

NDSU

PLANT SCIENCES

2017 Year in Review

BLIZZARD WATCH

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Richard D. Horsley, Department Head

Dept. of Plant Sciences
NDSU Dept. 7670
PO Box 6050
Fargo, ND 58108-6050

Richard.Horsley@ndsu.edu
Phone: 701.231.7973
Fax: 701.231.8474

www.ag.ndsu.edu/plantsciences
www.ag.ndsu.edu/cerealscience
www.ag.ndsu.edu/foodscience
facebook.com/NDSUPlantSciences
twitter.com/NDSUPlantSci

From the Department Head

Dr. Richard Horsley

Once again, 2017 was a year of accomplishments for the department's faculty, staff, students, and alumni. This year's *Blizzard Watch* contains over 12 pages of accomplishments and awards received by our undergraduate and graduate students, staff, and faculty. I am especially touched by the work our faculty and staff do to share their technical skills with farmers in Africa and the work our faculty, staff, and students do to provide food to local food pantries (pages 10-11).

All of us in the department were saddened by the sudden and unexpected deaths of Michelle Grant in March and Stan Stancyk in December. I still have a sense of emptiness when I walk by Michelle's desk or Stan's office and know they will not be there again.

We had two faculty retirements and two faculty resignations in 2017. Steve Sebesta was hired to take over as director of the Foundation Seedstocks Program following the retirement of Dr. Dale Williams, and the department has received permission to refill the Extension Weed Specialist position that is vacant following Dr. Rich Zollinger's retirement. The department received permission early this

year to refill the vacant pulse breeder position. There are no plans at this time to refill the positions vacated following the resignations of Drs. Marcelo Carena and Grant Mehring.

Following the passing of Dr. Jim Hammond in August 2016, it was decided that the flax and canola breeding programs would be consolidated into a single Oilseed Breeding Program, effective on July 1, 2017. Dr. Mukhlesur Rahman is heading the new program. He was previously head of the canola breeding program. Dr. Grafton approved a brown seeded flax line named ND Hammond for release in December 2017. ND Hammond seed will be allocated through the County Crop Improvement Associations this spring.

Student numbers in the department's undergraduate and graduate programs have been stable the past two years. In fall 2017, our undergraduate programs had 229 students in Crop and Weed Sciences, 31 students in Food Science, and 32 students in Horticulture. We had three students in the Horticulture M.S. program, 25 students in the Cereal Science M.S. and Ph.D. programs, and 76 students in the Plant Sciences M.S. and Ph.D. programs. Beginning in January



2017, all faculty with state-funded research technicians or specialists were required to pay 25% of the salary and fringe benefits for these individuals from soft-funds because of budget cuts by the state. This amount of funding is about the same as that needed to support a graduate student stipend. I am afraid that the need to pay for support staff salaries from soft-funds is going to negatively impact our graduate student numbers in the short term.

On a more positive note, Harris Hall, the location of most of our Cereal Science and Food Science research and teaching facilities, is now the number two building on the university's priority list for replacement. Visitors have referred to this building as a "museum," and it actually has a functioning fuse box in the oldest part of the building.

To make sure you keep up with the latest news and photos, you can access our web page at www.ag.ndsu.edu/plantsciences/, our Facebook page at *NDSU Plant Sciences*, or our Twitter page at *@NDSUPlantSci*.

(Continued on page 9)

Faculty and Staff Updates

Faculty Promotions

Three faculty members were promoted to professor in 2017.

Dr. Wenhao (David) Dai earned his Ph.D. in Plant Sciences at North Dakota State University and was hired as an assistant professor in 2002. He earned tenure in 2009. Dai leads the woody plant physiology and biotechnology program.



Dr. G. Francois Marais earned a Ph.D. in Cereal Technology at North Dakota State University and a Ph.D. in Genetics at the University of Stellenbosch, South Africa. He was hired at NDSU in 2010 as an associate professor and was granted tenure with his promotion to professor. Marais leads the hard red winter wheat breeding and genetics program.



Dr. Todd West earned a Ph.D. in Plant Biology at Southern Illinois University and was hired at NDSU in 2011 as an associate professor. He was granted tenure with his promotion to professor. West leads the woody plant improvement program.



Promotion acknowledges faculty members for professional competence and excellent service to NDSU. Tenure is affirmation of a faculty member's excellence and potential significant long-term contribution to NDSU.

Faculty Resignations

Dr. Grant Mehring, research assistant professor, resigned his position in June. **Dr. Marcelo Carena**, professor and corn breeding project leader, resigned his position in July.

New Foundation Seedstocks Director

Steve Sebesta was named director of the North Dakota Foundation Seedstocks program at North Dakota State University under an agreement between the North Dakota Agricultural Experiment Station and the North Dakota State Seed Department. Sebesta is also deputy commissioner of the North Dakota State Seed Department.



New Staff

New postdoctoral researchers are **Meriem Aoun**, durum wheat breeding with Dr. Elias; **John Stenger**, high value crops with Dr. Hatterman-Valenti; **Atena Oladzad Abbasabadi**, dry bean genetics with Dr. McClean; **Aliya Momotaz**, wheat genetics with Drs. McClean and Faris; **Mitch Bauske**, Extension potato production with Dr. Robinson; **Sepehr Naraghi** and **Wei Zhang**, wheat genetics/cytology with Dr. Cai; and **Upasana Ghosh**, potato breeding with Dr. Thompson.

New research specialists are **Alan Peterson**, forages with Dr. Berti; **John Posch**, dry bean breeding with Dr. Osorno; **Joseph Mettler**, annual weeds with Dr. Howatt; and **Amy Scegura**, oat breeding with Dr. McMullen. **Jason Axtman** was hired as an ag research technician in durum wheat breeding with Dr. Elias. **Kathy Christianson** transferred from the perennial weeds program with Dr. Lym to the wheat end quality program with Dr. Simsek.

Karen Jevning was hired as an administrative secretary in the main office. She provides support to teaching faculty and undergraduate programs.

Staff Resignations

Staff who resigned in 2017 are post-doctoral research fellows **Ali Soltani** and **Stephan Schroder**, dry bean breeding; **Samira Mafi Moghaddam**, dry bean genetics; and **Seyed Pirseyedi**, winter wheat breeding. Research specialists **Mike Kloberdanz**, dry bean breeding; and **Andrew Lueck**, Extension sugarbeet/weeds. Ag research technician **Megan Shawgo**, durum wheat breeding. Food technician specialist **Hiroshi Ando**, durum and pasta quality. Administrative secretary **Jill Walkinshaw**, main office.



Aoun



Stenger



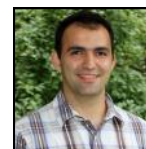
Oladzad Abbasabadi



Momotaz



Bauske



Naraghi



Zhang



Ghosh



Peterson



Posch



Mettler



Scegura



Axtman



Christianson



Jevning

Retirements

Dr. Rich Zollinger retired after almost 28 years as the NDSU Extension weed specialist. He joined the Department of Plant Sciences in 1990 as an assistant professor with responsibilities in Extension weed science, weed control and herbicide research. He was promoted to associate professor in 1996 and professor in 2004.

As the NDSU Extension weed specialist, Zollinger's statewide educational efforts covered most crops except sugarbeet and potato. Every year, he would oversee the updating and compiling of the North Dakota Weed Control Guide. Over 20,000 copies of this publication are printed each year and it is considered by many as the flagship publication of the NDSU Extension Service.

Zollinger conducted weed control and herbicide research primarily in corn, soybean, dry edible beans, and sunflower. His main research interest was in adjuvants and formulations.

Zollinger was successful in writing over 140 Section 18 herbicide registrations in minor acreage crops, serving as the IR-4 liaison for North Dakota and successfully competing with California and 'rim' states for over 100 IR-4 pesticide research projects.

Zollinger published results of his Extension and research activities in over 200 publications and averaged over 100 presentations annually at stakeholder meetings and scientific conferences. He also mentored and advised numerous graduate students.

Zollinger won numerous awards and recognitions during his tenure at NDSU, including Weed Science Society Fellow in 2017, ASTM – E35 Committee on Pesticides and Adjuvants Outstanding Service Award in 2010, inducted into the Gamma Sigma Delta national honor society for agriculture in 2009, North Central Weed Science Society Distinguished Extension award in 2006, NDSU College of Agriculture



Rich Zollinger



Dale Williams



Lyle Lindberg

Excellence in Extension Award – Senior Career in 2004, American Society of Agronomy Excellence in Educational Materials Award in 2003, IR-4 SAES/ARS Meritorious Service Award in 2002, and the Weed Science Society of America Outstanding Extension award in 2001.

Dr. M. Dale Williams retired after more than 15 years of helping provide farmers in North Dakota with plentiful supplies of pure seed for the production of excellent quality crops.

Williams began working with crop improvement associations in Stillwater, Oklahoma in 1985. He then moved to College Station, Texas to serve as assistant director and director of the Texas Foundation Seed Service until 2001. He replaced the retiring LeRoy Spilde as director of the North Dakota Foundation Seedstocks Project in 2001. He received the North Dakota State Crop Show Honoree award in 2015.

At Williams's retirement reception, NDSU soybean breeder Ted Helms thanked Williams and said, "Dale's insight helped me make crucial decisions for the soybean breeding project, and he worked hard to bring agriculture groups together to improve North Dakota seed varieties." ND Foundation Seedstocks assistant director Gonzalo Rojas-Cifuentes, retired NDSU Agronomy Seed Farm director Tom Teigen and ND Crop Improvement and Seed Association vice president Luke Anderson also thanked Williams.

Williams says he looks forward to "having more personal time to engage with family and friends," but he will "greatly miss the excitement of working with what I consider the finest people, greatest foundation seed program and greatest agriculture state in the United States."

Lyle Lindberg began working in the Department of Plant Sciences in 1967. He was hired as an Ag Research Technician to work with Bob Bothon and Dean Whited in the flax and soybean breeding programs, respectively. When James Hammond was hired to take over the flax breeding program, Lindberg transitioned to a full-time position in flax.

Hammond had the first computer in the department and became the department information technology support person. Lindberg assisted by assembling computers. Lindberg retired in November 2008 and came back to work part-time in computer support with Hammond.

Lindberg's advice on computers is, "If you are having trouble with your computer, shut it off and turn it back on. Many times, it works!"

NDSU records Lindberg's official years of service at NDSU as 41 years, but Lindberg counts it at almost 50 years, adding in the years of part-time service after his first retirement. "I'm going to miss this place," he said.

In retirement, he looks forward to spending time on his hobby refurbishing classic cars in his home shop.

Faculty and Staff Awards and Honors

Zollinger Named Weed Science Society Fellow



Professor and Extension weed specialist **Richard Zollinger** was named a Fellow of the Weed Science Society of America (WSSA), the society's highest honor. The Fellow award is presented for substantial contributions in publications, education, and program development in weed science, as well as service to the WSSA and the weed science profession.

Zollinger received his B.S. and M.S. at Utah State University and his Ph.D. in Weed Science at Michigan State University. He was hired at NDSU in 1990 with a 90% Extension and 10% research appointment. He also serves as program advisor to graduate students.

