February 2016).

Rider, David A. (Professor)


Voldseth, Deirdre A. (Associate Professor)


Voldseth, Deirdre, North Dakota Grape and Wine Association annual meeting and conference, "Insect pests of grape in North Dakota," Bismarck, ND. (February 5, 2016 - February 6, 2016).
AES School of Natural Resource Sci

Boetel Ph.D., Mark A. (Professor)

Refereed Journal Articles

Journal Article (Published)


Conference Proceedings

Conference Proceeding (Published)


Conference Proceeding (Published)

Cattanach, A., Daniels, J., Boetel, M., Dregseth, R. J. Strip trial evaluation of Poncho Beta insecticide in the RRV. *Proceedings of 35th Biennial Meeting. ASSBT.* http://dx.doi.org/10.5274/assbt.2009.39

Other Intellectual Contributions

Abstract (Published)


Newsletter (Published)


Newsletter (Published)

*Newsletter (Published)*


*Newsletter (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


*Research Report (Published)*


*Research Report (Published)*


*Research Report (Published)*


*Research Report (Published)*


*Research Report (Published)*

*Research Report (Published)*


*Research Report (Published)*


*Research Report (Published)*


*Research Report (Published)*


*Research Report (Published)*


*Research Report (Published)*

Chatterjee, Amitava (Assistant Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*

**Conference Proceedings**

*Conference Proceeding*


**Other Intellectual Contributions**

**Book Chapter (Published)**


**Book Chapter (Published)**


**Book Chapter (Published)**


**Magazine/Trade Publication (Published)**


**Research Report (Published)**


**Research Report (Published)**


**Research Report (Published)**


Ext School of Natural Resource Sci

Franzen, David W. (Professor)

Refereed Journal Articles


*Journal Article (Published)*


*Journal Article*


*Non-Refereed Journal Articles*

*Journal Article (Published)*


*Conference Proceedings*

*Conference Proceeding (Published)*


*Conference Proceeding (Published)*


*Conference Proceeding (Published)*


*Conference Proceeding (Published)*


*Conference Proceeding (Published)*


Conference Proceeding (Published)


Conference Proceeding (Published)


Conference Proceeding (Published)


Other Intellectual Contributions

Abstract (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)

Abstract (Published)


Abstract (Published)


Book Chapter (Published)


Book Chapter (Published)


Extension Publication (Published)


Extension Publication (Published)


Newsletter (Published)


Newsletter (Published)


Newsletter (Published)


Newsletter (Published)

*Newsletter (Published)*


*Newsletter (Published)*


*Newsletter (Published)*


*Newsletter (Published)*


*Newsletter (Published)*


*Newsletter (Published)*


*Newspaper (Published)*


*Newspaper (Published)*


*Research Report (Published)*


*Research Report (Published)*


395
Research Report (Published)

Research Report (Published)

Research Report (Published)

Research Report (Published)

Research Report (Published)

Research Report (Published)

Extension Publication (Published)

Research Report (Published)

Abstract

Abstract

Newsletter


Research Report


Sedivec, Kevin K. (Professor)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)


Journal Article (Submitted)


Other Intellectual Contributions

Extension Impact Report (Published)


Extension Publication (Published)


Research Report (Published)

Technical Report (Published)


Extension Publication (Published)


Wick, Abbey F. (Assistant Professor)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)


Non-Refereed Journal Articles

Journal Article (Published)


Journal Article


Journal Article


Journal Article

*Journal Article*


*Conference Proceedings*

*Conference Proceeding*


*Other Intellectual Contributions*

*Extension Publication (Published)*


*Extension Publication (Published)*


*Extension Publication (Published)*


*Magazine/Trade Publication (Published)*


*Magazine/Trade Publication (Published)*


*Research Report (Published)*


*Research Report (Published)*

399

*Research Report (Published)*


*Magazine/Trade Publication (Published)*


http://www.ndcorn.org/corncouncil/checkoff-programs/research/research-reports/maximizing-soil-warming-health-different-tillage-practices-corn-soybean-rotation/


*Book Chapter*


*Extension Publication*


*Extension Publication*


*Extension Publication*


*Extension Publication*


*Extension Publication*


*Extension Publication*

Extension Publication


Extension Publication


Extension Publication


Extension Publication


Extension Publication


Magazine/Trade Publication


Research Report


Research Report


Magazine/Trade Publication


Magazine/Trade Publication

Office of the Provost

Kobiela, Breanna (Research Scientist)

**Refereed Journal Articles**

*Journal Article*


School of Natural Resource Sci

Casey, Francis (Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


**Other Intellectual Contributions**

*Extension Publication (Published)*


*Extension Publication (Published)*

*Extension Publication (Published)*


*Research Report (Published)*


*Research Report (Published)*


*Research Report (Published)*


*Book Chapter (Published)*


*Extension Publication*


*Extension Publication*


*Extension Publication*


Cihacek, Larry J. (Associate Professor)

**Refereed Journal Articles**

*Journal Article (Published)*

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


**Other Intellectual Contributions**

*Research Report (Published)*

Rahman, S., Ringwall, K., Saini-Eidukat, B., Cihacek, L. (2016). *Quantification of road dust and its effect on soil* (pp. 22). NDSU RCA.

