Department Chair Comments

Greetings! I hope your past year has been good. This has been yet another good year for the NDSU ABEN Department. Our faculty numbers continue to increase, enrollment in our programs continues to grow, and our faculty and staff continue to be productive.

This year we welcomed two new faculty; Drs. Zhulu Lin and Igathinathane (Igathi) Cannayen. Dr. Lin’s background very nicely fits a teaching and research need in the department. Dr. Lin’s wife is a faculty in the Agribusiness and Applied Economics Department. Dr. Cannayen fills a position that was originally authorized by the 2007 North Dakota Legislature. This new position will be located in Bismarck and Mandan, ND rather than on the NDSU campus. The location provides the significant opportunities to partner with the scientists at the ARS-Northern Great Plains Research Laboratory in Mandan and with the faculty in the National Energy Center of Excellence at Bismarck State College.

Dr. Dean Steele was selected as the 2009 College of Engineering and Architecture Teacher of the Year. This award recognizes the outstanding teacher in the entire College of Engineering and Architecture. Dr. Steele teaches challenging courses in both the ABEN and ASM programs. He consistently earns high grades in student evaluation of teaching surveys as well as in advising surveys.

After many years on our faculty, Dr. Suranjan Panigrahi decided to explore other opportunities. He and his family moved to Indiana where he is associated with the Electrical and Computer Engineering Department at Purdue University.

After establishing working relationships with faculty at several universities in Uzbekistan, Dr. Tom Bon made a successful application for a Fulbright Scholarship to spend a semester teaching at those institutions. Dr. Bon will spend Spring Semester teaching an instrumentation course and a computer software application course at the Taskshent Institute of Irrigation and Melioration, and a fluid power (hydraulics) course at Taskshent State Agrarian University.

Enrollment in our programs continues to increase. In the last two years, enrollment in our ABEN program has increased by about 67% and enrollment in our ASM program has increased about 100%. Graduate student numbers continue at about the same level with about 8 in each of the ABEN MS and PhD programs. This spring will see the graduation of several of the students who joined our department from the Ansal Institute of Technology (India) in Fall 2008. These students added much needed diversity to our student body. The exposure to different cultures benefits our students, faculty, and staff.

One of the most enjoyable parts of my job is the opportunity to visit with the many successful alumni who return to NDSU each year as representatives of their employers to recruit both our graduating students for fulltime employment and undergraduate students for internships. To me, this is the ultimate validation of the quality of our programs. Employers seek the highest available professional talent to fill their positions. Obviously they recruit at other high quality institutions. It is good to know that our program is among the ranks of those recognized for high quality. It is also gratifying to see the trust major employers put in our alumni to recruit the new people for their companies within about a year of graduation.

I hope you enjoy the 2010 issue of the NDSU ABEN Newsletter. As always, you are very welcome and encouraged to stop by for a visit. The faculty and staff very much enjoy the opportunity to catch up with what is happening in your life and to bring you up-to-date on the many activities of the department. Thanks for your continued support.

Until next time - Leslie F. Backer
Dr. Igathinathane Cannayen

Assistant Professor, Igathinathane (Igathi) Cannayen, joined the Department in October 2009 with a 60% research, 40% extension appointment. His research and extension focus will be on addressing the engineering related issues of the harvest, collection, storage, transport and preprocessing of biomass. The solution of many of these engineering problems between the production and conversion of biomass will be critical to the use of biomass as a viable energy source.

Igathi maintains an office at the USDA-ARS Northern Great Plains Research Laboratory (NGPR) in Mandan, ND and another office at the National Energy Center of Excellence (NECE) on the campus of Bismarck State College in Bismarck, ND. His research work will be done at the NGPR where he will work collaboratively with the lab’s research scientists. At the NECE, he will work with faculty and students in their energy related programs and conduct his Extension activities.

Igathi received his Ph.D. in Agricultural and Food Engineering, and M.Tech. in Post Harvest Engineering from the Indian Institute of Technology, Kharagpur, India. He has a B. E. in Agricultural Engineering from Tamil Nadu Agricultural University, Coimbatore, India.

Prior to joining the Department, Igathi was a Postdoctoral Research Associate with emphasis on biomass feedstock engineering at Mississippi State Univ., University of British Columbia, and the University of Tennessee. Earlier to that he served as Asst. Professor for nine years at the College of Agricultural Engineering, Bapatla, of the former Andhra Pradesh Agricultural University, India.

Igathi enjoys star watching, melodic music, photography, developing novel ideas, history of science and technology, and publication efforts. He and his wife, Lalita, who has a doctorate in Tamil literature, have a five year old son, Raghav, and a daughter, Sridhnya, three years old.

In Memoriam...

Dexter Johnson

Dexter W. Johnson died February 26, 2009 at the age of 74. Dexter was a longtime Extension faculty member in the Department. He began his career with the North Dakota State Cooperative Extension Service in 1961, retiring as Section Head of Extension Agricultural Engineering and was named Professor Emeritus in 1987. His passions included farmstead planning, structure design and John Deere tractors. As a Registered Professional Engineer, Dexter pioneered modern design applications for crop storage and researched the beginning of modern grain storage structures.