Zollinger has authored or coauthored over 200 journal and Extension publications and delivers over 100 presentations per year. Each year over 20,000 copies of the North Dakota Weed Control Guide, known to growers as the "Weed Bible", are printed.

Zollinger and his research team conduct weed control and herbicide research primarily in corn, soybean, dry edible beans, and sunflower. His main research interest is in adjuvants and formulations. He has developed an internationally recognized adjuvant, formulation, and water quality research and testing program.

Additional contributions to the weed science profession by Zollinger include writing over 140 Section 18 herbicide registrations (emergency exemption herbicide registration applications) in minor acreage crops; serving as the IR-4 (residue trials to register pesticides on minor crops) liaison for North Dakota; and successfully competing with California and other states for over 100 IR-4 pesticide research projects.

Paper Receives Weed Science Society Award

A paper co-authored by associate professor **Greta Gramig** was selected as the Outstanding Paper in *Weed Science* by the Weed Science Society of America (WSSA). The award is given to authors of a paper judged to be the outstanding contribution in WSSA's peer-review journal.



The paper, "Field Application of Glyphosate Induces Molecular Changes Affecting Vegetative Growth Processes in Leafy Spurge (*Euphorbia esula*)", was co-authored by Munevver Dogramaci, Gramig, James V. Anderson, Wun S. Chao, and Michael E. Foley. The paper is published in *Weed Science*, Volume 64, Issue 1, March 2016, pp. 87-100.

Hatterman-Valenti Receives Faculty Excellence Award

Professor **Harlene Hatterman-Valenti** was selected by the Faculty Awards and Recognition Committee as the recipient of the Chamber of Commerce North Dakota State University Distinguished Faculty Service Award for the 2016-17 academic year. She was presented with a plaque and honorarium during the Celebration of Faculty Excellence.



The award recognizes faculty holding the rank of full professor who have attained distinction in their profession and have made substantial service contributions to the community and region.

Hatterman-Valenti earned her bachelor's degree in Biology at the University of Nebraska-Kearney, her master's degree in Horticulture at the University of Nebraska-Lincoln, and her doctorate in Agronomy Crop Production/ Physiology and Horticulture at Iowa State

University. She joined the Plant Sciences faculty at NDSU in 2000.

Initially appointed as a weed scientist working in potatoes, Hatterman-Valenti eventually took on the role of NDSU's first high-value crops specialist. She has researched blackberries, raspberries, grapes, edamame, onions, pumpkins, and high tunnel vegetable production. In addition, she serves as the department's assistant head.

Faculty Honored during NDSU AgWeek

Professors **Harlene Hatterman-Valenti**, **Kirk Howatt** and **Joel Ransom** received awards from the NDSU Agriculture Collective during the third annual NDSU AgWeek, held in April.



Hatterman-Valenti (left)

Hatterman-Valenti received the Open Door Award because she exemplifies agriculture by always being available to help others. Howatt received the Owl Award for helping students prepare for successful agriculture careers. Ransom received the George Washington award for his knowledge, hard work and determination to contribute to the agriculture community and industry.



Howatt (right)



Ransom (right)

Deckard Receives Apple Polisher Award

Plant Sciences Student Services Director **Brenda Deckard** was honored by the NDSU Bison Ambassadors during Apple Polisher Week in April.



The Apple Polisher program honors NDSU faculty and staff who have gone above and beyond to serve students and have made an ex-

Faculty and Staff Awards and Honors

ceptional impact on a student's college experience.

Ransom Receives Volunteer Service Award

In May, professor and Extension agronomist **Joel Ransom** received the prestigious President's Volunteer Service Award for his work in Senegal, Africa. He provided more than 100 hours of work with Winrock International's U.S. Agency for International Development (USAID) funded Farmer-to-Farmer (F2F) program.



In September 2016, Ransom assisted and instructed women's groups in and around the northern Senegal city of St. Louis to process millet and corn to make a staple food, couscous.

He has worked with the USAID F2F program in Senegal, Kenya, Ethiopia and Ukraine, where he provided education on agriculture production issues such as weed control, equipment operation, processing, starting farmer cooperatives and specialty crop production. He has also worked with Cultivating New Frontiers in Agriculture and Catholic Relief Services.

Ransom thinks the F2F programs are great training for those who work in agriculture and are interested in international work. "I would encourage students interested in agriculture degrees and international work to check out the opportunities with F2F," he said.

Personnel Honored by North Dakota FFA

Professor **Todd West** and research specialist **Barb Laschkewitsch** were awarded Honorary State FFA Degrees during the 88th Annual North Dakota FFA State Convention held at North Dakota State University in June.

The award is the highest honor bestowed by the North Dakota FFA and is

presented to those who advance agricultural education and contribute to the success of the North Dakota FFA organization through outstanding service.

West coordinates the setup for the Nursery/ Landscape contest during the FFA state convention by arranging to bring in a variety of trees and shrubs for the plant identification portion of the contest.

Laschkewitsch sets up the floral identification portion of the Floriculture written exam during the FFA state convention by selecting 50 house plants, annuals, perennials and florist flowers to be used for the exam.

Lee Honored for Bean Genetics Research

Rian Lee, research specialist in bean genetics and molecular genetics, received the Technical Merit Award presented by the Bean Improvement Cooperative.

The award recognizes outstanding and long-standing contributions made to bean research, extension and education by bean program support personnel. Nominees must have a minimum of 10 years of service as a bean program technician and must meet specific research and publication criteria.

Lee received his bachelor's degree in biotechnology from NDSU. He was hired at NDSU in 1999 and has worked 18 years in the bean genetics and molecular genetics research group directed by Phillip McClean.

Lee has made significant contributions to numerous research projects over the years, working with bean breeders and



West



Laschkewitsch



geneticists, leading the technical aspects of projects, and providing bioinformatics support for common bean. Most notably, he was part of the discovery of the *Crg* locus for *Ur-3*-mediated rust resistance with Venu Kalavacharla of Delaware State University and McClean.

"Rian's contributions to bean research go beyond NDSU," says McClean. "He has and will continue to impact bean genetics and improvement throughout the world."

Osorno Receives Early Career Award

Associate professor **Juan Osorno** received the Early Career Grain Legume Scientist Award at the 2017 Feed the Future Legume Innovation Lab (LIL) Legume Research Conference in Burkina Faso.



The award is presented to researchers in their first 15 years of professional research experience who have demonstrated international leadership and innovation, and a commitment to improving the livelihoods of grain legume producers and stakeholders in the grain legume chain in the developing countries of Africa and Latin America.

Osorno has led the dry edible bean breeding project at NDSU since 2007. He is the Lead Principal Investigator for the LIL "Genetic Improvement of Middle-American Climbing Beans for Guatemala" research project.

The LIL conference was held in partnership with Burkina Faso's Institute of Environmental and Agricultural Research. The focus of the conference was the scientific achievements and research outcomes of the LIL projects.

Faculty and Staff Awards and Honors

Extension Years of Service Awards

NDSU Extension Service faculty and staff were honored for their years of service during the Extension Service/Research Extension Center fall conference. From the Department of Plant Sciences, **Joel Ransom** was honored for 15 years of service, **Hans Kandel** for 10 years of service, and **Eric Brandvik** and **Andy Robinson** for 5 years of service.



Ransom



Kandel



Brandvik



Robinson

McGinnis Receives Early Career Service Award

Assistant professor and Extension horticulturist **Esther McGinnis** received the Early Career Service Award from Epsilon Sigma Phi, a professional fraternity that supports professional development and excellence for Extension professionals. The award was presented during the NDSU Extension Service/Research Extension Center fall conference.



The award is given for demonstrated enthusiasm, performance, and accomplishment during the first ten years of service.

According to Epsilon Sigma Phi, McGinnis “has reinvigorated the [North Dakota Extension] Master Gar-

dener Program by improving the core course, expanding the number of volunteer opportunities available and enhancing continuing education opportunities.”

McGinnis coordinates horticultural Extension programs in eastern North Dakota and oversees the North Dakota Extension Master Gardener Program. She began working at NDSU in 2013.

Agriculture and Extension Honors Personnel

Three Plant Sciences personnel received awards during the annual NDSU Agriculture and Extension Faculty/Staff Awards program. The program recognizes excellence in research, teaching, Extension and support staff in the College of Agriculture, Food Systems and Natural Resources, the North Dakota Agricultural Experiment Station, and the NDSU Extension Service.

Professor **Frank Manthey** received the Eugene R. Dahl Excellence in Research Award, which recognizes outstanding faculty and researchers with 11 or more years of service whose research program has gained significant recognition in the state, region or nation and/or internationally. Manthey has held a faculty position at NDSU since 1998 and leads the durum and pasta quality project.



Manthey

Associate professor **Juan Osorno** received the Larson/Yaggie Excellence in Research Award, which recognizes outstanding faculty and researchers with 10 or fewer years of service for significant research contributions in their area of investigation. Osorno has held a faculty position at NDSU since 2007 and leads the dry edible bean breeding project.



Osorno

Administrative secretary **Shannon Ueker** received the Donald and Jo Anderson Staff Award, which recognizes significant contributions to the mission of NDSU Agriculture and/or Extension by clerical staff. Ueker has worked in the Department of Plant Sciences at NDSU since 2013.



Ueker

Staff Years of Service

5 Years

*Eric Brandvik
Lorin Miller
James Perleberg
Andrew Ross
Shannon Ueker
Devin Wirth*

10 Years

*Matthew Abdallah
Karen Hertsgaard*

15 Years

*David Hanson
Martin Hochhalter
Lisa Johnson
Vicki Magnusson*

20 Years

*Sandra Mark
Rachel McArthur*

40 Years

Eileen Buringrud



James Gillespie



Chivon Lee

Variety Releases and Woody Plant Introductions

The North Dakota Agricultural Experiment Station released new crop varieties ND17009GT soybean, ND Benson soybean, ND Stutsman soybean, ND VitPro spring wheat, ND Grano durum and ND Riveland durum in 2017. Lang-MN spring wheat was released by the Minnesota Agricultural Experiment Station. These new soybean and spring wheat varieties were distributed for the first time by the ND County Seed Increase Program in the spring of 2017. The durum varieties will be distributed in the spring of 2018.

For further information regarding foundation or registered seed availability of these or other varieties, contact a county agent of the NDSU Extension Service, an NDSU Research Extension Center or the North Dakota Foundation Seedstocks Program.

In addition, Summer Aspire™ Japanese Tree Lilac, a new woody plant selection, was introduced by the North Dakota Agricultural Experiment Station and the North Dakota State University Research Foundation in 2017.

ND17009GT Soybean

Breeder: Ted Helms



ND17009GT is a glyphosate resistant soybean variety with high yield potential and relative maturity 0.9. It is resistant to race 4 of phytophthora root rot and has moderate tolerance to iron-deficiency chlorosis.