*Daigh, Aaron L. (Assistant Professor)*

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*

Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Other Intellectual Contributions

Abstract (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)


Abstract (Published)

*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*


*Abstract (Published)*

Abstract (Published)


Abstract (Published)


Abstract (Published)


Book Review (Published)


Magazine/Trade Publication (Published)


Magazine/Trade Publication (Published)


Magazine/Trade Publication (Published)


Magazine/Trade Publication (Published)


Magazine/Trade Publication (Published)


*Extension Publication*


*Extension Publication*


DeKeyser, Edward (Associate Professor)

*Refereed Journal Articles*

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article*

Other Intellectual Contributions

Research Report (Accepted)

Research Report (Accepted)

Research Report (Accepted)

Research Report

Research Report

Law Review

DeSutter, Thomas M. (Associate Professor)

Refereed Journal Articles

Journal Article (Published)

Journal Article (Published)

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Submitted)*


*Journal Article (Submitted)*


*Journal Article (Submitted)*

*Journal Article (Submitted)*


*Journal Article (Submitted)*


*Journal Article (Submitted)*


**Conference Proceedings**

*Conference Proceeding (Published)*


*Conference Proceeding (Published)*


*Conference Proceeding (Published)*


*Conference Proceeding*


**Other Intellectual Contributions**

*Extension Publication (Published)*


Research Report


Foster, Stephen P. (Professor)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Revising to Resubmit)


Other Intellectual Contributions

Book Chapter (Published)


Book Chapter (Published)


Gasch, Caley (Assistant Professor)

Refereed Journal Articles

Journal Article (Published)


Journal Article (Published)


**Non-Referred Journal Articles**

*Journal Article (Published)*


Hargiss, Christina L. (Assistant Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


**Other Intellectual Contributions**

*Magazine/Trade Publication (Published)*

Creuzer, J., Hargiss, C. *Road dust impacts on wetlands in western ND*. ND Compass Magazine. Accepted: 2016.

*Research Report (Accepted)*


*Research Report (Accepted)*


*Research Report (Accepted)*


*Research Report (Accepted)*

*Research Report (Accepted)*


*Research Report (Accepted)*


*Research Report (Accepted)*


*Research Report (Accepted)*


Harmon, Jason P. (Associate Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


**Conference Proceedings**

*Conference Proceeding (Published)*

*Conference Proceeding (Published)*


*Conference Proceeding*


*Conference Proceeding*


**Other Intellectual Contributions**

*Technical Report (Published)*


*Extension Publication*


*Extension Publication*


*Extension Publication*


*Research Report*


*Research Report*

Harris, Marion (Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


**Other Intellectual Contributions**

*Book Chapter (Accepted)*


*Book Chapter (Accepted)*


*Book Chapter (Accepted)*


Hopkins, David G. (Associate Professor)

**Refereed Journal Articles**

*Journal Article (Accepted)*


**Other Intellectual Contributions**

*Research Report (Published)*


Hovick, Torre J. (Assistant Professor)

**Refereed Journal Articles**

*Journal Article (Published)*

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Submitted)*


*Conference Proceedings*

*Conference Proceeding*

Naber, S., Hovick, T., Limb, R. *Avian conservation in working landscapes: the effects of grazing management on grassland bird communities.* Accepted: 2016.

*Conference Proceeding*


*Conference Proceeding*

Limb, Ryan (Assistant Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Submitted)*


**Conference Proceedings**

*Conference Proceeding*

Naber, S., Hovick, T., Limb, R. *Avian conservation in working landscapes: the effects of grazing management on grassland bird communities*. Accepted: 2016.

*Conference Proceeding*


*Conference Proceeding*


**Other Intellectual Contributions**

*Technical Report (Published)*

*Technical Report (Published)*


McGranahan, Devan A. (Assistant Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


**Conference Proceedings**

*Conference Proceeding (Published)*


*Conference Proceeding (Published)*

Norland, Jack E. (Associate Professor)

**Refereed Journal Articles**

*Journal Article (Published)*


**Other Intellectual Contributions**

*Abstract (Published)*


*Abstract (Published)*


*Research Report (Accepted)*


*Research Report (Accepted)*


Rider, David A. (Professor)

**Refereed Journal Articles**

*Journal Article (Published)*

*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*


*Journal Article (Published)*

Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Journal Article (Published)


Conference Proceedings

Conference Proceeding (Published)


Voldseth, Deirdre A. (Associate Professor)

Refereed Journal Articles

Journal Article (Published)

