

# Blizzard Watch

## Message from the Department Head

Dr. Richard Horsley



This year's *Blizzard Watch* is a bit later this year than usual, as I was hoping to be able to share with everyone an update on the guidance this summer for COVID-19 mitigation at NDSU and funding for construction of the Agricultural Products Development Center (APDC). The APDC that is being discussed with the North Dakota Legislature would be a new building that houses the research and teaching activities currently in Harris Hall, the Cereal and Food Science activities in the Quentin Burdick Building and Loftsgard Hall, and the meats lab in Shepperd Arena. The APDC would also house the Northern Crops Institute. Total funding being discussed by the Legislature for the APDC is \$70 million as well as permission to fundraise for additional monies that could go towards construction of the APDC.

As I look back at what I wrote last year for the *Blizzard Watch*, I started out by describing what we were doing at NDSU to mitigate the risk of the spread of COVID-19. First and foremost, our biggest concern was the impact the pandemic would have on all of our staff, students, and their families. Beginning in mid-March 2020, the university switched all classes to online for spring semester and encouraged employees to work remotely if possible. Governor Burgum considered activities related to agriculture as essential services; thus, ND Agricultural Experiment Station research and NDSU Extension activities continued with some travel restrictions. From March-June, these restrictions included needing permission from the NDSU President to travel outside the state, permission from the VP of Agricultural Affairs to travel outside your county, and one person allowed per State Fleet vehicle. The permission requirements for travel were modified beginning July 1. An immediate worry for our work

in Plant Sciences was our ability to have continuity in all of our services and responsibilities during the growing season. Having one person become ill or needing to quarantine because of close exposure could possibly result in a program having to cease all activities for two or more weeks during planting, critical note taking periods, or harvest if most or all employees on a project had to quarantine. I really want to commend everyone in Plant Sciences for their diligence in following the guidelines. Because of this, although individuals may have tested positive for the virus or had to quarantine due to close contact, none of our projects had to shut down for an extended time. Once again, thanks to everyone.

As an example of how our activities were curtailed due to the pandemic, my barley breeding project typically plants and harvests yield trials and nurseries at six sites in the state (Williston, Nesson Valley, Minot, Carrington, Osnabrock, and Fargo). At the time that we were putting up seed for planting, we didn't know if we would be allowed to make trips that were more than "day trips" because we didn't know what the availability of lodging and food would be in Williston, Minot, or Langdon. Thus, we planted only at Fargo, Prosper, and Carrington. Another impact was the difficulty or inability to travel to winter nurseries in sites such as New Zealand, Puerto Rico, or Chile. So, this year I sent all of my winter nursery materials to Arizona instead of splitting up the workload between New Zealand, Puerto Rico, and Arizona. Receiving all of my barley seed and spikes in early April and then having to thresh, clean, and package all of this material and getting it planted in a timely manner will be a

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## Message from the Department Head (cont.)

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challenge. Pages 3 and 4 of the *Blizzard Watch* provide more impacts the pandemic had on our department's students, staff, and faculty as well as campus life overall.

In spite of the pandemic, our faculty, staff and students continued to excel. Of note, Dr. Ed Deckard celebrated 50 years of teaching at NDSU. I look at Dr. Deckard's accomplishments as he begins his sixth decade at NDSU and find there are too many to mention. He has been recognized numerous times by his peers and students for his accomplishments in teaching and advising. I believe that if you were to ask Dr. Deckard what his top accomplishment was at NDSU, you probably would get a lot of reluctance because he is so humble and modest. But it wouldn't surprise me if he acknowledged his wife Brenda and the partnership they have forged in educating our students. I believe it is imperative for the benefit of the students and the health of our institution that our best instructors teach our introductory classes. Dr. Deckard has made that commitment so true in Plant Sciences.

Additional honors to note in 2020 include the naming of Dr. Phil McClean as the Dr. Charles Mode Professor of Genomics Research; Dr. Rebekah Oliver receiving the 2020 North American Colleges and Teachers of Agriculture Educator Award; Drs. Jijia Rao, Kalidas Shetty, and Senay Simsek being listed among the top scientists in the world based on Stanford University's updated science-wide author database of standardized citation indicators; and Dr. Tom Peters being promoted to associate professor with tenure. I wish I could go on highlighting the accomplishments of all our faculty, staff, and students but for the sake of brevity, I will point you to the eight pages of the *Blizzard Watch* dedicated to their awards, honors, and accomplishments.

Every year we have retirements and resignations, but this year we had the retirements of three Plant Sciences faculty that dedicated much or all of their professional careers in serving NDSU and the State of North Dakota. Drs. Ken Grafton and Ted Helms retired on June 30, 2020. Dr. Grafton worked at NDSU for 40 years and Dr. Helms for 34 years. Dr. Joel Ransom retired on February 1, 2021 following 18 years of working at NDSU. Fortunately, we received permission to refill the positions of Drs. Helms and Ransom. Dr. Carrie Miranda started as the soybean breeder in late August 2020, and we are currently in the process of interviewing candidates for Dr. Ransom's former position.

A big loss for all of us in the department was the passing of Lyle Lindberg in January 2021. Lyle worked as a research technician for 50 years on the flax breeding program. Luckily for all of us in the department, following his retirement Lyle just couldn't stay away. He was always here repairing our computers when they

broke down. It seems that all of us can get by if our car breaks down, but if our computer breaks down everything comes to a halt.

The outputs from our department impact all four corners of the state. A very visible accomplishment each year is the release of new varieties and plant products from our breeding programs. In 2020, the Woody Plant Improvement Program led by Dr. Todd West had its 60th release, KoolKat™ Katsura Tree. Additionally, the hard spring wheat program led by Dr. Andrew Green released the hard red spring wheat variety ND Frohberg, named in honor of longtime NDSU hard spring wheat breeder Dr. Richard Frohberg. Variety releases of a chickpea, yellow pea, soybean, black bean, oat, and hard red winter wheat are described in more detail later on in the *Blizzard Watch*.

Each year in the *Blizzard Watch*, I report on the fall semester student enrollment numbers in the department. This year it is hard to interpret the numbers because you wonder how many undergraduate students decided to take the year off due to the pandemic and the uncertainty of whether classes would be held in person, a hybrid system of in person and virtual, or completely virtual. Enrollment in the Crop and Weed Sciences program is 124, which is a decrease of 16 students since last year. The Horticulture program has 32 students and the Food Science program has 16 students. The Horticulture and Food Science program enrollments each decreased by two students. In our graduate programs, there are 66 students (48 MS and 18 PhD) in the department's Plant Sciences program, three MS students in the Horticulture program, and 19 students (4 MS and 15 PhD) in the Cereal Science program. The large number of MS students in the Plant Sciences program is in response to a call by industry for an increased number of agronomists with MS degrees. The number of overall students in the Plant Sciences program increased by two students, while the Cereal Science program decreased by two students since last year.

Well, I could keep going on but I think it is more important to leave space in the *Blizzard Watch* for all of the accomplishments of our students, staff, and faculty in Plant Sciences. To make sure you keep up with the latest news and photos, you can access our web page at <https://www.ag.ndsu.edu/plantsciences/>, our Facebook page at NDSU Plant Sciences, or our Twitter page at @NDSUPlantSci. 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](http://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.

# The Year of COVID-19: A Look Back

## COVID

The COVID-19 global pandemic changed life at North Dakota State University while students were away on spring break March 16-20, 2020. Employees began working remotely on March 18 and students were told not to return to campus after spring break. They were assigned staggered times to collect their belongings over the following weeks. Instructors hustled to transform their courses into an online format in a matter of days. Information Technology Services installed equipment and created resources with incredible speed to assist instructors, students, and staff. Email updates came fast and furiously as things changed by the hour, it seemed. Communication, flexibility, and adaptability have been the keys to survival in this unprecedented time.

### Impacts on Student Life

While instructors implemented new methods to deliver course content through HyFlex instruction\*, students adapted to new ways of learning that required them to be more self-directed. Surveys have shown that many students prefer in-person classes.

Student organizations canceled meetings and activities or moved their events to online platforms. The Plant Sciences Graduate Student Association got creative with a virtual trivia night and a “separately together” trash pick up for Earth Day.

The Department of Plant Sciences committed to helping graduate students stay on track with their degree completion by making procedural changes that enabled students to continue meeting their master's and doctoral degree requirements in a timely manner.

One of the most disappointing impacts of the pandemic was the cancellation of spring 2020 commencement ceremonies. Students, faculty and staff all missed celebrating this milestone together.

Graduating and interning students faced finding or beginning a job during a pandemic and the uncertainty about what the future would hold for them.

\*Learn about the Hyflex Education Model at [www.ndsu.edu/covid19/hyflex\\_education](http://www.ndsu.edu/covid19/hyflex_education).



Left to right, top to bottom:

- Graduate defense on Zoom
- Classroom social distancing
- Face shield & mask
- Working remotely
- HyFlex instruction
- New teaching tools
- 50% classroom capacity
- PGSA trash pick-up

### Impacts on Research Life

Research continued during the pandemic but progress was slowed due to the virus mitigation protocols put in place.

Travel outside the country, including to winter research nurseries to harvest and retrieve seed, was halted. Travel to research sites was limited to one person per vehicle. Research teams had to be strategic about who would travel and when.

The potential existed for quarantine time to take out an entire research team at once for two weeks or more, so staggered work groups were used by several projects.

On-campus and external conferences and symposia were canceled. Many organizations pivoted to virtual conferences throughout 2020 and into 2021.

(Continued on page 4)



# The Year of COVID-19: A Look Back (cont.)

(Continued from page 3)



Left to right, top to bottom:

- Wheat field work
- Durum seed packets
- Barley field notes
- Pulse breeding lab
- Forages lab
- Potato field notes
- Spring planting
- Potato team planting

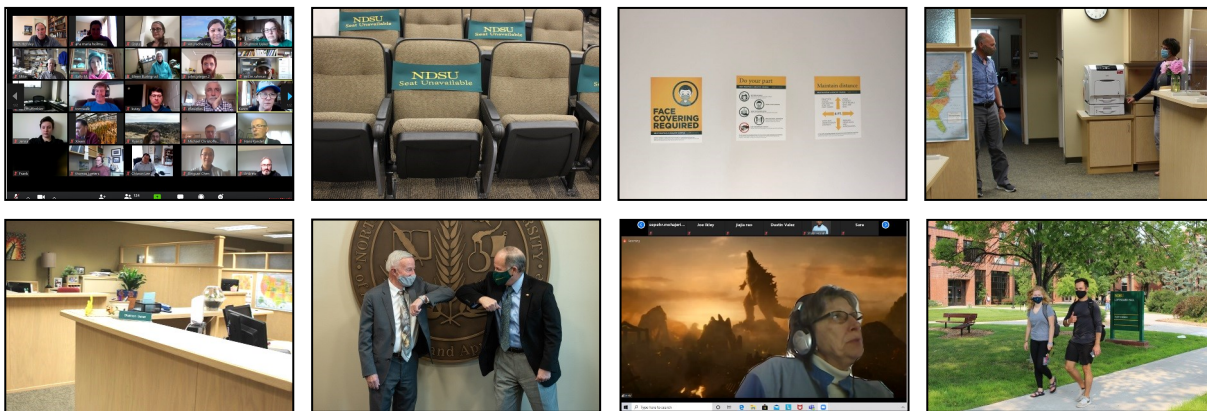
## Impacts on Campus Life

University leaders faced a multitude of decisions about campus operations and protocols in a short amount of time and then needed to quickly communicate those decisions to the NDSU community. President Bresciani sent regular “Campus Update” emails and Provost Fitzgerald hosted weekly “Conversations with Colleagues” Zoom meetings with faculty and staff.