Dexter is survived by his wife of 51 years, Anna Marie, daughter Jann, son Russell, two granddaughters, Marah and Ciera, sisters Delores and Sonja, and many nieces and nephews.

Fred Burbidge

Fred Burbidge (BS AM 1970), 60, West Fargo, ND, died March 31, 2009, following an illness. He was general manager of Northern Plain Steel in Fargo. During his career he also worked for Westgo and Alloway Mfg.

Ron Erickson

Ron Erickson (BS AM 1989), 43, died in Minot, ND on May 4, 2009 from injuries sustained in a plane crash. He was awarded the North Central Soil Conservation Award in 2005 and enjoyed being on a variety of boards.

Howard M. Olson

Howard M. Olson (BS AE 1948), 87, died on October 28, 2008, in Fargo, ND. He received his Masters of Irrigation Engineering from Utah State Univ. and began his professional career as an agricultural engineer with the Bureau of Reclamation, Garrison Project. He was a research ag engineer with the ARS, Northern Great Plains Field Station in Mandan and superintendent of the Williston Dryland and Irrigation Branch Experiment Stations, until developing the Carrington Experiment Station in 1960 from which he retired in 1986. He received the NDSU Honored Alumni Award, Agriculturist of the Year from the NDSU chapter of Alpha Zeta, the Garrison Conservancy District’s Mr. Irrigation Award, and an Honorary PhD from NDSU.

Verdine Rice

Verdine Rice (BS AE, Ag Ed 1939), 91, died in Mesa, AZ, on March 30, 2009. He taught vocational agriculture in Wishek, ND, from 1939 to 1956, and then taught at Williston, ND, for another 24 years, retiring in 1980. He was president of the N.D. Agriculture Teachers Association, and was named the state’s Vocational Agriculture Teacher of the Year in 1971. He was director of the National Hard Spring Wheat Show. He served in the N.D. House of Representatives for eight years, and also received the Distinguished Service Award from Future Farmers of America. He supported the Rice Family Scholarship at NDSU.

Marjorie (Hoover) Witz

Marjorie (Hoover) Witz, 91, died May 3, 2009 in Fargo, ND. Marge married Richard (Dick) L. Witz in 1941. Dick was a member of the NDSU Agricultural Engineering faculty. Dick passed away in June, 2007.

See alumni updates on pages 6 and 7.
Faculty, Staff and Student Recognition

James Moos
- Mary McCannel Gunkelman Award nominee – nominated by students

John Nowatzki
- 15 Years of Service, North Dakota State University Extension
- AGSCO Excellence in Extension Award nominee

Scott Pryor
- Gordon A. Larson Agricultural Research Award

Janelle Quam
- Donald and Jo Anderson Staff Award nominee, 2009 Agriculture Faculty/Staff Awards
- 10 Years of Service, NDSU

Elton Solseng
- North Dakota Grain Dealers Service - Good Egg Award

Dean Steele
- CEA Teacher of the Year - nominated by ASABE students

Nancy Stroh
- 25 Years of Service, NDSU

Dennis Wiesenborn
- CEA Faculty Researcher of the Year nominee

Matt Borud, ASM undergraduate Student
- Recipient of a plaque from John Deere Company in recognition of completing the Dealership Management Specialization within the ASM program. Borud graduated in Spring 2009 and is employed by Gooseneck Implement in Kenmare, ND.

College Ambassadors

The following undergraduate students are to be commended for volunteering their time and talents to represent either the College of Engineering and Architecture (CEA) or the College of Agriculture, Food Systems, and Natural Resources (CAFSNR) to prospective students and the public.

Francis Dierickx
Ag Ambassador, CAFSNR
- Senior in agricultural and biosystems engineering from Marshall, MN.

Cody Frauenberg
Ambassador, CEA
- Senior in agricultural and biosystems engineering from LaMoure, ND.

Steven Gruber
Ambassador, CEA
- Junior in agricultural and biosystems engineering from Belgrade, MN.

Marissa Nelson
Ambassador, CEA
- Sophomore in agricultural and biosystems engineering from Watford City, ND.

Tyler Rath
Ambassador, CEA
- Senior in agricultural and biosystems engineering from Belgrade, MN.

Joshua Seibert
Ag Ambassador, CAFSNR
- Senior in agricultural and biosystems engineering from Sebeka, MN.

Matthew Wold
Ambassador, CEA
- Senior in agricultural and biosystems engineering from Thief River Falls, MN.

Student Receives ASABE Foundation Engineering Scholarship

Tyler Rath, an ABEN junior, received the 2009 ASABE Foundation Engineering Scholarship by the American Society of Agricultural and Biological Engineers (ASABE). The scholarship grant is presented annually to an ASABE student member enrolled in an ABET or CEAB accredited agricultural/biosystems engineering program. To qualify, students must maintain a high grade point average, verify that graduation assures eligibility for the Professional Engineering licensing exam and can attest to the need for financial aid. Rath was presented with the $1,000 scholarship grant on May 6, 2009 during the Department’s annual spring picnic.