ND Benson Soybean

Breeder: Ted Helms



ND Benson is not resistant to glyphosate, has high yield potential and 0.4 relative maturity. It has excellent resistance to soybean cyst nematode and is resistant to races 3 and 4 of phytophthora root rot. It also has tolerance to iron-deficiency chlorosis and is not prone to lodging.

ND Stutsman Soybean

Breeder: Ted Helms



ND Stutsman is not resistant to glyphosate, has high yield potential and 0.7 relative maturity. It is resistant to race 3 of phytophthora root rot. It also has tolerance to iron-deficiency chlorosis and is not prone to lodging.

ND Grano Durum

Breeder: Elias Elias



ND Grano has high yield potential, good quality and low cadmium uptake. It performed well in the Uniform Regional Durum Nursery and has good yield potential across the state of North Dakota. It has very good test weight, large kernels, medium maturity, medium resistance to leaf disease and good straw strength.

ND Riveland Durum

Breeder: Elias Elias



ND Riveland has high yield potential, good quality and low cadmium uptake. It performed well in the Uniform Regional Durum Nursery and has good yield potential across the state of North Dakota. It has very good test weight, large kernels, medium maturity, medium resistance to leaf disease and good straw strength.

ND VitPro Hard Red Spring Wheat

Breeder: Andrew Green



ND VitPro is widely adapted to the North Dakota spring wheat region. It has medium early maturity and improved straw strength. Protein and test weight is high, and it has outstanding kernel and milling traits. It shows good resistance to leaf rust and stripe rust.

Summer Aspire™ Japanese Tree Lilac

Syringa reticulata 'SumDak'

Project Leader: Todd West



Summer Aspire™ is a tall, upright selection that grows in a narrowly oval form. Its foliage, flowers and fruit give it an attractive ornamental quality. Summer foliage is bright green. Creamy white, fragrant flower clusters decorate the tree in mid-summer. Clusters of tan fruit capsules persist through winter.



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Department News

Student Scholars Honored

Eighty-two Department of Plant Sciences undergraduate and graduate students were honored at the 2017 College of Agriculture, Food Systems, and Natural Resources scholarship recognition program in November. Altogether, \$69,365 was awarded to Department of Plant Sciences students.

Scholarship funds were provided by more than 60 sponsoring organizations including individuals, companies, foundations and organizations.

Fifty-four undergraduates received \$43,980 and twenty-eight graduate students received \$25,385.

TMI Hospitality Volunteers in Horticulture Gardens

A team of nine TMI Hospitality employees helped with spring clean-up in the NDSU Horticulture Research and Demonstration Gardens. The team picked up garbage that blew in over the winter and cleaned the dead tops off most of the daylilies in the Historic Daylily Display Garden, which contains over 1100 cultivars. Cleaning the daylily beds in the spring is one of the most time consuming spring tasks.



This volunteer opportunity came about because one of the TMI team members attended the NDSU Extension Service Master Gardener training program and knew that there is always an opportunity to help in the horticulture program gardens. Volunteers help all season by cleaning, planting, weeding, and dead heading. Last year Master Gardener volunteers put in over 130 hours from May-October.

Volunteers are always welcome. Learn

more about the NDSU Research and Demonstration Gardens and complete the volunteer form at www.ag.ndsu.edu/plantsciences/research/gardens.

Learn more about the NDSU Extension Master Gardener program at www.ag.ndsu.edu/mastergardener.

Study Tour in Kenya and Zimbabwe

Published by NDSU Ag News, May 5, 2017

During spring break in March, a team of research and Extension students and staff from the Department of Plant Sciences participated in a study tour of research and Extension activities in Kenya and Zimbabwe that support the development of resilient agricultural practices for small-holder and commercial farmers.

Participants were graduate students Jason Adams, Tracy Hillenbrand, Melissa Geiszler, Lizzy Lovering, Matt Rellaford, Kelsie Egeland, Nick Schimek and J. Stanley, and research specialists Chad Deplazes and Darin Eisinger. Extension specialists Joel Ransom and Hans Kandel led the tour.

The group toured a rose-breeding facility in Kenya, where rose varieties are developed for the cut-flower market. Kenya exports roses to Europe. The group also visited the Rift Valley area and Lake Naivasha to study geology, water resources and invasive weeds.

The International Maize (corn) and Wheat Improvement Center (CIMMYT), was the group's first stop in Zimbabwe. The CIMMYT's main emphasis is on breeding corn that has tolerance to various leaf diseases and is adapted to African growing conditions.

A highlight was the visit to a number of local subsistence farmers who evaluated newly developed corn hybrids



under regional conditions.

"I enjoyed learning about and experiencing how small-holder farming is done," Geiszler said.

Tour participants also gained new insight into the importance of agricultural research in the lives of small-scale farmers and how innovative Extension and development approaches can bring new technology to farmers in very different circumstances than those encountered in North Dakota.

The group also visited a commercial dairy farm, banana plantation and the Africa University and learned about the regional production practices and challenges.

"Zimbabwe has a lot of potential for farming and agriculture, but due to the political environment and other social factors, that potential is not realized," Adams notes.

"One of the biggest takeaways from this experience was the challenges associated with large- and small-scale production because of the number of limiting factors that can affect yield, as well as the variability that can take place across a single acre," he says.

Zimbabwe was selected for the 2017 program because of the important role that agriculture plays in the country's economy and the large proportion of the population involved in agriculture. An NDSU graduate, Itai Matukwa, assisted in making local arrangements.

Department News

Potato Association Meeting Held in Fargo

Red River Valley potato researchers hosted the 101st Potato Association of America (PAA) meeting in Fargo in July. More than 250 researchers attended. The Local Arrangements Committee included NDSU faculty Gary Secor, Susie Thompson, Neil Gudmestad, Andrew Robinson, and Harlene Hatterman-Valenti. Also represented were the University of Minnesota, Northern Plains Potato Growers Association, USDA-ARS Red River Valley Agricultural Research Center, North Dakota State Seed Department and industry partners. Secor and Thompson co-chaired the committee.

Scientists attending the meeting presented more than 70 research papers and posters on potato breeding and genetics; plant protection; physiology; and extension, production and management.

A breakout Extension, Production and Management Symposium highlighted *Decision Support Tools and Technologies for the Potato Industry* and the Global Outreach Committee invited guest speaker Tarun Gangwai, who presented *A Perspective of Potato in India: Past, Present and Future* at the



historic downtown Fargo Theatre.

A barbecue catered by NDSU Carnivore Catering and Live Auction to benefit the Frank Haynes Graduate Student PAA Endowment Fund was held at Bonanzaville in West Fargo.

During the Live Auction, McCain Foods purchased and gifted to the NDSU potato research team a quilt created and donated by Carol and Don Halseth. The quilt will be displayed in Loftsgard Hall.

Research Grants

Plant Sciences faculty actively pursue grants for research funding and support. Below is a snapshot of grant awards in 2017.

- ◆ A total of over \$6.4 million in grants were awarded
- ◆ 160 grants from \$3,000 to \$795,000 were awarded to 35 faculty

The three largest grants awarded were:

- ◆ *A Novel Management Approach to Increase Productivity, Resilience, and Long-Term Sustainability in Cropping Systems in the Northern Great Plains* (Year 3)
Project Leader: Dr. Marisol Berti
Funded by: USDA-NIFA
Amount: \$795,680
- ◆ *Evaluation of Barley and Malt for DON and Deoxynivalenol-3-Glucoside*
Project Leader: Dr. Paul Schwarz
Funded by: USDA-ARS/USWBSI
Amount: \$255,611
- ◆ *Deoxynivalenol (DON) Analysis in Wheat*
Project Leader: Dr. Senay Simsek
Funded by: USDA-ARS/USWBSI
Amount: \$253,884

The five agencies granting the most funds were:

- ◆ USDA/AMS-ND Dept. of Agriculture/ND Specialty Crop Block
Grant: 13 grants; \$933,334
- ◆ ND Wheat Commission: 20 grants; \$854,692
- ◆ USDA-NIFA-Food Security Program: 1 grant; \$795,680
- ◆ USDA/ARS-USWBSI: 7 grants; \$710,213



From the Department Head (continued)

(Continued from page 1)

How well do you know the history of the department? This year's *Blizzard Watch* has a quiz on page 18 to test your knowledge. One of the items I really enjoy reading in the *Blizzard Watch* and on our web and social media pages are the profiles on our current students and alumni. If you are an alumnus, please visit our alumni page (www.ag.ndsu.edu/plantsciences/alumni)

to tell us about your current position and how your experience at NDSU contributed to where you are today.

As I finish this year's *Blizzard Watch* update, we have more snow on the ground than we have had the past two years. By March 1 in 2015 and 2016, all of the snow was gone. That will not be the case this year. The 2017 grow-

ing season was dry, especially as you moved west in the state. The crop was so bad in western North Dakota that many growers baled their cereal crops instead of harvesting them for grain. The fall was dry and there is not much moisture in the snow, so many growers will be planting into dry soil and hoping for timely rains during the growing season.

Outreach and Service

Kandel Trains Farmers in Sierra Leone

Published by NDSU Ag News, Oct. 3, 2017

Professor and Extension agronomist Hans Kandel traveled to Sierra Leone for two weeks in September to share his technical skills and expertise with local farmers.

Kandel's assignment is part of the Catholic Relief Services Farmer-to-Farmer (FTF) program that promotes economic growth, enhanced nutrition through access to healthy food, and agricultural development in West and East Africa. Farmer-to-Farmer is funded by the U.S. Agency for International Development.

The FTF program matches the technical expertise of U.S. farmers and professionals in agri-businesses, farming cooperatives and universities with farmers in developing countries to assist them in improving agricultural productivity, accessing new markets and increasing their incomes.



Sierra Leone is on the coast of West Africa. About three-fourths of the 7.5 million citizens depend on agriculture for their income and 60 percent live in rural areas. An estimated 25 percent of the population cannot afford minimum daily caloric requirements and face regular difficulties meeting food, shelter and clothing needs.

"There are many natural resources available in Sierra Leone, but farmers lack the knowledge to utilize these resources," Kandel said. "I provided

training on rice production. Farmers did not know about the importance of adding compost, manure and other nutrients to their fields."

Kandel added, "Rice is the main food staple. Presently, the country imports rice to meet the local demand. However, the country could produce enough rice for its own consumption if subsistence farmers utilized improved crop management practices."

Sierra Leone faces many challenges in reaching its agricultural potential, including a lack of expertise, weak producer organizations, low access to technology, limited infrastructure, institutional and financial obstacles to private sector development, and limited government funding.

Kandel worked with 21 leader farmers who were trained for eight days in basic rice production issues, as well as practical application of the principles learned.

"Farmers were very receptive to the concepts presented and indicated an enthusiasm to adopt proper seedbed preparation, transplanting, fertilizing and weeding of rice," Kandel stated.

Rojas-Cifuentes Shares Expertise in West Africa

North Dakota Foundation Seedstocks Assistant Director Gonzalo Rojas-Cifuentes spent two weeks in Guinea, West Africa in September volunteering for Winrock International, which cooperates with the United States Agency for International Development, a government agency that works to end extreme global poverty and enable resilient, democratic societies to realize their potential. Rojas was a volunteer for the Agriculture Education and Market Improvement Program.

