NDSU student conducts agricultural research in Africa
PROPOSED NDSU CENTER:
A STRONG ECONOMIC FORCE FOR AGRICULTURE’S FUTURE

It’s an idea that is expected to be a driving force for the region’s agricultural economy for decades to come.

NDSU’s proposed $60 million Agricultural Products Development Center is seen as a vital long-term investment in the state’s agricultural and food processing industries. The facility would bring together leading-edge research and outstanding teaching facilities and enhance the economic well-being of the region’s ag economy.

The center will focus on developing new and improved ways to process the region’s agricultural commodities into better food products that can be delivered to a growing world population. In addition, students will take courses in state-of-the-art classrooms and laboratories that will lead to a variety of career opportunities with food processing companies or equip them with the tools to start their own business.

"The center will positively impact nearly every commodity raised in the state, whether it’s livestock and meat products or cereal grains, corn or soybeans," said Greg Lardy, associate vice president for agricultural affairs. “We see the center’s research effort expanding and enhancing the landscape of agriculture and food production is changing rapidly. Consumers around the globe want higher quality, more nutritious diets, and the commodity mix in the region’s fields and pastures is shifting to meet the demand. A broader diversity of crops are being grown in the region, including more emphasis on identity preserved products destined for foreign and domestic markets. In addition, consumers want more convenience items, and area restaurants and grocery stores want to feature locally-grown foods.

The proposed project would replace aging, out-of-date facilities on campus. Preliminary plans call for a three-story structure located on 18th Street North, across from the State Seed Department building. It would be an impressive and welcoming sight for visitors coming to NDSU from the west.

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The proposed project had strong support from commodity groups during the 2019 session of the North Dakota Legislature, and the lawmakers approved $60 million for the center. NDSU was asked to raise the remaining $20 million.

The NDSU Foundation is leading the fund-raising effort.

"We’ve got some private support already from commodity groups, individuals and others,” Lardy said. “In today’s ag economy, $20 million is a lot of money, so we are looking for opportunities with ag companies, commodity groups and other stakeholders that might be interested in the project.”

Preliminary plans call for a three-story structure located on 18th Street North, across from the State Seed Department building. It would be an impressive and welcoming sight for visitors coming to NDSU from the west.

The new center would replace aging, out-of-date facilities on campus. Harris Hall, home to the food and cereal science units, and the Meats Research Laboratory in Shepheard Arena were built in the early 1950s. Approaching 70 years old, they are outdated and have structural and mechanical deficiencies.

“They are growing. “It’s really time for modern facilities for our programs,” Lardy said, noting that top-notch research and teaching facilities will help the departments be better able to attract and retain leading researchers, faculty and students.

"Now more than ever, North Dakota farmers and ranchers are connected to and dependent upon international markets,” Lardy said. “The research conducted in the new building will lead to innovations in marketing the state's agricultural commodities to buyers across the globe. Foreign customers look to the region for the highest quality products, and the new facility will play an important role in making improvements in end product quality, nutritional content, and consumer sensory characteristics. NDSU faculty and students are very excited about the research and teaching opportunities the new center will provide.”

NDSU STUDENT CONDUCTS AGRICULTURAL RESEARCH IN AFRICA

Morgan Hasler has the noble goal to end world hunger.

Hasler, a native of Kentucky, is a sophomore pursuing her bachelor’s degree in crop and weed sciences at NDSU.

Her journey in agriculture began in high school, when she participated in the World Food Prize program, which focuses on sustaining food for all people. Hasler wrote and presented a paper at the Arkansas FFA State Institute about how she would solve hunger in a developing nation. She was awarded the top prize.

Hasler earned the program’s Wallace-Curver Fellowship, and was assigned to the Edward T. Schafer Agricultural Research Center in Fargo. “I believe that advancements in modern agriculture are the only way to feed the world’s growing population,” Hasler said. “Food is a moral right for all of those born into this world.”

Hasler conducted research at the Animal Metabolism Unit at the Red River Valley Agricultural Research Center. She developed detection methods for melosinica, “a common drug used in companion animals, but banned in animals for consumption,” Hasler explained.

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Hasler’s experience in Africa is helping her design her career path.

Hasler hopes to study agricultural law or policy, and knows her strong research foundation will be a benefit in the future. “NDSU offers degrees in traditional areas, but keeps a global and modern perspective,” she said. "It might not be easy to keep up with the times in this industry, but NDSU rises to the challenge. I know I'm getting a quality education."
Student researcher uses drone technology to predict crop yields

NDSU graduate student Donald Veverka’s research is providing a glimpse of the future of agriculture.