Rath has had cooperative education experiences with Bobcat Company and Case New-Holland. A three-year member of ASABE, Rath has held the officer position of Scribe in NDSU’s student chapter of ASABE. He has also served as spokesperson for various club meetings and presentations on campus. Rath’s other University activities include Engineering and Architecture ambassador and Agricultural Technology Expo division manager in 2008, assistant manager in 2009, and manager in 2010.

If you would like the newsletter sent to you electronically instead of by mail, please e-mail aben@ndsu.edu.
Tile Drainage and Subirrigation Evaluation Research

Xinhua Jia, Assistant Professor in the Department of Agricultural and Biosystems Engineering, is leading three research projects in the Red River Valley.

Feasibility of the use of tile drainage for subsurface irrigation in the Red River Valley and its impact on soil chemical and physical properties

A demonstration tile drainage field with a lift station was chosen near Fairmount, ND. Project objectives are to: 1.) determine the feasibility of using tile drainage for subirrigation to enhance crop production; 2.) evaluate the changes of the soil chemical and physical properties overlying the drained and drained-subirrigated areas compared to untreated areas; 3.) monitor drainage water quantity and quality, ground water depth and water quality in the drained, drained and subirrigated, and control areas; and 4.) determine the impact of moderate sodium absorption ratio (SAR) irrigation water on the dispersivity and hydraulic conductivity of soils near the drain tiles used for subirrigation.

It is feasible to use tile drainage for subirrigation to enhance crop production. In 2008, corn yield for tiled and tiled/subirrigated were 5% and 10% higher than that for the untiled field, respectively. The yield was 38% higher than the average corn yield in this region. Soil electric conductivity (EC) was higher in the untiled field, but lower in the tiled and tiled/subirrigated fields, indicating that tile drainage decreased the soil EC for soils above the tile line.

Impact of subsurface drainage on water availability in the Red River Basin

A wet weather cycle in the Red River Basin region since 1993 has brought the groundwater level closer to the soil surface in many areas. Subsurface drainage (SSD) can be an effective way to maintain crop production where shallow groundwater exists over a poorly drained soil or where soil salinity has been elevated due to high water tables. However, releasing drainage water into the Red River modifies the water balance and water quality (water availability), which, in turn, may disrupt the existing ecology and hydrological balance of the regional watershed and wetlands. One of the most important parameters in the water balance, evapotranspiration (ET), was measured using eddy correlation, scintillometer, and soil moisture deficient on SSD and undrained fields.

Two eddy correlation systems were set up in an undrained and drained field for actual ET measurement. Hydra probe II soil moisture sensors were used to measure ET using the soil water deficit methods. A remote sensing ET model was also used to compare the ET difference between the drained and undrained fields. Along with measurement of rainfall, drainage, and irrigation amount, a comprehensive water mass balance can be determined.

The ET measured by the eddy correlation method showed that the ET are 212 and 234 mm for undrained and drained fields from June to September in 2009, respectively. The major ET difference happens in July and August when the crop needs water the most.

Devils Lake Basin Irrigation Study Nears Completion

Irrigation may not be part of the solution to lowering water levels in the upper Devils Lake Basin as a flood mitigation measure. In autumn 2004, Dean Steele, associate professor in the Department of Agricultural and Biosystems Engineering, and David Hopkins, associate professor in the Soil Science Department, began working on the Devils Lake Basin Water Utilization Test Project to evaluate a proposed multiphase irrigation development effort to mitigate flooding in the basin. The project objectives were to:

- Determine the amount of additional water irrigated crops use compared with nonirrigated crops in the upper Devils Lake Basin
- Evaluate irrigation sustainability in terms of soil chemistry on representative soils in the basin
- Use test results to estimate potential water use in the broader Devils Lake Basin

Instruments recorded rainfall, irrigation, soil moisture, ground water levels and downward fluxes of water through the soil at 10 irrigated sites for three full growing seasons (2006-08). Researchers also monitored soil salinity using two distinct methods each fall and spring.

In 2006, the median estimated ET for irrigated corn at two test sites was between 1 and 2 inches greater than for irrigated and nonirrigated corn in the “footprint” area. However, irrigated corn at two other test sites had lower median ET values than corn in the “footprint” area. Overall, the gain in ET attributable to irrigation in this study was considerably lower than the 5.4 inches of ET gain that previously was estimated for a mix of irrigated crops compared with nonirrigated crops. The conclusion is that use of irrigation would be less effective for flood mitigation than previously anticipated.

Soil sampling is continuing to obtain final results for the soil salinity/sustainability recommendations.
Educational Displays and Demonstrations at Big Iron Farm Show

The NDSU Extension Service, in cooperation with the University of Minnesota Extension Service, provided educational programming during the Big Iron Farm Show at the Red River Valley Fairgrounds in West Fargo in September, 2009. Programming included educational displays, formal presentations and field demonstrations.

Carl Pedersen discussed ways people can reduce their energy use to save money. An energy bike was set up to help people experience the amount of energy required to power home electrical devices. He also demonstrated how infrared cameras and thermometers are used to evaluate heat loss areas in a home.

Ken Hellevang discussed post harvest management practices.

Tom Scherer and Roxanne Johnson discussed the results of well water quality screening conducted in North Dakota. They also presented findings of a tile drain monitoring project.