Rojas worked at the Institut Supérieur Agronomique et Vétérinaire de Faranah (ISAV/F) in Faranah, where he intro-



duced multiple topics related to plant breeding including selection for yield, diseases, submergence tolerance, quality and taste, emerging diseases and insect problems. The target audience for this training were faculty and students of ISAV/F. The major crop he covered was rice, which is a staple food supply in Guinea. He also visited the ISAV/F experiment station and rice fields, the local market to obtain rice varieties, and helped conduct a sensory panel demonstration.

Students Help Reduce Hunger in Fargo-Moorhead

Department of Plant Sciences students Kenneth Paul Beamer, Samantha Hogstad and Anne Gatzke are partnering with those working to reduce hunger in the Fargo-Moorhead community.

Beamer is a Plant Sciences master's student, who is conducting research in the weed biology and ecology project advised by associate professor and project leader Greta Gramig. Hogstad, who was also advised by Gramig, completed her master's degree in Plant Sciences in August. Gatzke is an agricultural and biosystems engineering and horticulture double major.

The focus of Gramig's project is to conduct research that helps producers in the northern Great Plains improve soil health and control weeds using ecologically based approaches, while maintaining good yields.

Beamer is comparing full-till and no-till vegetable production for his research. Two of the crops he is using in

Outreach and Service

his study are butternut and buttercup squash. In early October, 1500 pounds of squash were harvested by the research team.



Gramig’s research team donated beets and beet tops during the summer and 1200 pounds of squash in October to Churches United for the Homeless, a local organization serving homeless and at-risk individuals by providing daily meals through its in-house kitchen and a self-serve food pantry stocked with bread, baked goods, non-perishables, and seasonal locally produced fresh produce. “One of the best ways to show you care about people,” Beamer says, “is to feed them.”

Ransom Trains Farmers in Uganda

Published by NDSU Ag News, Nov. 9, 2017

Professor and Extension agronomist Joel Ransom provided training on corn production to local farmers in northern Uganda in the fall.

Ransom’s trip was organized by Catholic Relief Services’ Farmer-to-Farmer (FTF) program that is funded through a

grant from the U.S. Agency for International Development. The training provided has the potential to increase yield and food security in a region of Uganda where corn is the major food crop.

Ransom worked with members of the Little Sisters of Mary Immaculate congregation, whose farms support students in their system as well as disabled and retired members. Most of his time was spent in northern Uganda, near one of the congregation’s farm and secondary schools, where he provided lectures and practical field experiences.

“Though Uganda is blessed with fertile soils and a nearly perfect climate for corn production, corn yields are low,” says Ransom. “With a bit more intensification and use of available technologies, I estimate that yields could increase by fourfold in some of the farms I visited.



“It was hard to find Extension recommendations on how to grow corn in Uganda, so we planted plots with different hybrids and fertilizer inputs so the participants could learn firsthand what worked for their area,” Ransom explains. “This experience really taught me the importance of having an effec-

tive Extension system and access to production information backed by reliable research.”

Perennial grassy weeds also are a serious constraint for small farmers in Uganda because weeding is done with hand hoes.

This is Ransom’s fifth volunteer assignment with FTF. It is one of nearly 500 assignments that focus on improving approaches to local agriculture practices and expanding production of high-quality food crops and nutrition in Ethiopia, Tanzania, Kenya and Uganda. The FTF program has been in operation for nearly 30 years.

Potatoes Donated for Festival

More than 100 pounds of potatoes and squash from the research projects of



associate professor and potato breeder Susie Thompson and professor and high value crops project leader Harlene Hatterman-Valenti were served at the St. Nicholas Festival at the Cathedral of St. Mary’s in Fargo in December. Approximately 300 people attended the annual family social and fundraiser. Close to 20,000 pounds of potatoes are donated from Thompson’s potato research project each fall.

2018 Event Calendar

Department Events

- May 3-4** – Horticulture & Forestry Club Spring Plant Sale, Shepperd Arena, Main Campus
- July 12-14** – NDSU Extension Master Gardener Conference, Main Campus
- Aug. 23** – Potato Field Day, Larimore, Inkster, Hoople
- Sept. 6** – Yard & Garden Open House, Horticulture Research & Demonstration Gardens, Main Campus
- Oct. 1-4** – Barley and Malt Quality: A Field to Brewhouse Perspective, Main Campus

Research Extension Center Field Days

- July 9** – Central Grasslands REC, Streeter
- July 10** – Hettinger REC
- July 11** – Dickinson REC
- July 11** – Williston REC (dryland tour)
- July 12** – Nesson Research/Dev. Farm (irrigated tour)
- July 16** – Agronomy Seed Farm, Casselton
- July 17** – Carrington REC
- July 18** – North Central REC, Minot
- July 19** – Langdon REC
- Aug. 14** – Oakes Irrigation Research Site

Graduate Student News

Beamer Receives Sustainable Ag Scholarship

Master's student Kenneth Paul Beamer received a scholarship from the Northern Plains Sustainable Agriculture Society (NPSAS) during the 38th Annual NPSAS Winter Conference held in Aberdeen, South Dakota in January.



The scholarship program supports the training of the next generation of sustainable food systems workers. Candidates for the scholarship must be enrolled in or accepted to an accredited post-secondary education program in a curriculum related to sustainable agriculture or an approved mentorship program.

Beamer's graduate research thesis is *Weed Management Strategies Improve Soil Quality in Small Scale Organic Vegetable Production Systems*. His graduate program advisor is Greta Gramig, associate professor and weed biology and ecology project leader.

"I became interested in sustainable agriculture through learning about soil erosion and soil ecology," says Beamer. "It is all about the soil!"

Beamer's future career goals include "working with communities and legislators to reserve development for community gardens, as well as working with growers to promote crop diversity in order to better ensure food sovereignty."

Anderson Receives Honor Society Award

Cassie Anderson was inducted into the NDSU Agricultural Honor Society Gamma Sigma Delta in April. She also received the Graduate Research Award for her paper, *Biodegradability of Arabinoxylan Films*. Ander-



son completed her Cereal Science Master's degree in the Department of Plant Sciences and is continuing her Ph.D. studies with advisor Senay Simsek.

Graduate Students Receive Symposium Awards

Members of the NDSU Plant Sciences Graduate Student Association attended the 33rd Annual Plant Science Graduate Student Symposium at the University of Saskatchewan, Canada, in March. Attendees presented research to their peers and competed in five categories. Eight NDSU graduate students won awards for their presentations.



NDSU swept the awards in the Agronomy and Weed Science category. **Cassie Anderson** won first place with her presentation, *Physical and Biodegradability Properties of Arabinoxylan Films*. **Patricia Cabas-Luhmann** took second place with her presentation, *Delayed Harvest Affects Gain and Semolina Quality of Durum Wheat*. **Erin Endres** placed third with her presentation, *Metribuzin Tolerance of Soybean Genotypes*.

In the Plant Pathology and Host-Pathogen Interaction category, **Luz de Maria Montejó Dominguez** won first place and **Amanda Peters** took third place. Montejó Dominguez presented *Rust Resistance in the Guatemalan Climbing Bean Germplasm Collection*. Peters presented *Characterization of Disease Expression Conferred by Three Host Gene-necrotrophic Effector Interactions in the Wheat-Parastagonospora Norodum Pathosystem*.

Katelynn Walter won first place in the Plant Ecology, Physiology, and Metabolism category with her presentation, *Flooding Tolerance at Germina-*

tion Stages in Dry Bean (Phaseolus vulgaris L.). **Maria Gabriela Tobar Piñón** took second place in the Plant Breeding, Genetics, and Biotechnology category with her presentation, *Genetic Diversity of the Guatemalan Climbing Bean Collection*. **Nathan Haugrud** placed third in the Research Proposal category with his presentation, *Cultivation Effect on Residual Sugarbeet Herbicides Applied Early Post-emergence*.

The annual symposium brings together graduate students studying disciplines in the plant sciences from the "prairie universities" of North America: North Dakota State University, the University of Saskatchewan, and the University of Manitoba.

Tobar Piñón Honored at Central American Meeting

Master's student **María Gabriela Tobar Piñón** was awarded first place for her presentation in the legumes section at the Central American Cooperative Program for the Improvement of Crops and Animals held in El Salvador in May. She presented *Genetic Diversity of the Guatemalan Climbing Bean Collection*.



Guatemalan climbing beans have been suggested to represent the race "Guatemala", a new race in the Middle American gene pool of common bean. Tobar Piñón's research confirmed the existence of the race after evaluating the genetic differentiation and genetic diversity of a Guatemalan climbing bean collection. This group is a potential source of new alleles that can be used in breeding programs.

"María's results are an important scientific breakthrough in bean genetics," says Tobar Piñón's co-advisor Juan Osorno. "Her results confirm something that has been suggested before, but nobody has done it at the scale and

Graduate Student News

resolution we did. These results may change the way in which the organization of bean genetic diversity will be presented in future papers.”

Tobar Piñón is advised by Phil McClean, professor and genomics and bioinformatics program director, and Osorno, professor and dry bean breeder. Guatemala is her home country.

Maldonado Mota Honored at Grain Legume Meeting

Master’s student **Carlos Maldonado Mota** received the Best Poster Award by a Young Investigator at the Feed the Future Legume Innovation Lab Grain Legume Research Conference held in Ouagadougou, Burkina Faso in August.



Maldonado Mota presented his poster, *Identification of New Sources of Resistance to Anthracnose in Climbing Bean Germplasm from Guatemala*, which described research conducted by a collaboration of U.S. and international dry bean researchers.

Anthracnose is caused by the fungus *C. lindemuthianum* and affects dry bean crops worldwide. The objectives of Maldonado Mota’s research were to identify the most predominant races of *C. lindemuthianum* in Guatemala; to use climbing beans from Guatemala to identify germplasm with resistance to the pathogen; and to identify genomic regions associated with resistance.

As a result of the study, six races of *C. lindemuthianum* were identified, which will be used to evaluate resistance in the climbing bean accessions from Guatemala. Results from race characterization will be useful to develop anthracnose resistant dry bean varieties in Guatemala.

“The access to this unique germplasm offers the opportunity to unlock new and unique genetic sources of re-

sistance and tolerance to many production problems within our own region,” says Juan Osorno, professor and dry bean breeder.

Maldonado-Mota is from Guatemala. Osorno serves as his advisor.

Rellaford Honored at Nitrogen Use Meeting

Master’s student **Matthew Rellaford** was awarded first place for his poster presentation in the Marvin Stone Memorial Poster Competition at the 15th Annual Nitrogen Use Efficiency Conference held in Baton Rouge, Louisiana in August.



Rellaford co-authored the poster, *Predicting the Grain Protein Content of Spring Wheat with Hand-held Active Sensors*, with his advisor, professor and Extension agronomist Joel Ransom.

The focus of their research was to determine whether hand-held optical sensors can be used to predict grain protein content in spring wheat. Grain protein content is a significant factor in the final price wheat growers receive when they sell their grain, so there is significant interest in increasing protein without reducing yield.