Over the summer and into the fall, Information Technology Services outfitted all classrooms on campus and several temporary classrooms with the equipment needed to implement HyFlex teaching. Instructional Services staff created training documents and videos to help users learn to operate the new technology.

CARES Act funding was used to purchase equipment and provide for the additional classroom personnel needed to get HyFlex instruction up and running.

Building access was closed down to allow only essential workers for a time. Face covering and quarantine protocols were put in place, and regular COVID-19 testing was available on campus.



Left to right, top to bottom:

- Zoom meetings
- 50% classroom capacity
- COVID signage
- Social distancing with masks
- Empty desks
- COVID-safe awards
- Fun with Zoom backgrounds
- Mask protocols

## Looking Ahead

The NDSU community remains strong and committed to delivering first-class education and research to students and constituents. Through the pandemic, we have gained new tools and technologies, learned to work differently, and appreciate even more the things we missed from our lives “before COVID.” These are things that will make us better people and more effective in our work going forward. Overall, we look to the future with HOPE.

**HOPE**

## Faculty Updates

**Dr. Carrie Miranda** joined NDSU in August 2020 as an assistant professor and soybean breeder.

Prior to joining NDSU, she was a postdoctoral researcher at the USDA-ARS stationed at the University of Missouri, where she used bioinformatic tools to facilitate the discovery of candidate genes for traits of interest.

She earned her B.S. in biology at Cleveland State University, master's degree in cell and molecular biology at San Diego State University, and Ph.D. in plant breeding, genetics, and genomics at the University of Missouri.

Dr. Miranda's goals for the soybean breeding program at NDSU



are to produce high yielding varieties while discovering new genetic mechanisms for useful traits to ensure North Dakota farmers have access to superior soybean varieties.

**Dr. Tom Peters** was promoted to associate professor with tenure. He earned his Ph.D. in agronomy and weed science at North Dakota State University and has served as the Extension sugar-beet production and weed control specialist for North Dakota, Minnesota and eastern Montana since 2014. His research focus includes cultural, chemical and mechanical weed control practices across sugar-beet cropping systems.



## Staff Updates

### New Staff and Updated Positions

New postdoctoral research fellows are **Md. Abdullah Bari**, pulse breeding; **Yang Lan** and **Uyory Choe**, food chemistry and ingredient technology; **Zhuoyu Wang**, high value crops (not pictured); and **Sudeshi Seneviratne**, wheat molecular genetics (not pictured).

New research specialists are **Stephanie DeSimini**, weed science; **Lisa Piche**, pulse breeding; **Connor Hagemeyer**, woody plant improvement; and **John Davies**, oat breeding. **Aaron Froemke** was hired as an ag research technician in soybean breeding.

Extension crop production research specialist **Darin Eisinger** added new responsibilities in the minor and new crops project, and **Andrew Ross** (not pictured), research specialist in oilseed breeding, transferred to pulse breeding.

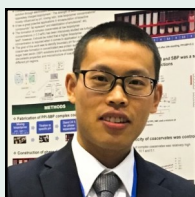
### Resignations

Postdoctoral research fellows who resigned are **Leqi Cui**, food chemistry; **Atena Oladzad Abbasabadi**, dry bean genetics; **Yunming Long**, hard red spring wheat development (USDA-ARS); **Qijun Zhang**, wheat stem rust resistance (USDA-ARS); and **Sintayehu Daba**, hard spring wheat breeding.

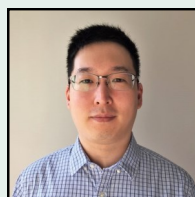
Research staff who resigned are **Mary Niehaus**, food and cereal science; **Dave Hanson**, soybean breeding; **Greg Morgenson**, woody plant improvement; **Amy Stolt**, oat breeding; **Rakhi Palit**, weed biology and ecology; and **Alex Wittenberg**, forages and biomass crop production.



Bari



Lan



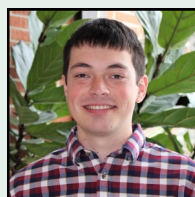
Choe



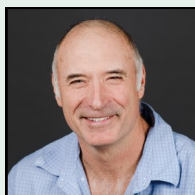
DeSimini



Piche



Hagemeyer



Davies



Froemke



Eisinger



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## Retirement: Dr. Ken Grafton

Dr. Kenneth F. Grafton has worn many hats representing a wide range of roles during his 40 years of distinguished service at North Dakota State University. On June 30, 2020, he hung up those hats for a new role: retiree.

Originally from Ohio, Grafton attended The Ohio State University, where he earned a B.S. in Agriculture and an M.S. in Plant Breeding and Genetics. He completed his Ph.D. in Plant Breeding and Genetics at the University of Missouri.

Grafton began working at NDSU in 1980 as a postdoctoral research associate in the newly formed dry bean breeding program. In 1981, he joined the Department of Plant Sciences faculty as an assistant professor. In time, Grafton took over leadership of the dry bean breeding program with a 95% research and 5% teaching appointment. In 1987, he achieved the rank of associate professor and in 1994, he was promoted to full professor.

The NDSU dry bean breeding program began in 1979 with a small grant from the United States Department of Agriculture (USDA) and two classes of beans, pinto and navy. Today, the program works with eight market classes of dry beans, and North Dakota is the largest producer of dry beans in the United States, according to the U.S. Dry Bean Council.

The first dry bean varieties released under Grafton's leadership, 'Holberg' pinto in 1983 and 'Nodak' pinto in 1984, were a collaboration with Dr. D.W. Burke at the USDA Agricultural Research Service (ARS) in Prosser, Washington. The NDSU dry bean breeding program then independently developed and released 10 more varieties under Grafton's leadership. "I was thankful that I was able to develop and release some varieties that proved to be very successful," he says, "including 'Norstar' navy bean (1991), 'Maverick' pinto bean (1996), and 'Eclipse' black bean (2004)." 'Eclipse' is still the most widely grown black bean in North Dakota.

Grafton also was involved in the development and release of over 30 dry bean germplasm lines, collaborating with scientists at the USDA-ARS in Beltsville, Maryland, and at Michigan State University. Furthermore, the NDSU varieties 'Rosie' light red kidney (2014), 'Talon' dark red kidney (2014), and 'Rio Rojo' small red bean (2012) were derived from crosses made by Grafton.

As a result of his research, he published 38 refereed publications, 25 edited publications, 3 book chapters and symposia, 20 Extension publications, and 31 abstracts.

In 1995, Grafton was selected to receive the Distinguished Achievement Award by the Bean Improvement Cooperative. The award is presented to scientists that have impacted bean research during the early portion of their careers.

In 2001, Grafton took on his first administrative role when he was appointed Associate Dean of the Graduate School, while continuing to lead the dry bean breeding program. He was appointed Director of the North Dakota Agricultural Experiment Station (NDAES) in 2002, Dean of the College of Agriculture, Food Systems and Natural Resources in 2005, and Vice President for Agricultural Affairs in 2011. He held these positions concurrently until 2018.

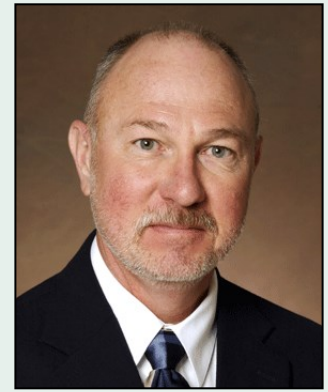
During his tenure as Director of the NDAES, the agency expanded and funds were received for several new buildings and laboratories including the Beef Cattle Research Complex, the AES Vet Diagnostic Lab, new seed cleaning facilities at three Research Extension Centers (RECs), and new or improved field research labs and headquarters buildings at all RECs.

During his time as Dean, the College of Agriculture, Food Systems, and Natural Resources saw growth in new faculty positions, scholarship funds, agriculture majors, and the development of the School of Natural Resource Sciences.

Grafton served in these roles until 2018, when he was selected to serve as the Interim Provost for the university. On January 1, 2020, he returned to the faculty in the Department of Plant Sciences. He retired June 30, 2020, after 40 years of service, and was named an Emeritus Vice President, Dean and Professor in the Department of Plant Sciences and Agricultural Affairs.

When asked what he will remember most from his career, he replied, "Working with great people! Trying to do what was right, taking responsibility for decisions, and treating people with respect." He expressed gratitude to all those he has worked with during the past 40 years.

In gratitude for all the hats he has worn, we lift ours to Dr. Grafton for his dedicated leadership and service to North Dakota State University. We wish him a long and enjoyable retirement.



*"The greatest satisfaction I have is seeing the dry bean breeding program, which started out with very humble resources, expand to its current level of prominence."*

*~ Dr. Ken Grafton*



## Retirement: Dr. Ted Helms

Dr. Ted Helms retired on June 30, 2020, after a distinguished 34-year career as the soybean breeder at North Dakota State University.

Helms grew up in Illinois and attended the University of Illinois, earning a bachelor's degree in agronomy. He worked in seed corn production for Pioneer Hi-Bred in 1975-1977, then went to graduate school at the University of Nebraska, earning a M.S. in agronomy and plant breeding. He worked in maize breeding for DeKalb-Pfizer Genetics in 1981-1983 and then returned to school, earning a Ph.D. in agronomy and plant breeding at Iowa State University in 1986. Given his work experience in corn production and maize breeding, he thought he would be a maize breeder but when the soybean breeding job opened at NDSU, he applied and was selected for the position. "I am very pleased that I worked as a soybean breeder," he says.

Helms took over the NDSU soybean breeding program from Dr. Dean Whited and has continued the work of developing superior soybean cultivars to maximize profits for soybean growers and improving germplasm for the general-use and specialty-export markets. Helms also offered a service that tests public and private soybean cultivars to help farmers choose the best varieties and production practices for their operations.

During his tenure, Helms developed and released 40 soybean varieties. He released the first NDSU soybean variety, 'Council', in 1995 and says this is his favorite memory from his breeding work. Also of note are several early-maturity, glyphosate-resistant soybean varieties such as RG200RR and ND17009GT released in 2000 and 2017, respectively. He also developed non-GMO soybean varieties for the specialty food markets, producing products such as tofu (made from condensed soy milk) and natto (made from fermented soybean). He says these specialty food soybean varieties helped expand the production and marketing of these products by companies in our region.