John Nowatzki organized strip-till research and equipment demonstrations and educational programs.

On-Farm Turkey Carcass Composting

Turkey mortality is a part of turkey production systems. Environmentally safe disposal of turkey carcasses is vital to a farm's biosecurity and the prevention of disease outbreak. Mortality disposal by on-farm carcass composting is considered a viable carcass disposal option. In this study, sunflower hull-based turkey litter was used for carcass composting at different times of the year to examine the suitability of on-farm carcass composting using turkey litter in North Dakota climatic conditions.

Dr. Shafiquur Rahman is conducting on-farm turkey carcass composting at a turkey farm in North Dakota. The farm finishes four flocks of 35,000 to 40,000 turkeys per flock per year and each flock is approximately 6 to 7 weeks apart in age. The mortality rate for this farm is very low i.e., <1%. Static piles were prepared using a front-end loader. A base layer of 30 cm of turkey litter removed from the barns was prepared. The turkey mortalities were placed on top of the base and were covered with another 30-cm layer of litter. In all trials, the dead turkey/litter ratio was 1:3. During the pile preparation, data loggers were placed at predetermined depths and locations to monitor temperature changes continuously throughout the composting process. The sensors were removed for turning of the compost pile, and reinstalled at the same location and depth after reconstructing the pile. During pile preparation and throughout the process, compost samples were collected for carbon (C), nitrogen (N), phosphorus (P), pH, conductivity, and moisture content analysis. Samples were also collected for compost maturity tests following the first turn and onward until the composting process was complete for a pile.

Preliminary results indicate that sunflower hull-based turkey litter is a suitable co-composting material. Actively composting piles sustained a temperature (i.e., 55° C) required for pathogen destruction of most disease-related mortality. However, for on-farm carcass composting, low litter (hence the pile) moisture content is a limiting factor that may retard microbial activity and result in slow and reduced biodegradation of bones.

Energy Efficiency Education

Carl Pedersen teamed up with the Kansas Building Science Institute in July to provide a comprehensive energy auditor training program. During the five-day program, 14 attendees from three states learned how to help homeowners assess how much energy their home uses and evaluate what measures they can take to improve their home’s energy efficiency.

The program was geared toward builders, insulating contractors, remodelers, home inspectors, utility service providers or anyone with some building experience and an interest in increasing their knowledge of home energy diagnostics. This course is the first step in becoming a certified home energy rater.

Energy Efficiency Partnership

Carl Pedersen and others have formed the North Dakota Energy Efficiency Partnership as an effort to bring all interested and involved parties to a common understanding to help make informed and educated decisions concerning energy use. The goal of the partnership is to avoid duplication of efforts by identifying areas for improving energy efficiency and determine who is best qualified to provide assistance.

The partnership includes about 65 individuals and organizations including NDSU faculty and representatives from USDA, ND Dept. of Agriculture, ND Dept. of Commerce, electric and gas utilities, rural electric cooperatives, North Dakota Farmers Union, Dakota Resources Council, North Dakota Builders Association and other North Dakota institutions of higher education.
Alumni Updates

Thomas E. Anderson's (BS AE 1970) legacy is continued with a new spring wheat variety called "Tom." It is the only variety that has moderate resistance to UG99, a new race of stem rust. Tom Anderson passed away in July, 2007 after battling cancer for a year.

Warren Angus (BS ABEN 1999) is a manufacturing engineer at Art's Way Mfg. Co. in Armstrong, IA.

James Asche (BS AE 1970) retired after over 37 years with Bobcat Company.

Mark Bares (BS AE 1990) was promoted to Director of Global Quality, Warranty, & Reliability at Doosan Infracore International (Bobcat Company) in Fargo, ND. He earned an MBA from Indiana University Kelly Business School in 2008 and became a member of the Beta Gamma Sigma Honor Society.

Mike Benboom (BS ABEN 2002) is an agricultural sales representative with Butler Machinery Company in Sioux Falls, SD. He has been with Butler Machinery for over six years.

Kelly Bengston (BS AE 1981) is an engineer with the Kittson County Highway Department in Hallock, MN where he supervises maintenance and construction of all county and state highways and bridges. He designs and develops road and bridge construction plans and directs 20 full time staff. He and his wife were recognized in 2005 as the Kittson County/Red River Valley Emerging Leaders. Kelly has fond memories of the instructors and professors in the Dept. of Agricultural and Biosystems Engineering.

Mark Berge (MS AE 1985, BS AE 1982) is a Lt. Colonel with the Arizona Air National Guard. As an environmental manager/bioenvironmental engineer, he manages all installation environmental programs and the occupational health program.

Alan Bergman (BS AM 1964) is owner and operator of a small grain farm near Jud, ND. He retired in 2008 from the National Farmers Union in Denver Colorado where he served as Vice President. He is also retired from the North Dakota Army National Guard.

Larrin Bergman (BS ABEN 1996) is an associate attorney at Kinney & Lange, specializing in intellectual property (patents, trademarks, and copyrights). He earned his Juris Doctor from UND in 2002. Prior to attending law school, Larrin worked as a design engineer for Beamco in Oslo, MN, where he developed parts for ATVs, personal watercraft, and snowmobiles.