Svyantek Honored by Viticulture Society

Doctoral student **Andrej Svyantek** was awarded first place for his poster presentation in the Viticulture category of the graduate student poster competition at the American Society for Enology and Viticulture-Eastern Section annual meeting held in Charlottesville, Virginia in July.



Svyantek co-authored the poster, *Ampelometric Characterization of Historic North Dakota Vitis Specimens*, with

postdoctoral researcher John Stenger and high value crops project leader Harlene Hatterman-Valenti, who serves as Svyantek’s advisor.

In order to evaluate the historic diversity of native grapevines, *Vitis* spp., within North Dakota, the group examined the variability of leaf shapes collected in the NDSU herbarium. Utilizing this data they were able to graphically recreate grape leaves representing samples spanning three centuries and nearly half the counties in North Dakota.

“This project was a prime opportunity to investigate grapes during the dormant season when there was no green tissue or fruit in sight,” Svyantek said. “Even though snow covered the ground outside Loftsgard Hall, we were still able to explore the heterogeneity of these native grapevines capable of survival in the challenging winter conditions of North Dakota.”

Splichal Honored at Horticulture Meeting

Horticulture master’s student Kyla Splichal won first place for her poster presentation in the Herbs, Spices, and Medicinal Plant Working Group’s first graduate student poster competition at the annual meeting of the American Society for Horticulture Science held in Hawaii in September.



Splichal co-authored the poster, *Hop Selections for North Dakota*, with professor and high value crops project leader Harlene Hatterman-Valenti, NDSU Williston Research Extension Center (WREC) director Jerald Bergman, and WREC irrigation research agronomist Tyler Tjelde.

The objectives of the research were to assess yield and quality of hop cultivars, and to recommend the best variety

Graduate Student News

adaptations for the upper Midwestern climate. Twelve commercially available cultivars were grown on a standard trellis in the semi-arid region of Western North Dakota. Variety adaptation for yield and quality was assessed for two growing seasons. The top yielding variety was ‘Challenger’, while the variety ‘Spalt Select’ was the least adapted to the western growing region in terms of both production and quality.

Splichal’s graduate program advisor is assistant professor and Extension horticulturist Esther McGinnis. Splichal also works as a research specialist at the WREC.

Students Honored at Cereal Chemists Meeting

Cereal Science graduate students brought awards home from the 2017 American Association of Cereal Chemists International meeting held in San Diego, California in October. **Cassie Anderson** and **Bethany Stebbins** placed third in the Student Association Product Development Competition (PDC), and **Ramnarain Ramakrishna** won the Best Student Research Award for Grain Nutrition Science.

In the PDC students develop and present innovative food products with at least one major cereal or legume. Anderson’s and Stebbins’s project was *Worry-Free Brownies*.

Ramakrishna’s poster and oral presentation for the Best Student Research Award for Grain Nutrition Science was *Improving Phenolic Bioactive-Linked Anti-Hyperglycemic Functions of Dark Germinated Barley Sprouts (Hordeum vulgare L.) Using Seed-Driven Elicitation Strategy*.



Stebbins (left) and Anderson



Ramakrishna

Malalgoda Receives Cereal Protein Chemistry Award

Cereal Science doctoral candidate **Maneka Malalgoda** was awarded the 2017 Walter Bushuk Graduate Research Award in Cereal Protein Chemistry by the American Association of Cereal Chemists International (AACCI). Her advisor is Senay Simsek, Bert L. D’Appolonia Cereal Science and Technology of Wheat Endowed Associate Professor.



The Walter Bushuk award recognizes outstanding contributions by graduate students in basic and/or applied research in cereal protein chemistry. The award is presented in honor of the late Dr. Walter Bushuk, who was a pioneer in cereal protein chemistry.

Malalgoda was presented an honorarium at the AACCI Annual Meeting in San Diego, California and also was given the opportunity to present her work, *Analysis of Gliadin Proteins with LC-Mass Spectrometry*, at the meeting.

Walter Honored at Bean Improvement Meeting

Master’s student Katelynn Walter received a Student Recognition Award at the biennial meeting of the Bean Improvement Cooperative held in East Lansing, Michigan in October. Her poster, *Pre-Germination Flooding Tolerance in a Middle-American Diversity Panel of Dry Bean*, was named the Outstanding Poster Presentation in the student poster competition.

Walter identified pre-germination flooding tolerant and sensitive dry bean genotypes in this study. She also performed a genome-wide association study (GWAS), and a significant region on chromosome 6 was found to be as-



sociated with germination rate under the pre-germination flooding stress.

Walter’s advisor is associate professor and dry bean breeder Juan Osorno.

Students Awarded at Agronomy, Crop and Soil Meeting

Plant Sciences graduate students received awards during the annual joint meetings of the American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America in Tampa, Florida in October. Matthew Rellaforde won first place for his presentation in the Sensor-Based Nutrient Management session and Nicholas Schimek won first place for his poster in the Current Research for Advancing Precision Agriculture session.

Rellaforde presented *Predicting Potential Grain Protein Content of Spring Wheat with in-Season Hand-Held Optical Sensors*. The goal of his research was to determine whether hand-held optical sensors can be used to predict Grain Protein Content (GPC) in spring wheat. The sensors give a reading called the Normalized Difference Vegetation Index (NDVI), which is used to gauge crop health. Rellaforde looked at the relationship between NDVI at three plant growth stages and post-harvest GPC to determine whether there was a predictive relationship. The research was supported by the Minnesota Wheat Research and Promotion Council.

Schimek presented his poster, *Reliability of Predicting Spring Wheat Yield with DSSAT Using Early Season Weather Data*. He described his research using the Decision Support System for Agrotechnology Transfer (DSSAT) crop modeling software to determine how well the model could be adapted to predict spring wheat yield, how early in the growing season the model could accurately simulate end season yield, and the best strategy to

Graduate Student News

use historic weather data to forecast weather for the remainder of the season.

Rellaford and Schimek are advised by Joel Ransom, professor and Extension agronomist.



Rellaford



Schimek

Theisen Receives Agronomy Society Scholarship

Master's student Nickolas Theisen was awarded the J. Fielding Reed Soil and Plant Sciences Scholarship by the American Society of Agronomy at their annual meeting in Tampa, Florida in October.

The J. Fielding Reed Scholarship was established in recognition of Dr. Reed's life-long commitment to advancing the knowledge of agriculture through his work in soil science and natural re-

sources, and his passion for educating students. The scholarship honors an outstanding student pursuing a career in soil or plant sciences.



Theisen's research focuses on evaluating hops production techniques and cultivars that work well in North Dakota. He is advised by Harlene Hatterman-Valenti, professor and high value crops project leader.

Students Receive Travel Awards

Master's students Swarup Podder, Nicholas Steffl and Kyle Aasand attended the 29th Annual Association for the Advancement of Industrial Crops (AAIC) meeting in Ames, Iowa in September, where they presented results from their respective research programs. Podder, Steffl and Aasand each received a \$1,000 travel award from the AAIC to attend the meeting.

Podder presented *Screening Forage Sorghum Genotypes for Cold Toler-*

ance in the poster session.

Steffl and Aasand presented results from their cover crop research in corn and soybean cropping systems in the Oilseed division. Steffl presented *Relay Cover Crops in Soybean Cropping Systems in Eastern North Dakota* and Aasand presented *Corn Relay Cropping with Winter Rye, Field Pennycress, and Winter Camelina*.

Podder is advised by Marisol Berti, professor and forages and biomass production project leader. Steffl and Aasand are advised by Burton Johnson, professor and sunflower, minor and new crop production project leader.



Left to right: Aasand, Podder, Steffl

2017 Ph.D. & M.S. Graduates

Ph.D.

Tawakalit Asiyanbi-Hammed (*Cereal Science, Simsek*)
 Lingzhu Deng (*Cereal Science, Manthey*)
 Danielle Fiebelkorn-Wrucke (*Plant Sciences, Rahman*)
 Shana Forster (*Plant Sciences, Ransom*)
 Baljeet Gill (*Genomics & Bioinformatics, Xu*)
 Sepehr Mojaheri Naraghi (*Plant Sciences, Elias*)
 Atena Oladzad Abbasabadi (*Plant Sciences, Elias*)
 Hisam Rabbi (*Plant Sciences, Elias*)
 Jyoti Saini (*Genomics & Bioinformatics, McClean*)
 Dulan Samarappuli (*Plant Sciences, Berti*)
 Osvaldo Teuber (*Plant Sciences, Berti*)
 Wei Zhang (*Genomics & Bioinformatics, Cai*)

M.S.

Cassie Anderson (*Cereal Science, Simsek*)
 Alan Bingham (*Plant Sciences, Robinson*)
 Patricia Cabas Luhmann (*Plant Sciences, Manthey/Elias*)
 Benjamin Cigelske (*Plant Sciences, Kandel*)
 Erin Endres (*Plant Sciences, Helms*)
 Kueh Fei Fernandez (*Cereal Science, Manthey*)



Supun Fernando (*Cereal Science, Manthey*)
 Lindsey Forward (*Plant Sciences, Hatterman-Valenti*)
 Tracy Hillenbrand (*Plant Sciences, Ransom*)
 Samantha Hogstad (*Plant Sciences, Gramig*)
 Courtney Holdt (*Plant Sciences, McPhee*)
 Elizabeth Lovering (*Plant Sciences, Peters*)
 Andrew Lueck (*Plant Sciences, Peters*)
 Carlos Maldonado Mota (*Plant Sciences, Osorno*)
 David Mettler (*Plant Sciences, Hatterman-Valenti*)
 Luz de Maria Montejó Dominguez (*Plant Sciences, Osorno*)
 Randy Nelson (*Horticulture, McGinnis*)
 Amanda Peters (*Plant Sciences, Faris*)
 Jose Rivera (*Plant Sciences, Horsley*)
 Amy Scegurá (*Plant Sciences, McPhee*)
 Nicholas Schimek (*Plant Sciences, Ransom*)
 J.D. Stanley (*Plant Sciences, Kandel*)
 Ethan Sweep (*Plant Sciences, Johnson*)
 Maria Gabriela Tobar Pinon (*Plant Sciences, McClean*)
 Yujuan Wang (*Cereal Science, Schwarz*)
 Liqi Yang (*Plant Sciences, Zhang*)



Undergraduate Student News

Laber Receives Nursery and Greenhouse Scholarship

Horticulture student **Erik Laber** received the NDSU Harry C. Baker Memorial Scholarship during the 50th Annual Convention and Trade Show of the North Dakota Nursery and Greenhouse Association, held in Fargo in January. The scholarship is available to a North Dakota resident student enrolled in horticulture.



Laber graduated in May with a B.S. in Horticulture, production/business option, and a Crop and Weed Sciences minor. He was a member of the NDSU Horticulture and Forestry Club, the NDSU Saddle and Sirloin Club, and the NDSU Agriculture Coalition. He has worked at NDSU Central Grasslands Research and Extension Center, NDSU Animal Nutrition and Physiology Center, and South Dakota Wheat Growers, among others. His advisor was Todd West, horticulture undergraduate program coordinator and associate professor in Plant Sciences.