424

*Journal Article (Published)*


*Journal Article (Published)*


**Other Intellectual Contributions**

*Research Report*


*Research Report*


425
Veterinary Diagnostics Services

Annual Report 2016

A. Significant Departmental achievements in research, teaching and outreach during the past year

a. Teaching

- Dr. Dyer taught ANSC 370, a 3 credit course with an enrollment of 100 and gave guest lectures in VETS 150.
- Dr. Newel gave guest lectures in VETS 491 and VETS 256 in the veterinary technology program to introduce students to gross pathology and diagnostic laboratory procedures.

b. Research/Scholarly/Creative Activities

3. Last year VDL faculty secured grants totaling $294,049 which involved a variety of research projects and cooperative agreements.
4. One book chapter and one referred article were published.

c. Extension/Outreach

- Nothing significant to report.

d. Service

- The laboratory processed 12,455 accessions and completed more than 50,000 tests.
- The VLD hosted its annual CE event that provided 6 hours of CE for veterinarians (laboratory clients) in May.
- Dr. Dyer served on the editorial board for The Journal of Diagnostic Investigation and several scholarship committees.
- Dr. Mostrom gave three hours of CE lectures to the Pennsylvania Veterinary Medical Association, 17th Annual Spring Clinic, State College PA on mycotoxins, served on a review panel for NIFA SBIR awards, and served on the North Dakota Board of Animal Health.
- Dr. Webb presented at the NDVMA annual meeting, ND Stockman’s Association meeting and the NDSU feed lot school.

B. Department Goals and Priorities for the past year, including narrative about progress toward those goals.

1) Begin the design of new Veterinary Diagnostic Laboratory.
The design phase of the new laboratory was completed in early 2016. Construction is approximately 75% finished and currently on schedule for completion late August of 2017.

2) Continue to consider ways to hire new technical help for the VDL.
   An additional PCR technician was hired in 2016 to help with the growing number of submissions. Novel sources of significant funds for salaries have not yet been identified.

3) Streamlining the VDL Quality Assurance system.
   A new incidence/nonconformance reporting mechanism has been employed and a number of quality processes have been streamlined and are now being completed digitally. Utilization of the laboratory’s QMS software was significantly expanded and now includes tracking of staff training and ongoing competency.

4) Refining our use of IT to make dissemination of case results more efficient.
   Significant strides have been made on this front: Testing reports are now created via html and disseminated to clients automatically by a digital fax/emailing system. A new interconnected archiving system for submission forms, test reports and invoices has been put in place and has improved document control and allowed digital access to laboratory records. Work on a new web based client portal began. The new portal when completed with allow clients to access reports, preliminary results and invoices online. The portal also, based on user preferences, provides notifications via text or email when a submission is received and when preliminary results or a report are available.

C. Department Challenges for the past year, including narrative on how those are being addressed.

1) Administration of the new facility construction has required a significant amount time and diverted faculty efforts from the laboratories core mission, service. An associate director position was created to help address the increase in unit administrative needs and other faculty took on additional service duties to free up time for the associated director to manage the new facility construction.

2) Dr. Claire Miller, the laboratory’s microbiologist, resigned in November 2016. This has again left the laboratory without sufficient supervision for the bacteriology, virology and serology sections, and places the laboratories accreditation in jeopardy. The laboratory is working with administration to fill this position at the earliest possible time.

3) The case load of the laboratory continues to increase every year. While focused investments in IT infrastructure have lessened this burden, the addition of laboratory staff has not kept up with the rate of growth. Additional staff will likely have to be added soon.

D. Department Goals and Priorities for the Coming Year

1) Achieve full accreditation for all species (5-year accreditation) following the June 2017 AAVLD audit (The laboratory has previously only received provisional accreditation following AAVLD audits.)

2) Plan and execute relocation to the new facility without causing significant delays in testing and loss of clients.
3) Identify a mechanism to fund an additional station specialist (Pathologist who will supervise microbiology section laboratories)
4) Continue to address growth of laboratory accessions by focused investments in IT resources to increasing efficiency, automates processes and lessen the need for hiring additional staff.

**Contracts, Grants and Sponsored Research – Veterinary Diagnostic Laboratory**

North Dakota State University

January 1, 2017 - December 31, 2017

AES Vet Diagnostic Services

Dyer, Neil W. (Professor)

*Not Awarded*

“Comparative Genomics: The Core Genome of Paenibacillus Larvae Based on a Computational Analysis and Implications in Antibiotic Treatment and Resistance,” Sponsored by North American Pollinator Protection Cam, Federal, $10,000.00.

**Intellectual Contributions – Veterinary Diagnostic Laboratory**

North Dakota State University

January 1, 2017 - December 31, 2017

AES Vet Diagnostic Services

Dyer, Neil W. (Professor)

*Refereed Journal Articles*

*Journal Article (Revising to Resubmit)*


*Other Intellectual Contributions*

*Abstract (Published)*

Mostrom, Michelle

Other Intellectual Contributions

Press Release (Published)


Press Release (Published)


Extension Curriculum, Handout