Mark Berlinger (BS ASM 1999) is district sales manager at Garst Seed Co. in Morris, MN. He manages 23 counties in west-northwest Minnesota. He and his wife, Nicole, and two children, Tyler and Emma, live in Morris, MN.

Robert Boone (BS AE 1958) is retired from the USDA Soil Conservation Service and the North Dakota Air National Guard.

Nolan Brashet (BS ABEN 2007) and his wife, Alton, welcomed a baby girl, Alley Rose, to their family in October. Nolan is a Process Engineer for Tharaldson Ethanol in Casselton, ND.

David Broten (BS AE 1975) is with General Equipment and Supplies, Inc. in Fargo, ND. He sells construction and agricultural laser and GPS equipment.

Bryan Buerkle (BS ABEN 2000) and his wife and three children recently moved back to Waterloo, IA. Bryan is a product engineer with John Deere Co. where he previously served as the lead engineer to introduce a new tractor line in Mexico.

Terry Burchill (BS ASM 1995) is a product market analyst at Phoenix International Corporation where he conducts industry, product, and customer research for Phoenix and John Deere products. He specializes in the areas of telematics and customer value research. He lives in West Fargo with his wife, Lisa, and sons, Isaac, Seth and Aaron.

Kevin Capistran (BS ABEN 1999) and Lorri (Loh) Capistran (BS ABEN 1999) welcomed New Year’s baby, Benjamin Kevin, on January 1. They operate Capistran Seed Company and farm in the Cookston, MN area. Lorri was previously with the J.R. Simplot Co. Food Group in Grand Forks, ND.

David Clough (BS AM 1969) was elected Chair of the Northern Crops Council in November, 2009. Clough represents the North Dakota Wheat Commission on the Northern Crops Council.

Douglas Davidson (BS ABEN 2001) is with Holly Beck Surveying & Engineering, LLC in Bismarck. He and his wife Tina (Henke), also an NDSU graduate, welcomed their first child, Leah, in June, 2008.

Aaron Disrud (BS ABEN 2001) married Ember Larson in December, 2008. He is employed by Precision Partners Inc. in Fargo, ND and also farms with his father, Ron Disrud (BS AE 1987).

Mark Dose (BS ABEN 2009) married Heather Matthees, another NDSU alumnus, in June, 2009. He is an environmental engineer with the North Dakota Department of Health.

Eric Dybsetter (BS ABEN 1997) operates Dybsetter Farms, Inc. in Porter, MN. He was previously at Spec-Sys in Montevideo, MN.

Jon Eis (BS ASM-EMS 2005) continues to work at Eis Implement Inc. (John Deere) in Two Rivers, WI, as a parts manager and marketing supervisor.

Kevin Erickson (BS AM 1976) is a senior risk management specialist with USDA Risk Management Agency in St. Paul, MN. He lives in Eagan, MN.

Steven Estvold (BS ABEN 2004) was promoted to Lieutenant in the United States Navy in June, 2008. He is currently a Naval Aviator In Training.

Michael Fick (BS AE 1992) is an agricultural chemical investigator with the Minnesota Department of Agriculture. He is married and lives near Vergas, MN.

Herb French (BS AE 1957) continues to enjoy retirement. He and his wife, Carolyn, live in Edina, MN.

Travis Frey (BS ABEN 2006) is an engineering intern pursuing additional education and new employment. He worked for Allied Engineering of Bozeman, MT through May and recently was employed by Kadmas, Lee, & Jackson of Devils Lake, ND as a construction inspector. He is currently taking courses at BSC for Process Plant Technology. He passed the FE test, is an ASABE member, and is ACS certified. He and his wife, Joslyn, welcomed their first child, Aiden James, on Jan. 5, 2009.

Peter Gates (BS ABEN 2007) started with Gates Manufacturing near Lansford, ND, in late fall 2009. He was previously a draftsman at Neustel Law Office, Inc. in Fargo, ND.

Travis Giffey (BS ABEN 1998) and Gail (Skalet) Giffey (BS ABEN 1998) welcomed baby #4 to their family in December. Their other children are Grady, Gavin and Gunnar. Travis is a financial advisor with Compass Advisory Group. Gail is a “Domestic Engineer” for the Giffey Brothers. They live in Coopville, TN.

Justin Green (BS ABEN 2001) is with Sioux Manufacturing Corporation, Fort Totten, ND. He was with Jenny-O Turkey Store in Willmar, MN.

William (Bill) Haug (MS AE 1967, BS AE 1965) is a branch office manager and financial advisor with UBS Financial in Grand Forks, ND. He conducts a daily financial report on WDAZ on the daily 5 p.m. report.

Ross Haugeberg (BS AE 1989) is Global Manager of New Product Development Quality at Bobcat Co. in Gwinner, ND.

Harvey Hirling (MS AE 1964, BS AE 1962), though retired, is a consultant on electrical grounding and stray voltage. He is a Professor Emeritus with the Department of Agricultural and Biosystems Engineering.

Paul Huett (BS AE 1989) is a project manager with Industrial Contractors, Inc. in Bismarck, ND.