Laber says he has “enjoyed pursuing a horticulture degree at NDSU because it is a fun group of people and I have learned so much.” He plans to work in Extension and run a C.S.A. or farm in the future.

Horticulture and Forestry Club Attends Competition

NDSU Horticulture and Forestry Club students attended the 2017 National Collegiate Landscape Competition sponsored by the National Association of Landscape Professionals at Brigham Young University in Provo, Utah in March. It is the largest national competition and career recruitment event for college students studying horticulture and landscaping, with over 800 students from 60 universities and colleges competing in 29 events. Students demonstrated their skills in tree climb-

ing, hardscaping, identifying horticulture specimens, skid steer operation, sales presentation, exterior/interior design, irrigation troubleshooting, wood construction, and more. NDSU ranked 20th out of 60 national teams.



The team of **Garrett Schumacher**, horticulture major, and **Trevor Zens**, landscape architecture major, took second place in the Truck and Trailer Operation event. **Zens** also ranked in the top 1% overall (9th out of 672 students) of students who competed as Superstars, an award category where students compete in five events.

Horticulture student **Connor Hagemeyer** ranked in the top 5% in Annual and Perennial Plant Identification and in the top 6% in Woody Ornamental Plant Identification.

NDSU also won a \$500 award for next year’s competition expenses. Hunter and Ewing Irrigation sponsors the award, which recognizes teams with the highest participation in the Career Development Series.

The NDSU Horticulture and Forestry Club is advised by Plant Sciences faculty Todd West and Harlene Hatterman-Valenti.

Students Receive Landscape Association Scholarships

Four NDSU Horticulture and Forestry Club members were awarded scholarships by the National Association of Landscape Professionals (NALP) Foundation during the National Collegiate Landscape Competition held at Brigham Young University in March.



Left to right: Torie Jones, Emily Schoenrock, Andrew Scheldorf, Connor Hagemeyer

Connor Hagemeyer is majoring in horticulture with minors in botany and crop and weed sciences. After graduation he plans to attend graduate school and pursue a career in ornamental plant breeding. He is advised by Harlene Hatterman-Valenti.

Torie Jones is a horticulture and public history double major. Her future plans are to pursue a career in public horticulture, arboretums or botanical gardens. She is advised by Todd West and Angela Smith.

Andrew Scheldorf is majoring in horticulture with minors in botany and biological science. After graduation he plans to attend graduate school in plant breeding with a career goal of becoming a plant breeder and researcher for fruit crops. He is advised by Todd West.

Emily Schoenrock is majoring in landscape architecture with a business administration minor. She has accepted a full time position as a landscape architect assistant with David J. Frank Landscape Contracting, a design build firm in Germantown, Wisconsin. She is advised by Todd West.

The NALP Foundation scholarships are awarded to students whose schools have been actively involved in the NALP. To be eligible to apply, students must be enrolled in a landscape or horticultural program at a two- or four-year college or university.

Undergraduate Student News

Withrow Receives Turf Grass Scholarship

Leah Withrow, a Sports and Urban Turfgrass Management major, received a scholarship from the North Central Turf Grass Association (NCTGA) and the North Dakota Golf Association (NDGA). The scholarship was awarded at the NCTGA Annual Conference and Trade Show held in Fargo in March. This is the second year in a row Withrow has received the scholarship.



The purpose of the scholarship program is to provide tuition assistance to students in a college sports turf program. To be eligible to apply for the scholarship, students must be a junior or senior with a 3.0 or higher GPA.

Withrow also is pursuing minors in Business Administration, Crop and Weed Sciences and Horticulture. She thinks these minors will be an asset to her future career goal of being a head groundskeeper at a Major League Baseball stadium.

Withrow says she chose NDSU because, "I couldn't see myself going to school anywhere else. I love the size of NDSU, the people, the professors and the town of Fargo."

Withrow's advisor is Alan Zuk, associate professor of sports and urban turfgrass management.

Students Win First Place in Innovation Challenge

Crop and Weed Sciences student Samuel Hanson and Business student Reed Lawrence were the first place "Ag Innovations" team in the Agriculture Track of the 2017 NDSU Innovation Challenge competition. They invented a tool that dynamically generates simple, accurate and unbiased recommendations for farm chemical application.

Horticulture and Forestry Club Wins at Regionals

The NDSU Horticulture and Forestry Club won First Place Team Overall at the Mid-America Collegiate Horticulture Society conference and competition hosted by the University of Minnesota-Crookston in September. Two students also placed in individual events.

The first place team consisted of **Anne Gatzke**, agricultural and biosystems engineering and horticulture double major; **Connor Hagemeyer**, horticulture major; **Torie Jones**, horticulture and public history double major; and **Andrew Scheldorf**, horticulture major.



Hagemeyer took first place in woody plant identification, second place in herbaceous plant identification, and third place in commodity judging and the general knowledge exam. He also won First Place Individual Overall.

Scheldorf placed second in the general knowledge exam.

Additional club members who competed were Halley Bartlett, landscape architecture major; and Garrett Schumacher, horticulture major.

In addition to the competition, the conference agenda included speakers from BFG Supply Company and Bailey Nurseries, as well as a prairie specialist, who talked about medicinal uses for prairie plants. Attendees also toured Itasca State Park, Forestedge Winery, and U of M Deep Winter Greenhouse.

The Horticulture and Forestry Club is advised by Department of Plant Sciences faculty Harlene Hatterman-Valenti and Todd West.

Horticulture and Forestry Club Places at Nationals

Members of the NDSU Horticulture and Forestry Club won awards in competition at the annual meeting of the American Society for Horticulture Science held in Hawaii in September.

The NDSU team took first place in Fruit and Nut Commodity Judging and in Nursery Landscape Commodity Judging. Team members were **Courtney Anderson**, business management major and horticulture minor, and horticulture majors **Connor Hagemeyer**, **Sarah Kickert** and **Andrew Scheldorf**.



Hagemeyer also won First Place Individual Overall, and Scheldorf placed third in the undergraduate poster competition.

Club members Tristan Marette, crop and weed sciences major, Tony Paul, landscape architecture major, and Klarissa Walvatne, agricultural economics and international studies major and military and political science minor, also participated.

The group made the most of their opportunity on the Big Island by touring Volcanoes National Park, the Hawaii Tropical Botanical Garden, a coffee plantation, and black sand beaches.

The Horticulture and Forestry Club is advised by Department of Plant Sciences faculty Harlene Hatterman-Valenti and Todd West.

Undergraduate Student News

Kickert Receives Landscape Association Scholarship

Horticulture major **Sarah Kickert** was named a 2017-2018 Minnesota Nursery and Landscape Association Foundation Academic Award Winner. She received a scholarship co-sponsored by Southview Design. The scholarship was awarded during the Green Industry Awards Celebration held in Minneapolis in January. Recipients also receive complimentary registration to attend the "Northern Green" green industry expo.



Kickert is advised by Todd West, professor and woody plant improvement project leader. She works for West in his research program and is a member of the NDSU Horticulture and Forestry Club. In summer 2017, she worked as an intern for Southview Design, a landscape design-build company in Minneapolis. Her career goals include working in residential landscape design and potentially returning to NDSU to pursue a master's degree in landscape architecture.

Hagemeyer Receives Garden Club Scholarship

Horticulture major **Connor Hagemeyer** is the recipient of a scholarship sponsored by the Green Thumb Garden Club of Casselton, ND. The scholarship was awarded during the club's annual Pie Day fundraiser at Casselwood Retirement Center in Casselton. Pie sale proceeds are donated to a horticulture student chosen by the NDSU Horticulture faculty.



Hagemeyer is advised by Harlene Hatterman-Valenti, professor and high value crops project leader. He serves as Vice President of the NDSU Horticulture and Forestry Club. His career goal is to be an ornamental plant breeder.

Student Athletes Receive Scholarships

Crop and Weed Sciences majors and football players **Karson Schoening** and **Derrek Tuszka** were awarded scholarships during the 44th Annual Harvest Bowl. Schoening received the John and Kay Dean Harvest Bowl Scholarship

and Tuszka received the Bob and Darlene Yaggie Football Scholarship.



Schoening



Tuszka

Summer Intern

Haley Visto is majoring in Crop and Weed Sciences at NDSU. During the summer, she worked as an intern in the barley breeding project with Rich Horsley and the large database breeding pipeline with Ana Heilman and Tom Walk.



Look for more news on our website!
www.ag.ndsu.edu/plantsciences/news

Department History

Do you know...

- ◆ What year the NDSU Department of Plant Sciences began?
- ◆ Where the department was first housed?
- ◆ Who advised the first graduate student to earn a doctoral degree?
- ◆ Who the department chair was in 1979?
- ◆ When the named changed from Agronomy to Crop and Weed Sciences to Plant Sciences?
- ◆ When the Horticulture Research Farm near Absaraka was established?

Answers to these questions and more can be found on a new page of our department website titled "A Brief History of the Department of Plant Sciences" (www.ag.ndsu.edu/plantsciences/about/history). Check it out and try to find the answers to these questions!



Alumni Spotlight



Claudia Carter

Degrees: B.S. in Food Science (2010) and M.S. in Cereal Science (2014)

Advisors: Dr. Clifford Hall and Dr. Frank Manthey

Current Position: Executive Director and Laboratory Director of the California Wheat Commission; Administrator for the California Grain Foundation

“As the Executive Director of the California Wheat Commission, my efforts are concentrated on meeting the Commission’s goals to create and maintain demand of California wheat in the domestic and international markets. I report to the Board and organize three Board meetings per year; interact with the entire wheat industry; serve as the liaison between the industry and our growers; and work with university researchers.

The California Wheat Commission is the only wheat commission in the U.S. that has a quality lab in-house. I manage the operations of the lab, including crop quality work and fee-for-service clientele.

For the non-profit California Grain Foundation, I serve as administrator of operations.”

How has NDSU Plant Sciences/Cereal and Food Sciences contributed to where you are today?

“At NDSU I was able to work in different areas related to Food Science, such as a food microbiology lab. I had classmates with different backgrounds that taught me about their countries and cultures, which shaped the way I see the world now. I also found it valuable to have the Northern Crops Institute part of the Cereal and Food Science program.

NDSU and its Food and Cereal Science programs have a lot to offer. Professors care deeply about their students and their success. They take the time to know you and to help you in any way.”



Collin Lamkey

Degree: M.S. in Plant Sciences (2011)

Advisor: Dr. Ted Helms

Continued Education: Ph.D. at University of Nebraska-Lincoln

Current Position: Corn Breeder with Dow AgroSciences, Breckenridge, MN

How has NDSU Plant Sciences contributed to where you are today?

“The education I received from the NDSU Plant Sciences department helped me build my foundation as a scientist. The technical skills I learned from Dr. Helms and the soybean project have helped me get to where I am today.”