The biggest change Helms has seen in soybean breeding over the last 34 years was the development of GMO herbicide-resistant soybeans. He explains, "Starting with Roundup Ready®, the GMO types made it profitable for private companies to breed soybean varieties. In 1995, private companies had a big impact on increasing soybean yield, both nation-wide and also in North Dakota. The development of GMO soybean varieties made it much easier for the farmer to grow soybean. Acres of soybean in North Dakota rapidly increased."

Helms published 32 refereed publications in journals such as *Theoretical and Applied Genetics*; *Agronomy Journal*; and *Crop Science*. He counts among the most notable publications those he authored jointly with other NDSU faculty on phytophthora root rot resistance and iron-deficiency chlorosis tolerance, which provided insight on these topics to NDSU Extension agents and North Dakota soybean growers.

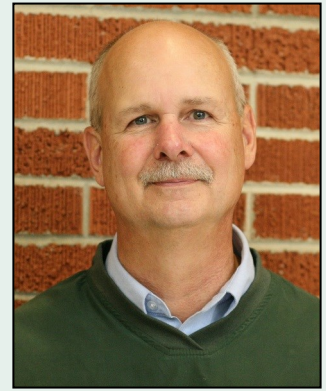
In addition to soybean breeding, Helms taught Genetics, Advanced Plant Genetics, and Population and Quantitative Genetics. "Teaching was always my favorite part of my job responsibilities," he says. He also mentored seven graduate students through their degree programs and served on graduate committees for additional students.

Helms has been a member of the American Society of Agronomy and the Crop Science Society of America and attended annual soybean breeders' meetings. He also served for a year on the NDSU Faculty Senate. He maintained close relationships with North Dakota soybean grower groups and says, "I want to express my deepest appreciation to the many men and woman that serve as volunteers to the North Dakota Soybean Council and the North Dakota Soybean Growers Association for their continuing support of soybean as a commodity in North Dakota."

In 2003, Helms was selected to receive the Excellence in Research, Senior Career award by the NDSU College of Agriculture, Food Systems and Natural Resources. The award recognizes outstanding faculty and researchers with 11 or more years of service, who have a distinguished research program in basic or applied sciences that has gained significant recognition in the state, region or nation and/or internationally.

In retirement, Helms and his wife will continue to reside in Moorhead, Minnesota, and look forward to spending more time with their grandchildren. He also enjoys hunting and fishing, and his wife enjoys gardening.

We wish Dr. Helms and his wife a long and happy retirement.



*"I am very pleased  
that I worked as a  
soybean breeder."*

*~ Dr. Ted Helms*

## Retirement: Dr. Joel Ransom

Extension agronomist Joel Ransom retired on February 1, 2021, after serving at North Dakota State University for 18 years.

Ransom was born and raised in Idaho and earned his bachelor's degree in agronomy from Brigham Young University. He earned his master's and doctoral degrees, also in agronomy, from the University of Minnesota, along with a plant pathology minor on his Ph.D.

Prior to joining NDSU, Ransom worked for 20 years as a wheat and maize agronomist for the International Maize and Wheat Improvement Center (CIMMYT). He started out stationed in Mexico, later worked in East Africa based in Nairobi, Kenya, and eventually was stationed in Nepal.

Ransom was hired at NDSU in 2002 as an Extension agronomist in cereal crops housed in the Department of Plant Sciences. He started out as an associate professor and achieved the rank of professor in 2009. His work included developing educational programs and giving presentations in the winter months, conducting research and presenting at field days in the summer, and harvesting, compiling data and preparing variety selection guides in the fall.

In recent years, Ransom's research team implemented drones and learned how to use the data collected to help farmers make management decisions. Drones were the most useful to Ransom's research when they were used to take aerial photographs of research plots. The images helped the team identify variability in the plots and find disease hotspots. This was especially helpful with corn because it is hard to see beyond the first few feet of the edge of the plot after tasseling. "A picture may be worth a thousand words and an aerial picture may save a thousand steps," says Ransom.

Ransom's research resulted in 70 journal articles, nine book chapters, and 10 Extension publications. Five selection guides were also published each year, totaling 90 guides over his career.

The Variety Selection Tool was born out of the need for an effective means of sharing results. Ransom collaborated with Jochum Wiersma, Extension agronomist at the University of Minnesota, on the project. The tool summarizes data and compares variety performance, making it possible for farmers to easily learn how the spring wheat varieties tested by NDSU and the University of Minnesota performed in tests near their farms. "It has become a powerful decision aid to many that use it," says Ransom.

Ransom considered graduate student training an important part of his position. "There was and continues to be a high demand for graduates with training in agronomy," he says. Ransom mentored four Ph.D. students, 12 M.S. students and at his retirement, two Ph.D. and two M.S. students were still progressing toward their degrees. "The students' research allowed me to gain information and experience with new developments in agronomy that I could then share in my educational programs."

Ransom regularly led his students on international trips to visit farmers and learn about research and extension activities in other countries. The places they visited included Mexico, Chile, Nepal, Kenya, Zimbabwe, Thailand, Vietnam and Ecuador. Farm size was small in many of these countries, and farmers often subsisted on what they produced.

In addition, Ransom drew on his previous work in developing countries to provide technical assistance to government and non-government organizations and farmers through outreach activities in Bangladesh, Ethiopia, Kenya, Rwanda, Senegal, Uganda and Ukraine. Most of these activities were funded by the United States Agency for International Development (USAID) through their Farmer-to-Farmer program.

Awards Ransom received include the U.S. President's Council on Service and Civic Participation Volunteer Service Award in 2017 and the U.S. Durum Growers Association Amber Award in 2018.

In retirement, Ransom and his wife will preside for three years over the Bismarck, ND, Temple of the Church of Jesus Christ of Latter-day Saints to oversee and train about 200 volunteers that serve the Church members who visit the Temple from North and South Dakota, parts of Montana, and Minnesota.

He also plans to do some consulting and focus more attention on a non-profit that he and his wife developed, called Join Hands, which currently supports an agricultural project in Ecuador, among other projects.

We wish Joel and his wife a long and fulfilling retirement and best wishes in all of their endeavors.



*"One of the most satisfying memories was seeing the "Best of the Best" meeting venues packed to capacity a few years after developing this Extension meeting."*

*~ Dr. Joel Ransom*



## Faculty & Staff Awards & Honors

### McClellan Named Dr. Charles Mode Endowed Professor

**Phillip McClellan** was named the NDSU College of Agriculture, Food Systems, and Natural Resources Dr. Charles Mode Endowed Professor of Genomics Research. McClellan is a professor of dry bean genetics and genomics and the director of the genomics and bioinformatics program. He has worked in the Department of Plant Sciences since 1985, advising graduate students and teaching Genomics and Plant Molecular Genetics courses to graduate and undergraduate students.



McClellan's primary research focus is discovering the genetic factors that control disease resistance, agronomic traits, and seed coat color and patterning genes in common bean. This research includes collaborations with scientists in Guatemala, Honduras, Mozambique, and Zambia to improve bean productivity in those countries using modern genetic techniques.

McClellan graduated from Metropolitan College with a bachelor's degree in biology and from Colorado State University with an M.S. and Ph.D. in agronomy.

He served as the Project Coordinator of the USDA-NIFA Common Bean Coordinated Agricultural Project (Bean CAP) from 2009 to 2014. The result of this research was the development of the largest collection of molecular markers in common bean and the completion of the first reference genome sequence of common bean. Recently, McClellan led the completion of reference genome sequences for two other races of bean.

McClellan has received several NDSU Agriculture and Extension Faculty/Staff awards including the Excellence in Teaching Award for Early and Senior Career in 1994 and 2001, respectively, and the Eugene R. Dahl Excellence in Research Award in 2014. He also was honored with the 1999 Achievement Award and the 2011 Frazier-Zaumeyer Distinguished Lectureship from the Bean Improvement Cooperative.

The Mode Professorship was established in 2017, when Dr. Charles Mode determined to "enhance the salary, benefits, research operations, and laboratory for named professors and to supplement stipends to help fund research and graduate students." Mode graduated from NDSU in 1952 in genetics and continued on to graduate school at Kansas State University and the University of California-Davis, earning a Ph.D. in genetics. Most recently he was Professor Emeritus in mathematics at Drexel University in Philadelphia. His goal for the Mode Professorship was to "enhance the operations of the NDSU College of Agriculture, Food Systems, and Natural Resources Department of Plant Sciences and Department of Plant Pathology."

Dr. Mode passed away unexpectedly in October 2020.

### Peters Receives Sugarbeet Honors

**Tom Peters** was awarded the 2020 Sugarbeet Distinguished Service Award by the Sugarbeet Research and Education Board of Minnesota and North Dakota at their annual reporting session. The award is presented for excellence in research for the improvement of sugarbeet production, effective educational programs for sugarbeet growers and industry, and service to the local, regional, or national sugarbeet industry.



Peters is considered one of the 'go-to' weed scientists in the sugarbeet industry. He works with growers and agriculturalists to develop and communicate effective weed control solutions and tailors his research to the needs of different geographies. His collaborations with other scientists have led to helpful research on problematic weeds such as Palmer amaranth. Industry representatives believe his current research on the use of acifluorfen in sugarbeets may lead to a significant new tool for weed control in sugarbeets.

Peters also was elected to the Executive Committee of the American Society of Sugar Beet Technologists and will serve a 4-year term beginning in March 2021.

### Chen Recognized by Oil Chemists' Society

**Bingcan Chen** received the 2020 American Oil Chemists' Society (AOCS) Young Scientist Research Award. The award, sponsored by the International Food Science Centre, recognizes "a young scientist who has made a significant and substantial research contribution" in oils, fats, lipids, proteins, surfactants or related materials.



Chen has worked as an assistant professor of food and cereal chemistry in the Department of Plant Sciences since 2015. His research aims to better understand lipid oxidation mechanisms in foods and cereal products, and to provide means of controlling these reactions to improve food quality. "My research has revealed the source of beany flavors that occur with legume flours and protein isolates, which allows us to develop new processing technologies and strategies to mitigate these flavors," explains Chen. He has published more than 80 peer-reviewed articles and four book chapters.

In addition to research, Chen advises graduate students and teaches courses in food chemistry and food analysis. His goal as an educator is to "train and shape more of our next generation of cereal and food science professionals."

Chen has been an active member in the Lipid Oxidation and Quality (LOQ) division of AOCS since 2009 and is the past secretary-treasurer of the division. He also has received several other awards from AOCS.

## Faculty & Staff Awards & Honors

### Oliver Receives Educator Award

**Rebekah Oliver** received the 2020 North American Colleges and Teachers of Agriculture (NACTA) Educator Award. The award is presented to teachers who exhibit the best educational efforts in agricultural higher education. Thirty-one teachers of agriculture from 16 post-secondary education institutions in the U.S. received the award.



Oliver graduated from NDSU with a B.S. in Microbiology and a Ph.D. in Plant Sciences. She was hired by the Department of Plant Sciences in 2013 and teaches World Food Crops in spring semesters and Genetics in fall semesters. She advises undergraduates pursuing Crop and Weed Sciences and Biotechnology majors. She also teaches biotechnology capstone courses to up to five students per class per semester.