Zach Jacobson (BS ASM 2007) married Andrea Puppe, also an NDSU graduate, in December, 2009. He farms near Langdon, ND.

Jeremy Jahner (BS ABEN 1997) was promoted to Manufacturing Engineering Manager to head the new department at Steiffes Corporation in Dickinson, ND.

Tom Jespersen (BS AM 1989) continues to work at Verendrye Electric Cooperative in Velva, ND as an energy advisor.

Rick Jore (BS ABEN 1996) is a staking engineer with McKenzie Electric Cooperative in Watford City, ND. He was previously a Watford City Administrator.

Gary Keller (BS AM 1971) is vice president/corresponding bankin officer at State Bank and Trust in Fargo. He also has a cow/calf operation and is involved in small business ventures including a recycling program.

Nathan Keller (BS ABEN 2006) is a design engineer with Rapat Corporation in Hawley, MN. The company develops and designs bulk material handling systems.

Brian Klevgaard (BS ABEN 2006) is with Bobcat in Bismarck, ND. He was previously with John Deere Co. in Dubuque, IA.

Michael Kiser (BS AM 1972) is employed by Farm Service Agency in Ada, MN.

Unal Kizil (PhD ENGR-ABEN 2003) is an assistant professor at Canakkale University in Turkey. He was previously a chief research and development engineer with Elisan Environmental Technologies in Bursa, Turkey. Unal’s son Eren, pictured left, is in preschool.
Alumni Updates

Eric Kolstoe (BS ABEN 1996) is an engineering manager in the conveyor division of WASP, Inc. in Glenwood, MN. WASP, Inc. constructs conveying equipment for the parcel handling industry. His third child, Jayda Rae, was born in August, 2008.

Kaelin Kylo (BS ASM 2006) is with Peterson Farms Seed as a seed representative for northern Cass Co.

Keith L. Larson (MS AE 1985, BS AE 1983) farms in the Jamestown area. He was previously with Goodrich (TRW/BF Goodrich) as Director of Engineering.

Robert Leiseth (BS ABEN 2007) continues to work as a manufacturing engineer in the weld division of Bobcat Company in Gwinner, ND. His responsibilities include cell layout updates, new cell implementation, and weld process changes.

Sarah Lovas (BS ASM 2004) returned to Halstad Elevator Company as a Sales Agronomist and ASA Certified Crop Adviser. She lives near Hillsboro, ND with her husband, Jason Lovas (BS ASM 2002) of Lovas Farms.

Garett Mairs (BS ASM 2007) married Jennifer Rieger in July. He is employed by Young Farm, Leonard, ND.

Robert McCullough (BS AE 1962) retired from the City of San Diego Water Department in July, 2008. He was responsible for the recycled water program and initiated the city groundwater program.

Carson McIntyre (BS ABEN 2000) works at his family business, Big Tractor Parts, in Hawley, MN. He is married and lives in Moorhead, MN.

Guy Midbo (MS AE 1960, BS AE 1958) is retired and resides in Horicon, WI.

Justin Mitchell (BS ASM 2007) is employed by Hallmark Insurance as a salesperson in crop and hail insurance.

Matthew Mootz (MS Ag Ed 1993, BS AM 1980) is an agricultural education instructor and FFA advisor at New Rockford-Sheyenne School. His daughter, Emily, graduated from NSDU in agronomy in 2008 and his son, Graham, is at NSDU in Exercise Science.

James Ostlie (BS AM 1963) continues to farm near Northwood, ND, and is a Dakota Lamb Growers Co-op board member.

Nicolaus Nowatzki (BS ASM 2003) and his wife, Nicole, welcomed baby Noah to their family in May. Nicolaus is a Shift Superintendent at ADM in Ottawa Lake, MI.

Mark Ottosen (BS AE 1980) is a senior project engineer with Stinar Corporation in St. Paul, MN where he is responsible for design of aircraft boarding equipment and product support for aircraft ground support equipment. He has been a member of the MN Jaycees for almost 20 years and was honored with a Jaycee Intl. Senatorship for service to the organization.

Lawrence Paulus (BS AM 1963) farms near Drake, ND. He is also treasurer of the local township and financial secretary of the Knights of Columbus in Drake.

Nathan Pesta (BS ABEN 2003) married Brook Zidon in October. He is a senior project engineer at DeHaan, Grabs & Associates LLC in Bismarck, ND. After passing the agricultural engineering PE exam in December, 2008, he became a mentor for the ASABE program.

Paul S. Petersen (BS ABEN 2000) is a test engineer with Caterpillar at the Peoria Proving Grounds in East Peoria, IL. He and his wife welcomed a baby girl, Hailey, in March, 2008.

Thatcher Peterson (BS ASM 2006) married Bethany Reuter in June. He farms near Minor, ND.

Kurtis Riffley (MBA 2005, BS ASM-DMS 2003) is an aftermarket operations manager at RDO Equipment in Fargo.

Karl Rockeman (BS ABEN 2002) and his wife, Jessica, celebrated their one year wedding anniversary in September. Karl is the animal feeding operation program coordinator at the North Dakota Department of Health in Bismarck, ND.