Veverka works with a drone, studying how aerial images can help forecast the quality of a crop. It’s important research, because it may give growers another way to improve their bottom line.

This summer, the natural resources management student earned his Certified Remote Pilot license and regularly flew a drone over eight wheat fields in western Minnesota. The specific test sites were small — only 50 feet wide by 100 feet long — but he gathered a huge amount of data.

“I flew the drone at 300 feet above the sites and took roughly 500 images. The camera I used has five lenses and each one has a filter that correlates to different wavelengths,” said Veverka, who is a native of Wausau, Wisconsin. “This is the future, and it’s great to be part of it.”

The images captured light reflected by the chlorophyll in the wheat plants at different times during the growing season. Veverka “stitched together” the many images with software on his desktop computer during various growth stages of the wheat and used measurement tools like the Normalized Difference Vegetation Index to correlate the images with grain yield and protein content. During August, he conducted a mini-harvest and took samples back to a campus lab.

His goal is to find a way to use remote sensing technology to predict both yield and protein content.

The research is under the guidance of his faculty adviser, Amritava Chatterjee, associate professor of soil science. “If we are successful in selecting a growth stage and vegetation index that can predict wheat yield and protein content irrespective of the management variability, then growers and consultants can use that recommendation,” Chatterjee said.

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NDSU alumnus Douglas Duncan’s job is to predict the future and make forecasts that have a major impact on housing across the country.

Duncan, BS ’80, MS ’82, agricultural economics, is the senior vice president and chief economist for the Federal National Mortgage Association, commonly known as Fannie Mae.

The government-sponsored company is a major source of financing for mortgage lenders. It works to make homeownership and rental housing a reality for millions of Americans. Duncan’s predictions about the economy and the housing market business are vital to many of Fannie Mae’s business decisions.

“It’s humbling to be recognized because I know the college has produced some really impressive graduates who have distinguished careers in many areas.”

Duncan returned to campus Nov. 1-2, 2018, as the distinguished alumnus for the College of Agriculture, Food Systems, and Natural Resources and to serve as Executive-in-Residence for the Department of Agribusiness and Applied Economics.

“It’s humbling to be recognized because I know the college has produced some really impressive graduates who have distinguished careers in many areas,” Duncan said. "I'm here to stay." He added, "I enjoy the work and as long as they keep giving me challenges, I’m here to stay.”

Duncan said changing market conditions keep his job both demanding and interesting. "Working hard was instilled in me at an early age,” he said. “I enjoy the work and as long as they keep giving me challenges, I’m here to stay.”

Prior to joining Fannie Mae in 2008, Duncan was senior vice president and chief economist for the Mortgage Bankers Association. He earned his doctorate in agricultural economics from Texas A&M University.

Graduate excels in research field

NDSU alumna Amali Samarasinghe is quickly becoming a respected national leader with her research on asthma, respiratory pathogens and influenza.

Samarasinghe, PhD ‘10, molecular pathogenesis, is an associate professor in the Department of Pediatrics at the University of Tennessee Health Science Center. She is now in the middle of a five-year $1.9 million research grant from the National Institutes of Health.

“My lab is focusing on how influenza virus infections affect people with pre-existing asthma,” she said from her office in Memphis. “We are challenging traditional dogma; we have found that timing dictates the outcome. If an asthma patient is having a reaction to an allergen and comes in contact with the influenza virus, they are actually protected from influenza. But, if the time between an allergen exposure and influenza virus exposure is expanded, then you are more susceptible to influenza.”

“I have never encountered a student who had such an innate knack for bringing out the best learning outcomes for her students. She is a natural.” — Jane Schuh

As an undergraduate and graduate student at California State University, Northridge, Samarasinghe studied the brain, but she became interested in asthma when she came to NDSU to earn her doctorate. She worked in the laboratory of Jane Schuh, vice president for research and creative activities, and helped develop an inhalation model triggered by mold that became a template for a major shift in the field.

“Amali is knocking it out of the park – she is a stellar scientist,” said Schuh, noting Samarasinghe had a post-doctoral position at St. Jude Children’s Research Hospital and has received job offers from Harvard and Tulane University. “I have never encountered a student who had such an innate knack for bringing out the best learning outcomes for her students. She is a natural. As an independent scientist, she has built upon the model we developed to examine the combination of lung pathogens and their effect on each other and the disease status of the host.”