Oliver spent several years working as a geneticist and research scientist in government and private industry before returning to NDSU to teach. She believes her non-teaching work helps her advise students for career planning. She says, "I feel privileged to have been hired at NDSU," and feels connected to her students because she was once a student at NDSU. She thinks a major strength of NDSU is the personal interest and concern of faculty for individual students. She also appreciates faculty who have mentored and helped her with her teaching skills and practices.

Oliver has been a member of NACTA for six years and serves on the Educational Issues and Teaching Improvement Committee and the Editorial Board for the NACTA Journal. She says, "NACTA is a great organization and I especially appreciate the balance of professional development and scholarly camaraderie of the NACTA membership."

### Simsek Receives Cereals and Oilseeds Award



**Senay Simsek** was awarded the NC-213 U.S. Quality Grains Research Consortium 2020 Andersons Cereals and Oilseeds Award of Excellence. Simsek is the Bert D'Appolonia Cereal Science and Technology of Wheat Endowed Professor and has been with NDSU since 2007. She leads the hard red spring wheat end quality project in the Department of Plant Sciences.

The NC-213 Awards Committee confers the Andersons Cereals and Oilseeds Award of Excellence yearly to individuals "who have made superior contributions to science and/or education related to cereals and oilseeds." They commended Simsek for "innovative and forward-moving research with practical, value-adding impacts for U.S. wheat producers, marketers, and processors." They noted that she has "emerged as a nationally and internationally recognized research and education leader."

Simsek was also awarded the Andersons Early-in-Career Award in 2011, the first year the award was given.

### West Completes Leadership Program

**Todd West** was recognized for completing the LEAD 21 leadership development program for individuals in research, academics and Extension from land-grant institutions. Participants spend one year meeting regularly with their peers to enhance their leadership skills, focusing on three levels of leadership: understanding themselves, how they interact with groups, and how they interact at the institutional level.



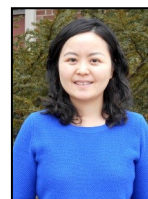
"LEAD 21 was an amazing program and I am grateful to have been able to be a part of this experience," said West. "As a graduate of this program, my leadership skills and leadership toolbox have been enhanced. I have a much better understanding of my strengths and weaknesses as a leader and have resources for improvement."

### Faculty Among Top Cited Scientists

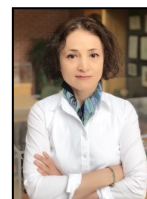
Three Plant Sciences faculty are listed among the top scientists in the world based on the Stanford University "Updated science-wide author databases of standardized citation indicators." The faculty are professor of biotechnology, **Kalidas Shetty**; assistant professor of food chemistry and ingredient technology, **Jiajia Rao**; and Dr. Bert L. D'Appolonia Cereal Science and Technology of Wheat Endowed professor, **Senay Simsek**.



Shetty



Rao



Simsek



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NDSU Plant Sciences

# Honoring Dr. Ed Deckard

## 50 Years at NDSU

Dr. Ed Deckard reached a milestone in his career on July 1, 2020. That date marked his 50th year of working and teaching in the Department of Plant Sciences at North Dakota State University. Due to COVID restrictions, an in-person celebration was not possible, but campus leaders and alumni shared congratulations and reminiscences with Deckard and colleagues worldwide during a Zoom meeting in February 2021.

Deckard grew up in southern Indiana on a crop and livestock farm. He earned his bachelor's degree in agronomy in 1965 from Purdue University. He completed his Ph.D. in agronomy and crop physiology at the University of Illinois-Champaign in 1970 and was hired as an assistant professor in Agronomy at NDSU the same year. He was promoted to associate professor in 1977 and full professor in 1983.



*Deckard (left), with Rich Horsley, received a gift of artwork from the Dept. of Plant Sciences.*



*Ed and Brenda Deckard, partners in and out of the classroom.*

Deckard serves as the plant sciences and horticulture graduate programs director and teaches five classes including World Food Crops, Skills for Success, Expanding the Boundaries of Learning with Service, Cropping Systems: An Integrated Approach, and Advanced Crop Management Decision Making. He teaches several courses with his wife, Brenda, and as a team they have advised and mentored countless undergraduate students studying crop and weed sciences.

He has served on committees and worked with colleagues and students across the NDSU community and has received numerous awards in recognition of his excellence and contributions. Some of these awards include NDSU College of Agriculture Senior Faculty Excellence in Teaching Award (1995), Blue Key Honor Society Distinguished Educator Award (2000), NDSU Development Foundation Robert Odney Award for Excellence in Teaching (2001), NDSU College of Agriculture William J. and Angelyn A. Austin Excellence in Advising Award (2001), NDSU Development Foundation Peltier Award for Innovation in Teaching (2005), College of Agriculture Student Activities Council Preferred Agriculture Instructor Award (2007), NDSU Outstanding Faculty Advising Award (2015), NDSU Aggies Open Door Award (2018), and two awards in 2020 that you will read about below.

Throughout the decades, Deckard has become a much-loved and respected professor, mentor, and colleague in the NDSU community and beyond. We congratulate Dr. Deckard on this milestone, thank him for his dedicated service of 50 years, and look forward to more to come!

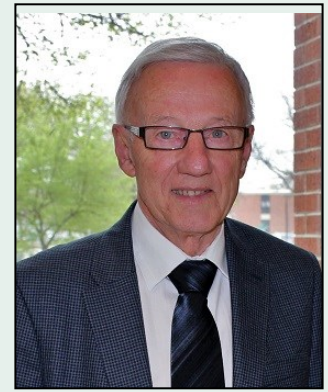
## Gunkelman Award

Deckard was selected to receive the 2020 Mary McCannel Gunkelman Award in recognition of his unselfish contributions toward creating a happy campus environment for students. Known as "the award that honors those who make NDSU smile," it was established in 1987 by the Gunkelman family. Deckard has been nominated a total of nine times for the honor. In 2020, he was nominated by six students and chosen from among 46 faculty, staff, and student nominees. The award was announced at a virtual ceremony hosted by the NDSU Staff Senate.

## Bison Leader Award

Deckard received the 2020 Adviser of the Year Award for advising the NDSU chapter of Circle K International. The award was a Bison Leader Award, which the NDSU Student Government Congress of Student Organizations gives out to recognize outstanding student organizations, students and advisers.

Circle K is the collegiate division of Kiwanis International, a global service organization with members in 80 countries and geographic areas. The NDSU Circle K club has 25-30 members who meet weekly, and it is sponsored by the Kiwanis Club of Fargo. Deckard has advised the NDSU Circle K club for over 35 years.



*"My heart is in teaching and learning. I sincerely care about each student, not just class academics, but as a person with goals, hopes, and dreams."*

*~ Dr. Ed Deckard*



*Deckard (left) receives the Gunkelman award from President Bresciani.*

*(Continued on page 13)*



## Faculty & Staff Awards & Honors

### Deckard Honored for 'Open Door'

Plant Sciences Student Services Director **Brenda Deckard** was presented the Open Door Award by the NDSU Agriculture Collective during NDSU Ag Week online festivities. The award recognizes an individual who exemplifies agriculture by always being there for their neighbor; someone whose "door is always open to students whether it be for course assistance, advising, or just to talk about life."



Deckard co-instructs World Food Crops, Skills for Success, and Expanding the Boundaries of Learning with Service with her husband and Plant Sciences professor, Ed Deckard. She also serves as an academic advisor.

"Students are our passion, and to be able to assist them in obtaining success in their academic endeavors is very rewarding," she says. "Working with students is more than helping them achieve academic excellence with their education. It's about being there to assist when they are dealing with some of life's tougher challenges; those personal challenges where the necessary knowledge doesn't come from within the classroom, but rather inward reflections from the heart."

### Vidal Torres Recognized in Thesis Competition

Wheat quality laboratory technician **Edil Vidal Torres** won second place in the 2020 Caminos Thesis Competition during the 15th Annual American Association of Hispanics in Higher Education (AAHHE) National Conference. The competition is open to Hispanic individuals who are U.S. citizens or permanent residents and have completed a Master's thesis that focuses on food and the agricultural sciences.



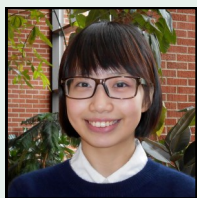
Finalists received complimentary registration to attend the USDA Career Preparation Institute, a three-day event that exposes participants to doctoral programs and internship or employment opportunities.

Vidal Torres is from the Dominican Republic and she completed her Master's degree in Food Science and Technology at the University of Puerto Rico-Mayagüez in 2019. Her thesis was Quinoa and Amaranth: Multi-Purpose Agroindustrial Crops.

"Through the AAHHE conference I had the opportunity to meet professionals in all areas of science, acquire knowledge to be a successful professional and overcome the challenges presented day by day," said Vidal Torres. "Seeing successful professionals who have struggled to achieve their goals in a disciplined and constant way made me think that everything is possible in life when you have a purpose. [They inspired me] to contribute to society and younger generations through science."

## Staff & Extension Years of Service

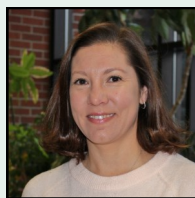
**5  
Years**



**Yu Liu**  
durum & pasta quality



**Toni Muffenbier**  
ND Foundation  
Seedstocks



**Gwen Thomas**  
wheat quality

**20  
Years**

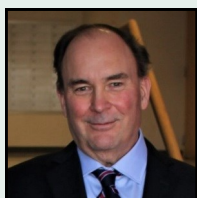


**Kreg Kercher**  
oilseed breeding

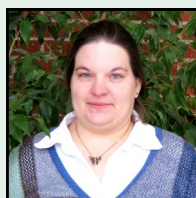


**Kelly McMonagle**  
wheat quality

**10  
Years**



**Rich Horsley**  
Extension recognition



**DeLane Olsen**  
wheat quality



**Adam Walz**  
hard spring wheat

**30  
Years**



**John Barr**  
barley quality



**Barb Laschkewitsch**  
Extension horticulture

## Faculty & Staff Awards & Honors

### Agriculture and Extension Personnel Honored

Five Department of Plant Sciences employees received awards at the 2020 Agriculture and Extension Faculty/Staff Awards program in December. **Bingcan Chen**, assistant professor and leader of the food and cereal chemistry program, received the Larson/Yaggie Excellence in Research Award. **Todd West**, professor and leader of the woody plant improvement program, received the Earl and Dorothy Foster Excellence in Teaching Award. **Harlene Hatterman-Valenti**, professor and leader of the high value crop production program, received the William J. and Angelyn A. Austin Excellence in Advising Award. Extension agronomist **Hans Kandel** received the AGSCO Excellence in Extension Award. Grant coordinator **Cora Crane** received the Rick and Jody Burgum Staff Award.

Others from the Department of Plant Sciences who were nominated for awards were research specialist Collin Auwarter, professor Marisol Berti, administrative secretary Karen Jevning, and Extension sugarbeet agronomist Tom Peters.

### Weed Society Looks Back and Forward at 75th Meeting

The North Central Weed Science Society (NCWSS) celebrated its 75th Annual Meeting in 2020. Past and present NDSU weed scientists participated and were honored during the historic meeting.