Corey Rudnicki (BS ABEN 2001) owns and operates Rudnicki Tractor Ranch (www.rudnickitractorranch.com). He started the business in fall, 2005 as a machinery trader in Minnesota. He also farms in the Jamestown, ND area and with his in-laws in Blackduck, MN. He, his wife, Annette, and children live in Milaca, MN.

Jerome (Jerry) Schaaack (MS AE 1962, BS AE 1956) owns Schaaack Consulting in Bismarck, ND. The company works primarily with the North Dakota Irrigation Association to help expand, develop, and improve irrigation in the state. He has trained and worked in numerous countries as a water resource consultant, educator, and advisor.

David St. Croix (BS AM 1993) farms near Kenmare, ND with his wife and three children.

Andrew Steinberger (BS ABEN 2004) is an ESN sales representative for Agrum U.S. Inc. Agrum provides fertilizer products to a variety of customers in agricultural, industrial, specialty and export markets. Andy and his wife Lisa, welcomed a baby girl, Anabel, to their family in March, 2009.

Russell Stoltman (MBA 2003, BS ABEN 1997) is chief engineer of product development for 4WD tractors at CNH in Fargo, ND. The line includes Case IH Steiger series and New Holland 19000 Series tractors. He is married with four children, the last born in November, 2009. He is also a Cubmaster for the local Cub Scout Pack and serves as a city council member for Argusville, ND.

Dhruv Tapasvi (MS ABEN/Agribus & Applied Economics 2006) moved to Denmark in September, 2009 to pursue his MBA. He was previously a process engineer at AMEC in Minneapolis, MN.

Carl Thoreson (MS AE 1975, BS AE 1969) stopped by the Department with his wife, Marilyn, in August, 2009 on their way back from visiting friends and relatives in North Dakota and Montana. After returning to Michigan, they planned to go to Trinidad to get their boat, “Discovery” and sail the Caribbean this winter.

Dale VanEckhout (BS AM 1977) is business and community program director at USDA – Rural Development in Bismarck, ND. He is responsible for business, community facility, and water and environmental programs. He lives in Bismarck with his wife, Carol, and children, Jaden, Brendan, and Kristen.

Zachary Verlinde (BS ABEN 2005) is a civil engineer with the USDA Forest Service in Dickinson, ND. He was previously with USDA-NRCS.

Jason D. Walter (MS ABEN 2000, BS EE 1993) is an electrical systems engineer at John Deere Seeding Group in Moline, IL where he performs electrical product design work on new and current products. Jason and his wife, Keri, and sons, Nick, Dylan, and Aiden, live in Davenport, IA.

Wayne Weber (BS AE 1969) retired after 33 years with the Red Lake County Soil and Water Conservation District. He started with the district as a technician and 15 years later was named district engineer. He lives on a farm between Crookston and Fertile, MN.

Kevin Westerson (BS AE 1982) is Executive Director of Research, Technology and Engineering with Cummins Filtration Nashville, TN.

Erika (Hodgson) Williams (BS ABEN 2003) serves as a process/program master black belt for the John Deere De Moines Works factory, focusing on business planning and improvements to the overall product development process. She is involved with all three design groups; sprayer, cotton, and tillage. Erika was selected as one of the ASABE New Faces of Engineering, 2010 class. “New Faces” serves to recognize the contributions and achievements of early-career ASABE members, and it serves as a valuable tool for promoting public awareness of, and careers in, agricultural and biological engineering. She and her husband celebrated the birth of their first child in December, 2009.

Chris Wunderlich (BS ABEN 2007) is an agronomy manager at the Farmer’s Union Oil in Mohall/Sherrwood, ND. He is in charge of sales and purchasing feed, chemical and fertilizer.

Jarvis York (BS ASM/PlantSci 1999) is a Pioneer seed dealer and farms near Minot, ND. As CEO and CFO of Black Sun Farms Inc., he farms 7,000 acres of commodities including hard red spring wheat, durum, soybeans, corn and canola. Jarvis is appreciative of the education he received from the Department, stating, “I use it every day!”

Yunling Zheng (PhD ENGR-ABEN 2003) continues at Cargill Investment (China) Ltd. and is currently working on quality and food safety issues for six plants in the Asia Pacific.
Delving Into Department History

A committee of Professor Emeriti was formed in early June to review and organize over a century of departmental records. The committee included George Pratt, Henry Kucera, Charles Moilanen, and Earl Stegman. For many years, these historical records have been maintained in an unorganized fashion in the department. The committee spent time together over several months sorting through the records, identifying reports, correspondence, pictures, etc. and then organizing them into various categories. Now that the files are organized and identified, they will be housed in the University Archives where they will be available to the public. These files will be especially useful as we approach the centennial anniversary of the department in 2024. A great deal of thanks goes to this committee for their work on behalf of the department.

Can you guess the year? (answer below each photo)

Department Timeline

1890
North Dakota Agricultural College (now NDSU) was established when North Dakota became a state.

1929
E. S. Keene was appointed Agricultural Engineer with the Agricultural Experiment Station.

1895-1897
H. M. Ath served the school as Assistant in Farm Mechanics.

1999
F. W. Warren was named Instructor of Steam Engineering and Mathematics. Philip S. Rose also started in a similar position. Rose continued in this position for 10 years.