Samarasinghe’s vita lists 24 peer-reviewed publications and she has been recognized with the American Lung Association’s 2017 Research Excellence Award, American Thoracic Society’s 2017 Early Career Achievement Award and the society’s 2016 Rising Star of Research Award.

“At NDSU, it was a true didactic education. It was full of discussion and scientific thought – the teachers were fantastic,” Samarasinghe said. “I have no words to describe the importance of that foundation. If I had not had that experience, I don’t think I’d be here.”

Would she recommend NDSU to other students seeking an advanced degree?

“Absolutely,” Samarasinghe said. “At NDSU, faculty are dedicated to students and classes are designed to transfer knowledge perfectly. It has a high standard.”

She is married to NDSU alumnus Panduka Nagahawatte, MS ’09, computer software engineering. Her parents, Mahinda and Indrani Samarasinghe, live in Sri Lanka.

Alumni honored for accomplishments, service

College of Agriculture, Food Systems, and Natural Resources alumni have been honored by the NDSU Foundation and Alumni Association.

Mike Tokach, BS ’86, animal and range sciences, was presented the 2019 Henry L. Boley Academic Achievement Award, which recognizes noted accomplishments in education.

Tokach is a professor of animal sciences and industry at Kansas State University and a world-renowned swine nutrition researcher. He directs the university’s Applied Swine Nutrition Team that has produced cutting-edge research and graduated many leading swine nutritionists.

His program has generated more than $18 million in grants and gifts. Tokach has written more than 300 articles in scientific journals, over 1,000 Extension publications and eight book chapters. He has been awarded seven patents.

Tokach and wife, Lisa, have three children and live on a small farm near Ablene, Kansas.

NDSU graduate helps farmers with marketing

NDSU alumnus David Spickler wants to help farmers market grain during difficult economic times.

Spickler, BS, ’04, animal science, is president and majority owner of Lighthouse Commodities. The firm was founded in 2015, and is headquartered in Bismarck, North Dakota. Lighthouse provides professional merchandising services to farmers throughout the region, equipping them with the same risk management tools and resources the rest of the grain supply chain uses.

The current agricultural economy is experiencing low commodity prices, meaning a tough financial outlook for many growers. “Large yields, expanding global competition, trade distributions and now livestock disease have all factored in during this prolonged downturn,” Spickler said. “The results have put a lot of strain on farms across the country, and unfortunately we see the trend of large crops and depressed prices likely continuing for the next few years.”

Spickler said Lighthouse Commodities helps farmers achieve marketing goals while still focusing on maximizing production. “Farm success in the next decade almost certainly requires both excellent production and excellent marketing,” he said.

Spickler created many lifelong connections during his time at NDSU. He was involved in organizations such as SaddlE and Slinko Club and the Ag Ambassadors, and he participated in a feedlot internship. Spickler said he still maintains strong ties with the friends he met at NDSU.

Spickler’s NDSU experiences also brought him many opportunities that have influenced the direction of his career. After graduating, he worked with livestock enterprises in risk management for Cargill. He then became a chief risk officer for Midwest AgEnergy, working with two ethanol plants in North Dakota.

“I still keep in touch with faculty in both the animal science and ag econ programs, and have leveraged those relationships at various stages of my career for advice, information, contacts and more,” he said. “I definitely value my NDSU experience. The information I have learned about production, management and marketing has proven useful throughout my career.”
The NAMA marketing competition is an intense competition where students take a new product idea, write a marketing plan and give a 20-minute presentation. This year, the team's project was an oat-milk ice cream called North Dakota Nice Cream.

TEAM MEMBERS INCLUDED:
- Clara Konetschka, a sophomore in strategic communication from Mendota Heights, Minnesota
- Thomas Konetschka, a senior in agricultural economics from Mendota Heights, Minnesota
- Emily Christofferson, a junior in finance from Napoleon, North Dakota
- Jessica Refshaw, a sophomore in agribusiness from Mahnomen, Minnesota
- Brita Swenson, a freshman in agribusiness from Lake Bronson, Minnesota
- Ashley Bandemer, a sophomore in marketing from Glencoe, Minnesota
- Katelyn Kokett, a senior in agricultural economics from Fargo
- Nicholas Broberg, a senior in marketing from Wayzata, Minnesota
- Dylan Kallman, a sophomore in agricultural economics from Lino Lakes, Minnesota
- John Chadwick, a sophomore in economics from Bemidji, Minnesota

Faculty advisers are David Englund, lecturer of agribusiness and applied economics, and Tom Wahl, professor of agribusiness and applied economics.