NDSU graduate students and staff competed in the Quiz Bowl and scientific presentation competitions. NDSU's Weed Team, consisting of **Nathan Haugrud**, **Jeffery Stith** (not pictured), **Joseph Mettler**, and **Stephanie DeSimini**, took second place in the Quiz Bowl. **Haugrud** also placed second in the graduate student oral paper presentation contest in the Agronomic Crops I - Corn section with "Herbicide Safener Effects on Goss's Wilt Severity in Corn".

Three NDSU representatives were elected to official offices. **Harlene Hatterman-Valenti** was elected the NCWSS 2021 President; **Joseph Ikley** is the NCWSS Communications Editor on the Board of Directors; and **Haugrud** is the vice-chair of the Agronomic and Specialty Crops section.

Also, as part of the historical celebration, Professor Emeritus **Calvin Messersmith** and **Tom Peters** presented historical overviews of the society in the General Session of the meeting. Messersmith presented the rich history of the NCWSS and Peters reflected on the current state of the organization and how it has adapted through the years.

Notable NCWSS members also were recognized, including past presidents and Honorary Members and Fellows. NDSU past presidents are the late John Nalewaja (1979), Messersmith (1985), Professor Emeritus Alan Dexter (1996), and Peters (2005). Honorary Members/Fellows are Nalewaja (1980), Messersmith (1988), Dexter (1990), Peters (2008), Hatterman-Valenti (2011), and Professor Emeritus Richard Zollinger (2019).



Chen

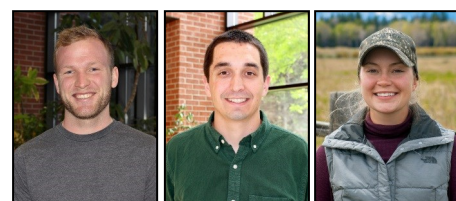
West

Hatterman-Valenti



Kandel

Crane



Haugrud

Mettler

DeSimini



Hatterman-Valenti

Ikley

Messersmith



Peters

Nalewaja

Dexter

Zollinger

## Honoring Dr. Ed Deckard (continued)

*(Continued from page 11)*

Circle K members serve the community by volunteering weekly with non-profit organizations, schools, and other entities. In addition, Circle K provides opportunities for members to broaden their "connection circle" with members of other Circle K clubs in the region and district. Circle K also provides servant leadership opportunities at the club, district, and national levels. "It is a wonderful group of tomorrow's leaders," says Deckard.

"I have enjoyed advising this club, as these joyful, selfless students are a constant reminder of the need to serve joyfully throughout my life," says Deckard. "We aren't born recognizing the need to serve others."



## Woody Plant Improvement Program Celebrates 60th Plant Release

A new woody plant selection, KoolKat™ Katsura Tree (*Cercidiphyllum japonicum* 'KoolDak'), was introduced by the North Dakota Agricultural Experiment Station and the North Dakota State University Research Foundation. This is the 60th plant release developed by the NDSU Woody Plant Improvement Program led by Dr. Todd West.

KoolKat™ is a single plant seedling selection originating from a population of *Cercidiphyllum japonicum* acquired from the Lesny Zaklad Doswiadczalny W. Rogowie Arboretum in Rogów, Poland. Seed was acquired in 1999 and designated as TS9946. The trees in this population were part of the NDSU Woody Plant Statewide Cooperative Evaluation Program that ran from 1987 to 2007.

KoolKat™ is a cold-hardy selection that has survived without damage in USDA climatic zone 3a at temperatures as low as -37 degrees Fahrenheit. This single plant selection is unique in that it has early fall dormancy compared to the species, which aids in increasing the winter hardiness. All other traits are similar to the species, with cordate (heart) shaped leaves emerging reddish-purple in the spring and changing to blue-green as they mature for summer. In autumn, fall color is yellow to apricot in color depending on the year.

KoolKat™ is dioecious and is a female selection, possessing only female flowers. Mature height will be 35 to 40 feet with a width of 20 to 25 feet.

### About the NDSU Woody Plant Improvement Program

The NDSU Woody Plant Improvement Program has been serving the Northern Great Plains for over 65 years, beginning germplasm trial evaluations in 1954. In 1974, NDSU purchased 80-acres near Absaraka, ND, and the NDSU Horticulture Research Farm was established. Trial plantings began immediately that fall. This research farm provides ideal horticultural soil for evaluation and breeding projects for North Dakota. Approximately 45 acres of the farm are used for the evaluation, selection, and breeding of woody ornamental plants.

The center portion of the research farm is a 35-acre plot known as the Dale E. Herman Research Arboretum. Named after NDSU Professor Emeritus Dale E. Herman, who developed the program for nearly 40 years, the research arboretum is the most extensive collection of woody ornamental plants in North Dakota and the northern Great Plains. It is a valuable resource for teaching, research, and educational use.

NDSU woody plant introductions are currently being propagated for sale by commercial wholesale firms in Australia, Canada, England, and 35 nurseries in 14 of the United States. This project has introduced 60 superior woody plants for production and sale with increased disease tolerance and winter hardiness for landscapes. The first introduction from the program in 1986 was a flower bud hardy Forsythia hybrid, 'Meadowlark', which was a collaborative release with South Dakota State University, Arnold Arboretum of Harvard University, and the USDA North Central Regional Plant Introduction Station.

In 2012, several breeding programs were initiated focusing on magnolia, lilac, maple hybridizing, and mutagenic breeding of several shrub species. The NDSU Woody Plant Improvement Program also serves as the northern site for the American Rose Trials for Sustainability (A.R.T.S), launched in spring 2014.

The goals of the NDSU Woody Plant Improvement Program are selection, evaluation, and introduction of hardy superior woody plants for the landscape industry. For more information about the program, visit [www.ag.ndsu.edu/plantsciences/research/woody-plants/](http://www.ag.ndsu.edu/plantsciences/research/woody-plants/).



KoolKat™ Katsura Tree



KoolKat™ fall foliage



West



Herman



# Crop Variety Releases

The North Dakota Agricultural Experiment Station released seven new crop varieties in 2020.

## **ND Crown chickpea / Breeder: Nonoy Bandillo**

ND Crown Kabuli type chickpea has high yield potential in North Dakota environments. Its average height is 26.4 inches, average maturity date is 115 days from planting, and it flowers and matures one day earlier than CDC Frontier with similar seed yield. It has a similar response to Ascochyta blight under moderate to high disease pressure when compared to commercial cultivars. ND Crown is ideal for whole seed and processed markets, such as hummus, because of its larger seed size compared to commonly grown cultivars.

## **ND Dawn yellow field pea / Breeder: Nonoy Bandillo**

ND Dawn large yellow field pea has high yield potential in North Dakota environments and excellent agronomic performance. It has a uniform, round seed comparable to DS Admiral, which makes it stand out from other varieties. Total protein content has been tested at 24%, which is similar to commercial cultivars. It matures in approximately 95 days, which is early and favorable for North Dakota growing conditions. It is tolerant to lodging and has a good plant stand. ND Dawn has a similar response to Fusarium root rot as Agassiz. Its Ascochyta blight infection was more severe than Agassiz; however, yield was not significantly different.

## **ND Dickey soybean / Breeder: Ted Helms**

ND Dickey is a conventional soybean variety with 0.7 maturity that is intended to replace ND Stutsman. This new variety has high yield potential and resistance to Race 3 of phytophthora root rot. It has good iron-deficiency chlorosis and lodging tolerance. ND Dickey is sensitive to the herbicide metribuzin. Development of this variety was made possible through funds provided by the North Dakota Soybean Council.

## **ND Twilight black bean / Breeder: Juan Osorno**

ND Twilight black bean has shown competitive agronomic performance compared to other varieties commonly grown in North Dakota. It has an upright indeterminate (short vine) growth habit, purple flowers, and matures in approximately 99 days. It had higher seed yield compared with other black bean cultivars commonly grown in the region. It is resistant to rust (race 20-3) and intermediately resistant to common bacterial blight. It is also resistant to bean common mosaic virus and moderately resistant to soybean cyst nematode. Canning quality and seed shape/size is within acceptable commercial ranges. Development of this variety was made possible through checkoff funds provided by the Northharvest Bean Growers Association and the North Dakota Dry Edible Bean Seed Growers Association.

## **ND Frohberg hard red spring wheat / Breeder: Andrew Green**

ND Frohberg hard red spring wheat has good yield potential, strong end-use quality, and very good disease resistance. It is medium-tall with good straw strength. It has above average levels of resistance to bacterial leaf streak and is moderately resistant to leaf rust. Resistance to Fusarium head blight is similar to Barlow and Elgin-ND. ND Frohberg also has strong milling and baking quality.

## **ND Heart oat / Breeder: Michael McMullen**

ND Heart is a conventional oat line with exceptionally high groat  $\beta$ -glucan and protein concentration, which should allow the production of specialty oat products with unique beneficial nutritional characteristics. ND Heart produces about 25% greater  $\beta$ -glucan concentration and 20% greater groat protein concentration than commonly grown oat cultivars. The grain yield, test weight, and milling yield of ND Heart are similar to other popular oat cultivars. Its disease resistance is similar to Hi-Fi with susceptibility to crown rust.

## **ND Noreen hard red winter wheat / Breeder: Francois Marais**

ND Noreen hard red winter wheat is intended to replace Jerry. It has higher yield potential than Jerry with similar winter-hardiness, height, maturity, and quality. It has shown excellent bacterial leaf streak resistance and intermediate resistance to stripe rust. It has better stem rust resistance than Jerry and comparable leaf rust resistance. ND Noreen performed well in eastern North Dakota and western Minnesota and has good lodging resistance. It has average protein, high test weight, satisfactory milling extraction, and average mixing tolerance and loaf volume.



ND Crown



ND Dawn



ND Dickey



ND Twilight



ND Frohberg



ND Heart



ND Noreen

(Continued on page 18)

## Virtual Reality in Wheat Quality Research and Outreach

"Virtual reality is transforming research and outreach activities in the Plant Sciences Department at NDSU, and the wave is just beginning," says Dr. Senay Simsek, professor and director of the wheat quality and carbohydrate research program.

Virtual reality (VR) is a three-dimensional, computer-generated experience that allows a person to interact with spaces and objects within an entirely virtual environment. Simsek worked with Be More Colorful, a VR solutions firm in Fargo, North Dakota, who created 360-degree images of the wheat quality and carbohydrate labs. Then they embedded informational videos provided by Simsek about the lab tests and equipment into the 360-degree images to create a complete virtual tour of the wheat quality and carbohydrate chemistry laboratories.

Designated users of this technology access the virtual tours using a VR headset or as a desktop experience in any web browser. During the tour, they experience wheat quality facilities in 3D, which creates the feeling that they are visiting in person, even though they may be thousands of miles away. Now, anyone can explore from the comfort of their home or office how wheat kernels are tested for quality, how wheat is milled, how flour and dough samples are analyzed, how bread is baked for end-product quality, and many other tests.