Darrin Hauf

Degrees: B.S. in Crop and Weed Sciences (1994) and M.S. in Plant Breeding (2002)

Advisors: Dr. Edward Deckard and Dr. Kenneth Grafton

Current Position: Research Scientist in Data Science and Informatics at DuPont Pioneer

How has NDSU Plant Sciences contributed to where you are today?

“The wide range of experience I gained at North Dakota State University prepared me for the different roles I’ve had at DuPont Pioneer. I worked with many people in various research settings at NDSU. I believe this provided excellent training to take on the various roles assigned to me at DuPont Pioneer including molecular breeding, field research, software development and project management.”



Shannon (Oltmans) Hauf

Degrees: M.S. in Plant Sciences, emphasis in potato breeding (1999); Ph.D. in Plant Sciences, emphasis in Extension weed science (2002)

Advisors: Dr. Richard Novy and Dr. Richard Zollinger

Current Position: Global Technology Lead in Cotton, Wheat, and Specialty Crops at Monsanto in St. Louis, MO

How has NDSU Plant Sciences contributed to where you are today?

Shannon shares that NDSU Plant Sciences provided her a strong foundation for applied learning and experiences in plant breeding, agronomy, and weed science. Having the opportunity to interact with farmers and commodity representatives at field days gave her experience for understanding farmers' needs and importance of developing solutions as she entered her first role with Monsanto. Serving as the graduate student representative on the SBARE team gave her insight into budgeting and resource allocations and experience for roles she has had in Monsanto leading teams and being responsible for strategy and resource allocations. Shannon says she is grateful for the breadth of experiences she gained while at NDSU and the people from the Plant Sciences Department that were part of her graduate experience.

During graduate school, Darrin and Shannon met and married. They now live in New Melle, Missouri.

We want YOU for our next Alumni Spotlight!

If you are an alumnus of NDSU Plant Sciences or Cereal and Food Sciences, we would like to hear from you! Visit our alumni page (www.ag.ndsu.edu/plantsciences/alumni) to submit an update form and photo.

Memorials



Michelle Grant, senior accounting specialist, passed away on March 23, 2017. She had served NDSU almost 10 years.

In 2013, Michelle was selected from a group of her peers across the state to receive a Governor's Award for Excellence in Public Service. The award is given in recognition of an employee's dedication and contributions to the people of North Dakota.

Michelle was a highly respected member of our department, a dear friend to many, and she will be greatly missed.



Stan Stancyk, research specialist, passed away December 29, 2017. He had worked in the durum wheat breeding program for 27 years.

Stancyk graduated from NDSU with a B.S. in agronomy and horticulture. He enjoyed gardening and spent considerable time coordinating the community gardens in Fargo; he also enjoyed sharing produce with friends, family and the poor.

He received two Agriculture and Extension Faculty/Staff Awards - the Technical Staff Award for Excellence in 2004 and the Rick and Jody Burgum Staff Award in 2011. The NDSU Quar-

ter Century Club also honored Stan for 25 years of service.

Director of the durum wheat breeding project, Elias Elias, said, "Without a doubt, Stan played a crucial role in the development of improved durum wheat varieties for North Dakota."

Fellow durum research specialist Sally Mann said, "He was a researcher, teacher, colleague, and friend. The impact he had on NDSU and the durum wheat breeding program will always be remembered and we will all dearly miss him."

Award winning North Dakota State University cereal chemistry alumna **Dr. Evangelina Villegas** died April

23, 2017 in Mexico City. She was the first woman to receive the World Food Prize for groundbreaking research that has improved the nutrition of millions of undernourished and poor people worldwide.

Villegas completed her Ph.D. in cereal chemistry and plant breeding at NDSU in 1967. She studied at the National Polytechnic Institute and at Kansas State University before attending NDSU.

She joined CIMMYT in 1967 and



worked with plant breeder Dr. Surinder Vasal, who was co-winner with Villegas of the World Food Prize. Their research produced Quality Protein Maize (QPM) varieties, which have essential amino acids critical to good health, especially in populations that rely on a single food as a staple in their diets.

Villegas and Vasal produced the first QPM varieties in the mid-1980s and in the 1990's CIMMYT began promoting QPM in developing countries. The result is that nutrition and health has improved in impoverished communities in Africa, Latin America, China, Mexico and Central America.

After winning the World Food Award, Villegas said, "What I would like to do with this prize is make the world more aware of what we have developed. Because for me, the greatest honor, as a Mexican, would be to see the fields of Mexico overflowing with QPM maize."

Villegas received the 2000 Woman of the Year Award from the Mexican Women's Association, multiple awards and honors from the National Polytechnic Institute, and was named to Alpha Kappa Delta's prestigious list of International Women of Distinction.

She retired from CIMMYT in 1989 but remained active in consulting worldwide on QPM production.

Newsletter Archive

Take a stroll down memory lane with the *Blizzard Watch* newsletter online archive! Former department chair Jack F. Carter began the annual department newsletter in 1967, and the tradition has continued every year since. In 1989 the newsletter was named the *Blizzard Watch*. The archived issues contain all the significant happenings in the department over the years. **The *Blizzard Watch* newsletter and archive is online!**

www.ag.ndsu.edu/plantsciences/news/newsletter

Let's Keep in Touch!

We would like to hear what you are up to now and update your contact info so we can keep in touch. Please take a moment to fill out and mail or fax this form to our office, or go to our website to complete the form. We look forward to hearing from you!

First Name _____ Last Name _____

Last Name used while at NDSU (if different from above) _____

Grad. Year _____ Degree _____ Discipline _____ Adviser _____

Email _____

Current Position/Title _____

Company/Organization _____

Department _____

Preferred mailing address _____

City/Locality _____ State/Province _____

Postal Code _____ Country _____

This is my Home Address Work Address (check one)

Preferred phone number (optional) _____

This is my Mobile Phone Home Phone Work Phone (check one)

Comments:

Please mail or fax this form to:

Dept. of Plant Sciences
NDSU Dept. 7670
PO Box 6050
Fargo, ND 58108-6050
Fax: (701) 231-8474

To submit this form online, go to:

www.ag.ndsu.edu/plantsciences/alumni

Plant Sciences Faculty

| | |
|----------------------------|---|
| Richard D. Horsley | Dept. Head and Professor (6-rowed and 2-rowed barley breeding, genetics) |
| Marisol Berti | Professor (forages and biomass crop production) |
| Chris Boerboom | Director, NDSU Extension Service and Professor (weed science) |
| Xiwen Cai | Professor (wheat genetics and cytology, genetics teaching) |
| Bingcan Chen | Assistant Professor (food and cereal chemistry) |
| Michael J. Christoffers | Associate Professor (weed science, genetics teaching) |
| Wenhao (David) Dai | Professor (woody plant physiology, biotechnology) |
| Edward L. Deckard | Professor (crop physiology) |
| Elias M. Elias | University Distinguished Professor, J.F. Carter Durum Wheat Breeding/Genetics Endowed Professor (durum wheat breeding) |
| Kenneth F. Grafton | VP for Ag. Affairs; Dean, College of AFSNR; Director, NDAES (dry bean) |
| Greta Gramig | Associate Professor (weed science) |
| Andrew Green | Assistant Professor (hard spring wheat breeding) |
| Clifford Hall, III | Professor (flaxseed, antioxidants, phytochemical stability in food systems) |
| Harlene Hatterman-Valenti | Assistant Dept. Head and Professor (high value crop production) |
| Theodore C. Helms | Professor (soybean breeding, genetics) |
| Kirk A. Howatt | Associate Professor (weed science-annual weeds) |
| Burton L. Johnson | Professor (sunflower, minor and new crop production) |
| Thomas Kalb, II | Extension Horticulture Specialist (western ND) |
| Hans Kandel | Professor (Extension agronomist, broadleaf crop production) |
| Chiwon W. Lee | Professor (greenhouse production, vegetable culture and breeding) |
| Deying Li | Associate Professor (sports turf management) |
| Xuehui Li | Assistant Professor (statistical genomics) |
| Rodney G. Lym | Professor (perennial weed control) |
| Frank A. Manthey | Professor (durum and pasta quality) |
| G. Francois Marais | Professor (hard red winter wheat breeding, genetics) |
| Phillip E. McClean | Professor (dry bean genetics, biotechnology) |
| Esther McGinnis | Assistant Professor (Extension horticulture) |
| Michael S. McMullen | Professor (oat breeding, genetics) |
| Rebekah Oliver | Assistant Professor of Practice (genetics) |
| Juan M. Osorno | Associate Professor (dry edible bean breeding) |
| Tom Peters | Assistant Professor (Extension agronomist, sugarbeet/weed science) |
| Mukhlesur Rahman | Assistant Professor (canola breeding, genetics) |
| Joel K. Ransom | Professor (Extension agronomist, small grains and corn) |
| Jiajia Rao | Assistant Professor (food chemistry and ingredient technology) |
| Andrew Robinson | Assistant Professor (Extension agronomist, potato production) |
| Paul Schwarz | Professor (malting barley quality) |
| Kalidas Shetty | Assoc. VP for Internatl. Partnerships; Professor (plant metabolism, food security) |
| Senay Simsek | Bert L. D'Appolonia Endowed Associate Professor (wheat end quality) |
| Asunta (Susie) L. Thompson | Associate Professor (potato breeding) |
| Anuradha Vegi | Assistant Professor of Practice (food safety, processing, microbiology) |
| Todd West | Professor (woody plant improvement) |
| Qi (Chee) Zhang | Associate Professor (turfgrass stress physiology) |
| Alan Zuk | Associate Professor (sports and urban turfgrass management) |

Professors Emeriti

Cereal Science

Bert D'Appolonia
Dennis Gordon
Khalil Khan

Plant Sciences

Duane R. Berglund
Arthur A. Boe
Harold Z. Cross
Alan G. Dexter
Murray E. Duysen

Jerry D. Franckowiak

Richard C. Frohberg
Dale E. Herman
Neal S. Holland
H. Roald Lund
Calvin G. Messersmith

Dwain W. Meyer

Donald C. Nelson
Ronald C. Smith
LeRoy A. Spilde
Dean A. Whited
Richard K. Zollinger

Adjunct & Affiliate Faculty (*USDA)

James V. Anderson* (plant biochemistry)

James Beaver (dry bean genetics)

Patrick M. Carr (sustainable agriculture)

Wun S. Chao* (perennial weeds)

Linda Dykes* (food science and technology)

Justin Faris* (wheat molecular genetics)

Shana Forster (crop production)

Jose Franco, Jr.* (agroecology/sustainable food systems)

Karen L. Fugate* (sugarbeet physiology)

Russell W. Gesch (physiology of oilseed crops)

Michael Grusak* (nutrition of crop plants)

Darrin Haagensohn* (crop physiology and ecology)

David P. Horvath* (perennial weed physiology)

Brent Hulke* (flax and sunflower genetics)

Brian Jenks (integrated weed management)

Blaine Johnson (quantitative genetics)

Edward C. Lulai* (potato physiology)

Kevin McPhee (pulse crops)

Grant Mehring (agronomy; wheat and corn)

Mohamed Mergoum (hard red spring wheat breeding)