Simsek often meets with various trade teams and farmer groups, and visits K-12 schools. Now, she can utilize VR technology to show what type of research she is conducting at NDSU. "Leveraging virtual reality helps enhance the research and outreach experiences for the people we work with," she says.



Simsek tests a VR headset

Simsek implemented the browser-based 3D experience during this year's Hard Red Spring Wheat Crop Quality

*"Virtual reality is transforming research and outreach activities in the Plant Sciences Department ."*



Graduate student Ana Magallanes Lopez explores a baking lab through virtual reality. The screen displays what she sees in the headset.

meeting. Incorporating the 3D tour experience at the virtual crop quality meetings was met with great appreciation by the attendees.

"Virtual reality is offering some promising benefits to our research and outreach capabilities," says Simsek. She believes the trend won't be slowing down any time soon, so researchers should expect to see more virtual reality technology enter their lives and laboratories in the near future.

The VR tours containing Simsek's training videos are not publicly available, but the 360-degree images of the labs can be viewed online at

<https://tours.bemorecolorful.com/v/rNj79kPE1Jd>.

Move the computer mouse around to view different parts of the room. Click the drop-down menu in the top left corner of the image to access other rooms. If you would like to schedule a VR experience and learn more about wheat quality in the world of VR, contact Dr. Senay Simsek at [senay.simsek@ndsu.edu](mailto:senay.simsek@ndsu.edu).



Simsek

## Research Greenhouse Renamed to Honor Former Governor

From NDSU News

The ND Agricultural Experiment Station (NDAES) Research Greenhouse was renamed the John Stewart Dalrymple III Agricultural Research Greenhouse to honor Jack Dalrymple, the 32nd Governor of North Dakota, NDSU's 2017 Harvest Bowl Agribusiness Award recipient and NDSU Foundation Life Trustee.

"Jack Dalrymple is known across the nation as a leader in agriculture," said NDSU President Dean L. Bresciani. "NDSU is pleased to honor his accom-

plishments by renaming the NDAES Research Greenhouse Complex."

During Dalrymple's time as governor, he shepherded the funding and completion of the NDAES Research Greenhouse Complex at NDSU. The project was completed in 2015.



The state-of-the-art facility provides enhanced education and advanced research in plant breeding, genetics, horticulture, entomology, plant pathology, plant nutrition and associated disciplines.

## 2020 Research Grants

Plant Sciences researchers actively pursue grants for research funding and support. Here is a snapshot of funds awarded in 2020.

Over \$8.5 million were awarded to Plant Sciences projects.

160 grants ranging from \$500 to \$287,000 were awarded to 34 researchers.

The top six highest-funded grant projects were:

- ◆ *Evaluation of Barley and Malt for Fusarium Infection and Mycotoxins*  
Project Leader: Dr. Paul Schwarz  
Funded by: USDA/ARS-USWBSI  
Amount: \$287,218
- ◆ *Breeding of Improved Non-GMO Cultivars and Germplasm*  
Project Leader: Dr. Carrie Miranda  
Funded by: ND Soybean Council  
Amount: \$257,567
- ◆ *Killing Before Milling: Utilization of Vacuum Steam Pasteurization for Controlling Enteric Pathogens on Wheat*  
Project Leader: Dr. Senay Simsek  
Funded by: USDA-NIFA/Foundational Program  
Amount: \$250,000
- ◆ *Genetic Improvement of Dry Beans for Bruchid Resistance for Southern Africa*  
Project Leader: Dr. Juan Osorno  
Funded by: USAID/Michigan State University  
Amount: \$239,904

- ◆ *Identification and Introgression of Resistance to Cercospora Leaf Spot and Root Maggot for Sugarbeet Improvement*

Project Leader: Dr. Xuehui Li  
Funded by: USDA/ARS  
Amount: \$237,800

- ◆ *Genomic Analysis of Septoria Nodorum Blotch Susceptibility Genes in Wheat*

Project Leader: Dr. Phil McClean  
Funded by: USDA/ARS  
Amount: \$231,705



The top six agencies granting the most funds were:

- ◆ USDA-ARS: 18 grants, \$1,722,078
- ◆ USDA-ARS/USWBSI: 12 grants, \$1,317,337
- ◆ USDA-AMS/ND Dept of Ag-ND Specialty Crop Block Grant: 14 grants, \$1,185,663
- ◆ ND Wheat Commission: 25 grants, \$928,173
- ◆ USDA-NIFA: 10 grants; \$825,899
- ◆ ND Soybean Council: 8 grants, \$563,911

## 2021 Events Calendar

### Department Events

[www.ag.ndsu.edu/plantsciences/events](http://www.ag.ndsu.edu/plantsciences/events)

- Aug. 11** Horticulture Research Farm & Arboretum Field Day, Absaraka, ND
- Aug. 26** Northern Plains Potato Growers Association, Larimore, Forest River Colony and Hoople, ND
- Sept. 2** Campus Field Day, Horticulture Research & Demonstration Gardens

**Note: Dates for all events are subject to change. Please follow our website and social media for updates.**

**Dates to Remember**



### Research Extension Center Field Days

[www.ag.ndsu.edu/research/field-days](http://www.ag.ndsu.edu/research/field-days)

- July 13** Hettinger Research Extension Center
- July 14-AM** Dickinson Research Extension Center
- July 14-PM** Williston Research Extension Center
- July 15** Nesson Valley, Irrigation, Williston
- July 19** Agronomy Seed Farm, Casselton
- July 20** Carrington Research Extension Center
- July 21** North Central Research Extension Center, Minot
- July 22** Langdon Research Extension Center
- TBD** Central Grasslands Research Extension Center, Streeter
- Aug. 4** Oakes Irrigation Research Site



## In Memory of Lyle Lindberg

Retired NDSU ag research technician Lyle Lindberg passed away on January 22, 2021, in Fargo, ND.

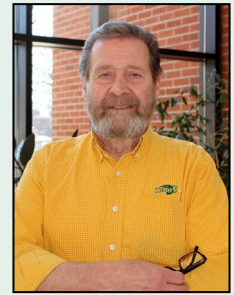
Lindberg was hired by the Department of Plant Sciences in 1967 as an ag research technician in the flax and soybean breeding programs. When the late Dr. James Hammond was hired to lead the flax program, Lindberg transitioned to a full-time position in flax.

Lindberg also assisted Hammond by assembling computers. After retiring in 2008, Lindberg continued working part-time in computer support. His advice for computer troubleshooting

was, "If you are having trouble with your computer, shut it off and turn it back on. Many times, it works!"

Combining his full-time and part-time work, Lindberg had 50 years of service at NDSU.

Lindberg was well known for his interest in refurbishing classic cars and his famous Halloween displays. He was a kind, caring, and cheerful person and will be greatly missed.



## Crop Variety Releases (continued)

*(Continued from page 15)*

The North Dakota County Seed Increase Program distributed ND Dawn, ND Dickey, and ND Heart for the first time in the spring of 2020 and ND Noreen in the fall of 2020.

For further information regarding Foundation or Registered seed availability of these or other varieties, contact an NDSU Extension county agent, an NDSU Research Extension Center, the North Dakota Crop Improvement and Seed Association (NDCISA), or ND Foundation Seedstocks.

To ensure genetic purity, all varieties are protected under Plant Variety Protection Title V and must be sold as a class of certified seed. All varieties, except for ND Twilight, are licensed to the NDCISA for their management and distribution.

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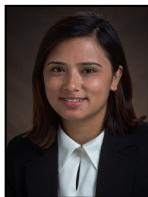
## Graduate Student News

### Rana Honored by ND Academy of Science

Horticulture Master's student **Binu Rana** was one of three winners in the 2020 North Dakota Academy of Science virtual meeting poster competition.

Her poster presentation, "Season Extension Using Supplemental Soil Heat in a North Dakota High Tunnel for Warm Season Vegetable Production," highlighted how high tunnels with supplemental heat can be beneficial by enhancing crop growth, extending the season, and assisting growers in maximizing profits with intensive production practices, especially for short growing season areas like North Dakota.

Rana is advised by Dr. Harlene Hatterman-Valenti.



### Students Honored by Cereals and Grains Association

Cereal science doctoral students **Ana Magallanes López** and **Jayani Maddakandage Dona** were honored for their research presentations at Cereals & Grains 2020 Online, the virtual meeting of the Cereals and Grains Association.

Magallanes López won the award for Best Relationship to the Theme in the Student Research Video Competition for her video, "Ingredients Extracted from Dry Beans: Chemical, Structural, and Functional Characterization". The competition provided students an opportunity to apply their knowledge, skills, and originality to create a three- to four-minute video showcasing how their research fits into the greater food system.

Maddakandage Dona was selected as one of three finalists for the Best Student Research Award in the Cereal and Grain Nutrition Division. She presented a poster of her Master's research, "Baking and Nutritional Quality of Bread Made from Wholegrain Hulled Wheat". The purpose of this competition is to encourage outstanding student research within the nutrition field.

These students are advised by Dr. Senay Simsek.



Magallanes  
López



Maddakandage  
Dona

### Vatansever Honored by Food Technologists

Cereal science doctoral student **Serap Vatansever** was selected by the Minnesota Section of the Institute of Food Technologists (MN IFT) to receive the prestigious Elwood F. Caldwell Scholarship Award for Volunteer Service. She also received a travel scholarship for the IFT annual meeting.

The MN IFT annually awards scholarships to food science students who excel in volunteer service, leadership, academic



achievement and professional development. The Elwood F. Caldwell Scholarship is given to recognize, encourage and reward volunteer service by students. The scholarship honors the late University of Minnesota Food Science and Nutrition Professor Emeritus Elwood F. Caldwell for his many years of service to the MN IFT.

Vatansever was advised by former faculty Dr. Clifford Hall.

### Lan Receives Award and Scholarship

Cereal science doctoral student **Yang Lan** was selected to receive a 2020 Honored Student Award by the American Oil Chemists' Society (AOCS). He was also selected to receive a graduate scholarship and travel award by the Minnesota Section of the Institute of Food Technologists (MN IFT).



The purpose of the AOCS Honored Student Award is to promote graduate student research in lipid chemistry and encourage involvement in the AOCS. The award includes a travel, lodging and meal allowance, as well as complimentary registration for the annual meeting, where recipients present their research.

The MN IFT annually awards scholarships to food science students who excel in volunteer service, leadership, academic achievement and professional development.

Lan is advised by Dr. Jiajia Rao.

### Puka-Beals Wins Horticultural Science Contest

Plant sciences Master's student **Jesse Puka-Beals** was named one of five winners of the American Society for Horticultural Science (ASHS) eOrganic Article Competition. Winners receive registration, travel and lodging expenses for the 2020 ASHS Annual Conference and present their research at the conference. In addition, their peer refereed article will be published to the eOrganic public website.



The title of Puka-Beals's research article is "Hydromulching: Another New Approach for Weed Management in Organic Agriculture". He is advised by Dr. Greta Gramig.

### Haugrud Honored at Weed Science Meeting

Plant sciences doctoral student and research specialist **Nathan Haugrud** won first place in the Western Society of Weed Science (WSWS) graduate student oral paper contest at the WSWS and Weed Science Society of America (WSSA) joint annual meeting.



Haugrud presented "Inter-row Cultivation to Supplement Residual Herbicide Programs in Sugarbeet" in the Integrated Weed

(Continued on page 20)

## Graduate Student News

(Continued from page 19)

Management and Weeds of Horticultural Crops section. He summarized research on inter-row cultivation in sugarbeet, concluding that cultivation is a valuable tool to remove herbicide-resistant weeds, but cultivation performed on an underdeveloped sugarbeet canopy can lead to further weed emergence.

Haugrud is advised by Extension weed specialist Dr. Joe Ikley.

### Yilmaz Receives Graduate Student Showcase Award

NDSU held its sixth annual Three Minute Thesis (3MT) Competition and Graduate Student Showcase to highlight graduate student research. Plant sciences Master's student **Kutay Yilmaz** won the Graduate Student Showcase People's Choice Award for Best Display with his tabletop display, "Sorghum: A Nutritious New Edible Grain in North Dakota". He also gave a 3MT presentation in the preliminary round titled "Grain Sorghum is Becoming a New Crop in North Dakota".



At his table display, Yilmaz provided information on what sorghum is and why it is important, its use as an alternative crop, his research data, and a comparison of corn and ancient grains (quinoa, millet, buckwheat) with sorghum. He also gave visitors to his table an informational brochure and seed samples, and he served flavored snacks made with sorghum, including popped sorghum.

Yilmaz is advised by Dr. Burton Johnson.

## Graduate Studies in Plant Sciences

The Department of Plant Sciences offers specialized academic and research training and each area of study is designed to provide students with a comprehension of the discipline and of relevant regional and global social issues.

### Degrees

Cereal Science - M.S. | Ph.D.

Horticulture - M.S.

Plant Sciences - M.S. | Ph.D.

### Disciplines

Biotechnology · Breeding · Cereal Science

Food Science · Genetics · Horticulture · Physiology

Production Turfgrass · Weed Science

### Scholarships

In the 2020-21 academic year, 24 scholarships were awarded ranging from \$160-\$2,000, and totaling over \$24,000.

Accepted students become paid research assistants and are eligible for tuition waivers. All graduate students are part of the Plant Sciences Graduate Student Association and are eligible to participate in the annual graduate symposium with Canadian universities.

## 2020 Ph.D. and M.S. Graduates

### Ph.D.

Patricia Cabas Luhmann (*Cereal Science, Manthey*)

Pradeepika Chintla (*Plant Sciences, Shetty*)

Supun Fernando (*Cereal Science, Manthey*)

Yang Lan (*Cereal Science, Rao*)

Sara Moayed (Cereal Science, Manthey)

Jose Rivera (*Plant Sciences, Horsley*)

Serap Vatansever (*Cereal Science, Hall*)

Fengchao Zha (*Cereal Science, Chen*)

Mingyi Zhang (*Genomics & Bioinformatics, Cai*)

### M.S.

Maite Alava Vargas (*Cereal Science, Simsek*)

Dylan Barry (*Plant Sciences, Marais*)

Peter Beerbower (*Genomics & Bioinformatics, McClean*)

Edgar Escobar (*Plant Sciences, Osorno*)

Aaron Froemke (*Plant Sciences, Howatt*)

Venkata Rao Ganaparthi (*Plant Sciences, Marais*)

Kory Johnson (*Plant Sciences, Kandel*)

Yuan Liu (*Plant Sciences, X. Li*)

Alexa Lystad (*Plant Sciences, Peters*)

Jayani Maddakandage Dona (*Cereal Science, Simsek*)

Jithin Mathew (*Genomics & Bioinformatics, Shetty*)

Jacob Muir (*Plant Sciences, Ransom*)

Jesse Puka-Beals (*Plant Sciences, Gramig*)

Mattie Schmitt (*Plant Sciences, Ransom*)

Delgersaikhan Shinezorigt (*Cereal Science, Manthey*)

Kyla Splichal (*Horticulture, McGinnis/Hatterman-Valenti*)

Ikbal Tatar (*Plant Sciences, Hatterman-Valenti*)

Nickolas Theisen (*Plant Sciences, Hatterman-Valenti*)

Alex Wittenberg (*Plant Sciences, Berti*)

Kutay Yilmaz (*Plant Sciences, Johnson*)



# Undergraduate Student News

## Hanson Awarded Mid America CropLife Scholarship

**Brendan Hanson** was awarded a Mid America CropLife Association (MACA) Young Leader Scholarship. He is a junior from Rochester, Minn., majoring in crop and weed sciences with biotechnology emphasis and minoring in botany. He is advised by Dr. Kirk Howatt.



The scholarship program is designed to expose future agriculturists to the crop protection industry and future career opportunities. Candidates must be enrolled in an agriculture-focused program at one of the 13 Land-Grant Universities and have secured a summer internship within agriculture, preferably in the crop protection industry. One scholarship is awarded per university.

## Skalicky Crowned Little International Queen

**Katie Skalicky** was named Queen for the 94th Little International. Little I is the NDSU Saddle and Sirloin Club's annual livestock showmanship competition. Skalicky is a senior crop and weed sciences major with an emphasis in biotechnology and a minor in agricultural communication. She is from Owatonna, Minnesota.



## Students Named Top 10 Seniors and Outstanding Senior

**Chad Blank** and **Paul Moffet** were among the 2020 Top 10 Seniors named by the NDSU College of Agriculture, Food Systems and Natural Resources during NDSU Ag Week. Blank was named the Outstanding Senior.



Blank

Blank is from Milona, Minnesota, and grew up surrounded by the golf management industry. This influenced his decision to attend NDSU to major in horticulture with an emphasis in sports and urban turfgrass management and a minor in economics. He has interned at several golf clubs in the U.S., and on campus he is involved with Sigma Alpha Epsilon and Student Government.



Moffet

Moffet grew up on a farm near Barney, North Dakota. He graduated Summa Cum Laude in the fall of 2019 in agriculture economics with a crop and weed sciences minor and is employed full time as a sugarbeet agriculturalist at

Minn-Dak Farmers Cooperative. While at NDSU, he completed several internships and was active in FarmHouse Fraternity, Saddle and Sirloin, Ag Ambassadors, Honor Commission, and the NDSU Ag Collective.

Students are selected as Top 10 Seniors based on leadership, service, awards, internships and other significant experiences and accomplishments. The Outstanding Senior is chosen from among the roster of Top 10 Seniors.

## Hasler Named Agriculture Ambassador

**Morgan Hasler** was selected as an Agriculture Future of America (AFA) Ambassador. She represents AFA to agribusiness leaders, campus faculty and fellow students during her year of service. Hasler is a crop and weed sciences major from Lexington, Kentucky. AFA provides leadership development, internship support and scholarships to collegiate leaders and young professionals.



## Hart Wins Farm Bureau Competition

**Susan Hart** won the North Dakota Farm Bureau Collegiate Discussion Meet and will go on to compete in the American Farm Bureau Federation 2021 Young Farmer and Rancher Leadership Conference. Hart is a crop and weed sciences major from Parkers Prairie, Minnesota, and works part-time in Dr. Xiwen Cai's wheat genetics and cytology lab.



## Undergraduate Majors

Learn more about the undergraduate majors in the Department of Plant Sciences - Food Science, Crop and Weed Sciences, and Horticulture. A video about each program can be viewed on the NDSU Plant Sciences YouTube channel. Take a few minutes to watch and then share them with a prospective student!



[www.youtube.com/channel/UCn1yiuqWcTlIIYePgD8HDMA](http://www.youtube.com/channel/UCn1yiuqWcTlIIYePgD8HDMA)



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## Plant Sciences Faculty

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Richard D. Horsley	Dept. Head; Professor (6-rowed and 2-rowed barley breeding, genetics)
Nonoy Bandillo	Assistant Professor (pulse breeding, genetics)
Marisol Berti	Professor (forages and biomass crop production)
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	Plant Sciences and Horticulture Graduate Programs Coordinator; Professor (crop physiology)
Elias M. Elias	University Distinguished Professor, J.F. Carter Durum Wheat Breeding/Genetics Endowed Professor (durum wheat breeding)
Greta Gramig	Associate Professor (weed science)
Andrew Green	Assistant Professor (hard spring wheat breeding)
Harlene Hatterman-Valenti	Assistant Dept. Head; Professor (high value crop production)
Kirk A. Howatt	Crop and Weed Sciences Undergraduate Program Coordinator; Associate Professor (weed science-annual weeds)
Joe Ikley	Assistant Professor (Extension weed control)
Burton L. Johnson	Professor (sunflower, minor and new crop production)
Thomas Kalb, II	Extension Horticulture Specialist (western ND)
Hans Kandel	Professor and Extension Agronomist (broadleaf crop production)
Chiwon W. Lee	Professor (greenhouse production, vegetable culture and breeding)
Deying Li	Professor (sports turf management)
Xuehui Li	Assistant Professor (statistical genomics)
Frank A. Manthey	Cereal Science Graduate Program Coordinator; Professor (durum and pasta quality)
G. Francois Marais	Professor (hard red winter wheat breeding, genetics)
Phillip E. McClean	Director, Genomics & Bioinformatics Program; Professor (dry bean genetics, biotechnology)
Esther McGinnis	Associate Professor and Extension Horticulturist
Michael S. McMullen	Professor (oat breeding, genetics)
Carrie Miranda	Assistant Professor (soybean breeding, genetics)
Rebekah Oliver	Associate Professor of Practice (genetics)
Juan M. Osorno	Associate Professor (dry edible bean breeding)
Tom Peters	Associate Professor and Extension Agronomist (sugarbeet production/weed science)
Mukhlesur Rahman	Associate Professor (oilseed breeding, genetics)
Jiajia Rao	Assistant Professor (food chemistry and ingredient technology)
Andrew Robinson	Associate Professor and Extension Agronomist (potato production)
Paul Schwarz	Professor (malting barley quality)
Kalidas Shetty	Associate VP for International Partnerships and Collaborations; Professor (plant metabolism, food security)
Senay Simsek	Bert L. D'Appolonia Endowed Professor (wheat end quality)
Asunta (Susie) L. Thompson	Associate Professor (potato breeding)
Anuradha Vegi	Food Science Undergraduate Program Coordinator; Assistant Professor of Practice (food safety, processing, microbiology)
Todd West	Assistant Dean, College of Agriculture, Food Systems and Natural Resources; Horticulture Under graduate Coordinator; Professor (woody plant improvement)
Qi (Chee) Zhang	Associate Professor (turfgrass stress physiology)
Alan Zuk	Associate Professor (sports and urban turfgrass management)

## Emeritus Faculty

---

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

Jerry D. Franckowiak  
Richard C. Frohberg  
Kenneth F. Grafton  
Dennis Gordon  
Dale E. Herman  
Khalil Khan