Jae-Bom Ohm* (grain science)

Rebekah Oliver (genetics)

Michael Ostlie (weed science)

Timothy Porch (dry bean breeding and genetics)

Lili Qi* (wheat genetics)

Susan Raatz* (human and clinical nutrition)

Gerald J. Seiler* (sunflower and sugarbeet germplasm)

Jochum Wiersma (small grains)

Steven Xu* (hard red spring wheat development)

Postdoctoral Research Fellows

Meriem Aoun (durum wheat breeding)

Mitch Bauske (Extension potato production)

Upasana Ghosh (potato breeding)

Yadav Gyawali (wheat genetics and cytology)

Jawahar Jyoti (barley genetics)

Ajay Kumar (durum breeding)

Zhao Liu (sunflower germplasm development)

Yunming Long (hard red spring wheat development)

Aliya Momotaz (wheat genetics)

Sepehr Naraghi (wheat genetics and cytology)

Atena Oladzad Abbasabadi (dry bean genetics)

Dipayan Sarkar (plant metabolism, and food security)

Kristin Simons (dry bean breeding)

John Stenger (high value crops)

Zahirul Talukder (sunflower germplasm development)

Qijun Zhang (wheat stem rust resistance)

Wei Zhang (wheat genetics and cytology)

North Dakota Foundation Seedstocks

Steve Sebesta, Director

Gonzalo Rojas-Cifuentes, Assistant Director

Joyana Baumann, Research Specialist

Toni Muffenbier, Accounting Specialist

Research and Support Staff

Matthew Abdallah (hard red spring wheat breeding)
Jason Adams (Extension weed control)
Collin Auwarter (high value crop production)
Jason Axtman (durum breeding)
John Barr (barley quality)
Kaitlin Beck (wheat quality)
Brad Bisek (hard red winter wheat breeding)
Eric Brandvik (potato production)
Kathy Christianson (wheat quality)
Ashley Cooper (soybean breeding)
Christopher Cossette (wheat quality)
Janet Davidson-Harrington (weed science)
Brenda Deckard (Director, Plant Sci. Student Services)
Chad Deplazes (Extension crop production)
Darin Eisinger (Extension crop production)
Brock Fagerstrom (soybean breeding)
Jason Fiedler (statistical genomics)
Jerry Gee (soybean breeding)
James Gillespie (barley quality)
John Grieger (barley breeding)
Dave Hanson (soybean breeding)
Justin Hegstad (statistical genomics)
Ana Heilman-Morales (large database breeding pipeline)
Karen Hertsgaard (information specialist)
Martin Hochhalter (barley breeding and genetics)
Peter Ihry (potato production)
Karen Jensen (wheat quality)
Kreg Kercher (flax breeding)
Barb Laschkewitsch (vegetables and perennials)
Rian Lee (dry bean genetics)
Yu Liu (durum and pasta quality)
Vicki Magnusson (woody plants)
Sally Mann (durum wheat breeding)
Sandra Mark (weed science)
Rachel McArthur (wheat genetics and cytology)
Kelly McMonagle (wheat quality)
Joseph Mettler (annual weeds)
Greg Morgenson (woody plants)
Mary Niehaus (cereal and food science)
Richard Nilles (potato breeding)
DeLane Olsen (wheat quality)
Allen Peckrul (food and cereal chemistry)
James Perleberg (durum and pasta quality)
Paula Petersen (new crops)
Alan Peterson (forages and biomass crop production)
John Posch (dry bean breeding)
Andrew Ross (canola breeding)
Kevin Rue (turfgrass)
Robert Sabba (weed science)
Amy Scegura (oat breeding)
Thor Selland (hard spring wheat breeding)
Jesse Underdahl (hard spring wheat breeding)
Jody VanderWal (dry bean breeding)
Tom Walk (large database breeding pipeline)
Adam Walz (hard spring wheat breeding)
Kristin Whitney (wheat quality)
Devin Wirth (Extension weed control)

Office Staff

Kamie Beeson, Information Processing Specialist
Eileen Buringrud, Administrative Assistant
Cora Crane, Grants Coordinator
Karen Jevning, Administrative Secretary
Lisa Johnson, Administrative Secretary
Lorin Miller, Accountant
Starr Thies, Accounting Specialist
Shannon Ueker, Administrative Secretary

Graduate Students

Cereal Science

| | <u>Deg.</u> | <u>Advisor</u> | | | |
|---------------------------|-------------|----------------|--------------------------------|-----|-------------------|
| Abdulrahman Alahmed | MS | Simsek | Changhyeon Kim | MS | Dai |
| Hiroshi Ando | MS | Manthey | Brian Kisely | MS | Horsley |
| Patricia Cabas Luhmann | PhD | Manthey | Jacob Kluza | MS | McGinnis |
| Supun Fernando | PhD | Manthey | Jacob Lachowitz | MS | Hatterman-Valenti |
| Madison Gohl | AMS | Hall | Codee Lee | MS | Howatt |
| Amber Kaiser | PhD | Hall | Justin Leier | MS | Green |
| Eyada Khalaf | MS | Shetty | Yuan Liu | MS | X. Li |
| Yang Lan | PhD | Rao | Alexa Lystad | MS | Peters |
| Yu Liu | MS | Manthey | Lucy Mazaheri (Genomics) | MS | McClellan |
| Ana Magallanes Lopez | MS | Simsek | Felicity Merrit | MS | Thompson |
| Maneka Malalgoda | PhD | Simsek | Kord Nolte | MS | Christoffers |
| Sara Moayed | PhD | Manthey | Suman Parajuli | PhD | Lee |
| Xiaoxi Qi | PhD | Rao | Amanda Peters (Genomics) | PhD | Faris |
| Md Mahfuzur Rahman | MS | Simsek | Alan Peterson | MS | Berti |
| Ramnarain Ramakrishna | PhD | Shetty | Kathryn Plotke (Horticulture) | MS | West |
| Ebony Sampson | MS | Hall | Swarup Podder | MS | Berti |
| Delgersaikhan Shinezorigt | MS | Manthey | Edowardo Poletti | PhD | Thompson |
| Jane Snelling | MS | Simsek | Sanzida Rahman | MS | Thompson |
| Bethany Stebbins | MS | Manthey | Shuangfeng Ren (Genomics) | PhD | Cai |
| Serap Vatansver | PhD | Hall | Daniel Restrepo Montoya (Gen.) | PhD | Osorno |
| Jing Wan | PhD | Rao | Jose Rivera | MS | Horsley |
| Minwei Xu | PhD | Chen | Jayanta Roy | MS | Rahman |
| Fengchao Zha | PhD | Chen | Kevin Rue | MS | Zhang |
| Muxin Zhao | MS | Chen | Mory Rugg | PhD | Green |

Plant Sci/Genomics/Hort

| | <u>Deg.</u> | <u>Advisor</u> | | | |
|------------------------|-------------|----------------------------|-----------------------------------|-----|-------------------|
| Kyle Aasand | MS | Johnson | Kelly Satrom | MS | Howatt |
| Jason Adams | PhD | Zollinger | Michael Schaefer | MS | McPhee |
| Bryce Andersen | MS | Berti | Peder Schmitz | MS | Kandel |
| Naa Korkoi Ardayfio | PhD | McMullen | Sapna Sharma (Genomics) | MS | Faris |
| Muhammad Arif-Uz-Zaman | PhD | Rahman | Brian Smart | MS | Hulke |
| Rahil Ashtari Mahini | PhD | McPhee | Kyla Splichal (Horticulture) | MS | McGinnis |
| Kenneth Paul Beamer | MS | Gramig | Jordan Stanley | MS | Kandel |
| James Bjerke | MS | Thompson | Nicholas Steffl | MS | Johnson |
| Matthew Brooke | MS | Hatterman-Valenti | Alison Stone | MS | Hulke |
| Ryan Buetow | PhD | Ransom | Andrej Svyantek | PhD | Hatterman-Valenti |
| Sergio Cabello Leiva | PhD | Berti | Meredith Swanson (Horticulture) | MS | West |
| Matt Chaput | PhD | Ransom | Hongbin Tao | PhD | Marais |
| Pradeepika Chintha | PhD | Shetty | Ikbal Tatar | MS | Hatterman-Valenti |
| Thomas Drietz | MS | Li | Nickolas Theisen | MS | Hatterman-Valenti |
| Kelsie Egeland | MS | Kandel | Federico Velasquez Villegas | MS | Osorno |
| Edgar Escobar Romero | MS | Osorno | Jonathan Vollmer | MS | Rahman |
| Austin Espe | MS | Shetty/Hatterman-Valenti | Katelynn Walter | PhD | Osorno |
| Steffen Falde | MS | Thompson | Tiffany Walter | MS | Howatt |
| Aaron Froemke | MS | Howatt | Adam Walz | MS | Green |
| Melissa Geiszler | MS | Ransom | Sudeshi Wasala Seneviratne (Gen.) | PhD | Faris |
| Nathan Haugrud | MS | Peters | Frank Wilczek | MS | Ransom |
| Lucas Holmes | MS | Kandel | Devin Wirth | MS | Zollinger |
| Aaron Hoppe | PhD | Kandel | Kutay Yilmaz | MS | Johnson |
| Ahasanul Hoque | PhD | Rahman | Jinglun Zhang | MS | Cai/Xu |
| Seyed Ali Hosseinirad | PhD | Elias | Mingyi Zhang (Genomics) | PhD | Cai |
| Razi Ibrahim | MS | Hatterman-Valenti/Thompson | Puying Zheng | MS | Rahman |
| Justin Jacobs | MS | Johnson | | | |
| Kory Johnson | MS | Kandel | | | |

NORTH DAKOTA STATE UNIVERSITY

Department of Plant Sciences
166 Loftsgard Hall
NDSU Dept. 7670
PO Box 6050
Fargo, ND 58108-6050

Phone: 701-231-7971
Fax: 701-231-8474
E-mail: nds.plantsciences@nds.edu
Web: www.ag.ndsu.edu/plantsciences

The Department of Plant Sciences at North Dakota State University is a diverse department with regional, national, and world-respected expertise. As part of the College of Agriculture, Food Systems, and Natural Resources, the department offers academic programs that prepare students for careers in expanding job markets. Undergraduate programs are Crop and Weed Sciences, Food Science, and Horticulture; graduate programs are the M.S. in Plant Sciences/Horticulture, Cereal Science, and the Ph.D. in Plant Sciences and Cereal Science.

The Department of Plant Sciences provides students with the knowledge, skills and understanding critical for professional success in a changing world. If you have an interest in plants and an interest in making a difference, this department is for you. Invest in your career by investing in Plant Sciences.

Agriculture Is in Our Roots

Research – Teaching – Extension

Biotechnology Breeding Cereal Science Food Science Forestry Genetics Horticulture
Physiology Production Turfgrass Weed Science

CONNECT with us online!

Website



Plant Sciences: www.ag.ndsu.edu/plantsciences
Cereal Science: www.ag.ndsu.edu/cerealscience
Food Science: www.ag.ndsu.edu/foodscience

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