H. Roald Lund  
Rodney G. Lym  
Calvin G. Messersmith  
Dwain W. Meyer  
Donald C. Nelson  
Ronald C. Smith

LeRoy A. Spilde  
Dean A. Whited  
Vernon Youngs  
Richard K. Zollinger

## Adjunct & Affiliate Faculty (\*USDA)

---

James V. Anderson\* (plant biochemistry)  
James S. Beaver (dry bean genetics)  
David Bonnett (hybrid wheat breeding)  
Patrick M. Carr (sustainable agriculture)  
Wun S. Chao\* (perennial weeds)  
Munevver Dogramaci\* (sugarbeet and potato research)  
Linda Dykes\* (food science and technology)  
Justin D. Faris\* (wheat molecular genetics)  
Jason Fiedler\* (molecular biology and bioinformatics)  
Shana M. Forster (crop production)  
Jose G. Franco, Jr.\* (agroecology/sustainable food systems)  
Karen L. Fugate\* (sugarbeet physiology)  
Russell W. Gesch (physiology of oilseed crops)  
Salvador Alejandro Gezan (statistics and quantitative genetics)  
Michael Grusak\* (nutrition of crop plants)  
Yong Q. Gu\* (wheat genetics)  
Darrin M. Haagensohn\* (crop physiology and ecology)  
David P. Horvath\* (perennial weed physiology)  
Brent S. Hulke\* (flax and sunflower genetics)

Brian M. Jenks (integrated weed management)  
Blaine E. Johnson (quantitative genetics)  
Edward C. Lulai\* (potato physiology)  
Kevin McPhee (pulse crops)  
Grant Mehring (agronomy, wheat and corn research)  
Mohamed Mergoum (hard red spring wheat breeding)  
Jae-Bom Ohm\* (grain science)  
Rebekah E. Oliver (genetics)  
Michael H. Ostlie (weed science)  
Timothy G. Porch (dry bean breeding and genetics)  
Gautam Pradhan (crop production)  
Lili Qi\* (wheat genetics)  
Gerald J. Seiler\* (sunflower and sugarbeet germplasm)  
Calvin Trostle (sunflower production and management)  
Anuradha Vegi (food safety, processing and microbiology)  
Tom C. Walk (plant breeding database management)  
Jochum J. Wiersma (small grains)  
Steven S. Xu\* (hard red spring wheat development)  
Shengming Yang\* (barley genetics)

## Postdoctoral Research Fellows/Research Scientists

---

Md. Abdullah Al Bari (pulse crops breeding)  
Andrea Cecchin (forages and biomass crop production)  
Uyory Choe (food chemistry and ingredient technology)  
Tatiana Danilova (wheat genetics and cytology)  
Zhao Jin (malting barley quality)  
Jawahar Jyoti (barley genetics)  
Ajay Kumar (durum breeding)  
Yang Lan (food chemistry and ingredient technology)

Hui Li (food and cereal chemistry)  
Guojia Ma (sunflower genetics and breeding)  
Sepehr Naraghi (oat breeding)  
Dipayan Sarkar (plant metabolism and food security)  
Sudeshi Seneviratne (wheat molecular genetics)  
Kristin Simons (dry bean breeding)  
Zahirul Talukder (sunflower germplasm development)  
Zhuoyu Wang (high value crops)



## Research and Support Staff

---

Collin Auwarter (high value crop production)	Alexa Lystad (Extension sugarbeet weed control)
Jason Axtman (durum breeding)	Vicki Magnusson (woody plant physiology)
John Barr (barley quality)	Sally Mann (durum wheat breeding)
Brad Bisek (hard red winter wheat breeding)	Sandra Mark (weed science)
Kristin Boll (weed biology and ecology)	Kelly McMonagle (wheat quality)
Eric Brandvik (Extension potato production)	Joseph Mettler (annual weeds)
Brian Cattnach (barley breeding)	André Miranda (hard spring wheat breeding)
Kathy Christianson (wheat quality)	Richard Nilles (potato breeding)
Ashley Cooper (soybean breeding)	DeLane Olsen (wheat quality)
John Davies (oat breeding)	Allen Peckrul (food and cereal chemistry)
Brenda Deckard (Director, Plant Sciences Student Services)	James Perleberg (durum and pasta quality)
Chad Deplazes (Extension crop production)	Lisa Piche (pulse breeding)
Stephanie DeSimini (weed science)	John Posch (dry bean breeding)
Darin Eisinger (minor and new crops, Extension crop prod.)	Andrew Ross (pulse breeding)
Brock Fagerstrom (soybean breeding)	Kevin Rue (turfgrass)
Aaron Froemke (soybean breeding)	Robert Sabba (weed science)
Jerry Gee (soybean breeding)	Evan Salsman (durum breeding)
James Gillespie (barley quality)	Thor Selland (hard spring wheat breeding)
John Grieger (barley breeding)	Gwen Thomas (wheat quality)
Connor Hagemeyer (woody plant improvement)	Jesse Underdahl (hard spring wheat breeding)
Nathan Haugrud (Extension weed control)	Jody VanderWal (dry bean breeding)
Justin Hegstad (statistical genomics)	Edil Vidal Torres (wheat quality)
Ana Heilman-Morales (large database breeding pipeline)	Tom Walk (large database breeding pipeline)
Karen Hertsgaard (information specialist)	Amber Walter (wheat quality)
Peter Ihry (Extension potato production)	Adam Walz (hard spring wheat breeding)
Kreg Kercher (oilseed breeding)	Kristin Whitney (wheat quality)
Barb Laschkewitsch (vegetables and perennials)	Wei Zhang (wheat genetics and cytology)
Rian Lee (dry bean genetics)	
Yu Liu (durum and pasta quality)	

## Office Staff

---

### **Accounting**

Krista Caldwell, Senior Accounting Specialist  
Cora Crane, Grants Coordinator  
Andrea Evert, Accounting Technician  
Lorin Miller, Accountant

### **Academic Program Assistance**

Kamie Beeson, Information Processing Specialist  
Eileen Buringrud, Administrative Assistant  
Karen Jevning, Administrative Secretary  
Lisa Johnson, Administrative Secretary  
Shannon Ueker, Administrative Secretary

## North Dakota Foundation Seedstocks

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Steve Sebesta, Director  
Joyana Baumann, Assistant Director  
Toni Muffenbier, Accounting Specialist

## Graduate Students

<u>Name</u>	<u>Prog.</u>	<u>Deg.</u>	<u>Advisor</u>	<u>Name</u>	<u>Prog.</u>	<u>Deg.</u>	<u>Advisor</u>
Sagar Adhikari	PLSC	MS	Marais	Joe Mettler	PLSC	MS	Howatt
Abdulrahman Alahmed	CS	PhD	Simsek	Maram Milad	HORT	MS	West
Rica Amor Saludares	PLSC	PhD	Bandillo	Jose Diego Montoro Bais	PLSC	MS	Kandel
Tannis Anderson	PLSC	MS	Thompson	Presley Mosher	PLSC	MS	Hatterman-Valenti
Hashim Andidi	PLSC	MS	Thompson	Kenneth Mozea	PLSC	MS	Berti
Hiroshi Ando	CS	MS	Manthey	Mika Mzumara	HORT	MS	Hatterman-Valenti
Ryan Archer	PLSC	MS	Hatterman-Valenti	McKayla Neubauer	PLSC	MS	Berti
Jason Axtman	PLSC	MS	Elias	Brandon Olson	CS	MS	Simsek
Enise Ayyildiz	PLSC	MS	Robinson	Neil Olson	PLSC	MS	Hulke
Lucas Batista	PLSC	MS	Green	Amanda Peters Haugrud	GEN	PhD	Faris
Peter Beerbower	GEN	PhD	Cai	Edoardo Poletti	PLSC	PhD	Thompson
Samuel Bibby	PLSC	MS	Berti	Zach Pull	PLSC	MS	Gramig
David Boehm	CS	PhD	Chen	Xiaoxi Qi	CS	PhD	Rao
Sarah Bogenrief	PLSC	MS	Hatterman-Valenti	Arunika Rajapaksha	CS	MS	Simsek
Ryan Buetow	PLSC	PhD	Ransom	Ramnarain Ramakrishna	CS	PhD	Shetty
Liuyi Chang	CS	PhD	Rao	Shuangfeng Ren	GEN	PhD	Cai
Baochen Fang	CS	PhD	Rao	Oscar Rodriguez	PLSC	PhD	Osorno
Lena Fiskness	HORT	MS	Hatterman-Valenti	Jayanta Roy	PLSC	PhD	Rahman
Mala Ganiger	PLSC	PhD	Horsley	Kevin Rue	PLSC	MS	Zhang
Melissa Geiszler	PLSC	PhD	Ransom	Mory Rugg	PLSC	PhD	Green
Andre Gossweiler	PLSC	MS	Hulke	Katherine Running	GEN	PhD	Faris
Amy Greenberg	PLSC	MS	Berti	Evan Salsman	PLSC	PhD	X. Li
Matteo Grossi	CS	PhD	Chen	Kelly Satrom	PLSC	MS	Howatt
Jed Grow	PLSC	MS	Robinson	Peder Schmitz	PLSC	PhD	Kandel
Zixuan Gu	CS	PhD	Chen	TM Shaikh	PLSC	MS	Rahman
Connor Hagemeyer	HORT	MS	West	Gurminder Shaikh	GEN	PhD	Faris
Nathan Haugrud	PLSC	PhD	Ikley	Brian Smart	PLSC	MS	Hulke
Amber Hermanson	HORT	MS	Dai	Sarah Steffen	HORT	MS	West
Aaron Hoppe	PLSC	PhD	Peters	Jenna Steffes	PLSC	MS	Bandillo
Ahasanul Hoque	PLSC	PhD	Rahman	Jeffery Stith	PLSC	MS	Ikley
Shakil Hosain	PLSC	MS	Rahman	Nirmala Subedi	CS	MS	Manthey
Seyed Ali Hosseinirad	PLSC	PhD	Elias	Aishwarya Suresh	CS	PhD	Manthey
Justin Jacobs	PLSC	MS	Johnson	Andrej Svyantek	PLSC	PhD	Hatterman-Valenti
Haiyang Jiag	CS	PhD	Rao	Gabriel Swanson	CS	MS	Chen
Ela Jusino Montalvo	PLSC	MS	Horsley	Dustin Valez	PLSC	MS	Cai
Venkateswara Kadium	PLSC	MS	Hatterman-Valenti	Haley Visto	PLSC	MS	Green
Emma Larson	PLSC	MS	Peters	Tiffany Walter	PLSC	MS	Howatt
Marcus Mack	PLSC	MS	Ransom	Adam Walz	PLSC	MS	Green
Jayani Maddakandage Dona	CS	PhD	Simsek	Runhao Wang	PLSC	PhD	X. Li
Ana Magallanes Lopez	CS	PhD	Simsek	Xiang Wen	CS	PhD	Rao
Makenson Maisonneuve	PLSC	MS	Horsley	Frank Wilczek	PLSC	MS	Ransom
Phabian Makokha	PLSC	PhD	Robinson	Li Xiao	CS	PhD	Rao
Ashok Mandal	PLSC	MS	Rahman	Jinglun Zhang	PLSC	MS	Cai/Xu
Felicity Merritt	PLSC	MS	Thompson	Muxin Zhao	CS	PhD	Chen

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