1903-1904
C. J. Zintheo was an early instructor in Rural Engineering in the College of Agriculture.

1907
R. M. Dolve and P. S. Rose attended the organizing meeting of the American Society of Agricultural Engineers in Wisconsin.

1912
R. M. Dolve published Agricultural Experiment Station bulletin on potato warehouse and dairy barn planning.

1920

1924-1925
R. C. Miller organized the Agricultural Engineering Department as a degree-granting department.

1926-1939
H. F. McColl served as Department Chair.

1931
First B.S. Agricultural Engineering degree granted.

1933
First M.S. Agricultural Engineering degree granted.

1937
"Professional" 5-yr Ag Engineering curriculum established in the College of Eng'g. This program was in addition to the 4-yr "major" in Ag Engr. in the College of Ag (see 1948).

1939
Farm-Folk School short course program was established.

1940-1941
L. E. Holman served as acting Department Chair.

1948
To clarify the differences between the two curriculums, the "major" in the College of Ag was renamed Mechanized Agriculture.

1951
Construction of the Agricultural Engineering building.

1952
B.S./M.S. degree program in Mechanized Agriculture established.

1960
Building expansion.

1960-1966
Faculty in this period developed teaching and research programs in power and machinery, soil and water, structures and environment, and rural electrification.

1966
Mechanized Agriculture program name was changed to Agricultural Mechanization.

1976
Ph.D. program established for research on food products from northern grown crops.

1977-1979
George L. Pfaltz served as Department Chair.

1980
Interdisciplinary Ph.D. program established as a component of the College of Engineering and Architecture. Research emphases were expanded in ag production engineering, livestock waste mgmt., and crop storage/post-harvest technology.

1989-1991
Leslie F. Backer served as interim Department Chair.

1990
First food engineering faculty hired to begin collaborative/interdisciplinary studies in development of value-added processes.

1992
Academic programs converted to a semester system.

1993
Ag Mechanization changed to Agricultural Systems Management (ASM).

1994
Administrative restructuring at NDSU resulted in the integration of the Agricultural Engineering Extension program into the Department.

1996
M.S. degree program in ASM discontinued.

1997
Department/program name changed to Agricultural and Biosystems Engineering (ABEN) and Biosystems Engineering (BSEN).

1998
First female faculty hired to be remotely stationed (Bismarck/Mandan).

1999
NSDU agreement with Ansal Institute of Technology (India) results in 10 undergraduate students from India joining the ABEN program.

2001
Ph.D. ABEN program established.

2003-present
Ph.D. ABEN program established.

2004
First female faculty hired to be remotely stationed (Bismarck/Mandan).

2005
Two concentrations established in ABEN program: Agricultural Engineering (AGEN) and Biosystems Engineering (BSEN).

2006
NSDU agreement with Ansal Institute of Technology (India) results in 10 undergraduate students from India joining the ABEN program.

2007
NSDU agreements with NDSU are established.

2009
NSDU agreement with Ansal Institute of Technology (India) results in 10 undergraduate students from India joining the ABEN program.

2011
American Society of Agricultural Engineers (ASABE) was established.

2012
NSDU agreement with Ansal Institute of Technology (India) results in 10 undergraduate students from India joining the ABEN program.

2013
NSDU agreement with Ansal Institute of Technology (India) results in 10 undergraduate students from India joining the ABEN program.

2014
NSDU agreement with Ansal Institute of Technology (India) results in 10 undergraduate students from India joining the ABEN program.

2015
NSDU agreement with Ansal Institute of Technology (India) results in 10 undergraduate students from India joining the ABEN program.

2016
NSDU agreement with Ansal Institute of Technology (India) results in 10 undergraduate students from India joining the ABEN program.

2017
NSDU agreement with Ansal Institute of Technology (India) results in 10 undergraduate students from India joining the ABEN program.

2018
NSDU agreement with Ansal Institute of Technology (India) results in 10 undergraduate students from India joining the ABEN program.

2019
NSDU agreement with Ansal Institute of Technology (India) results in 10 undergraduate students from India joining the ABEN program.

2020
NSDU agreement with Ansal Institute of Technology (India) results in 10 undergraduate students from India joining the ABEN program.
Faculty and Students Participate and Present Research at Regional Conference

Faculty, graduate students, and undergraduate students from the Department attended the 2009 North Central ASABE/CSBE conference on September 17-19 in Brookings, SD. The conference was hosted by the South Dakota Great Plains Section of ASABE.

The following papers were presented:

Ammonia and Hydrogen Sulfide Emissions from Two Swine (G-F) Facilities in North Dakota
- Shaffiq Rahman and David Newman

Application of ET Maps to Estimate Flood Mitigation Possibilities by Irrigation in the Devils Lake Basin
- Dean Steele, David Hopkins, Sheldon Tuscherer, R. Utter, R. Gautam, and B. Thoreson

Comparison of Switchgrass Hydrolysis Using Different Enzyme Systems Following Soaking in Aqueous Ammonia Pretreatment
- Chad Sietsema, Nurun Nahar, and Scott Pryor

Development of a Micro-controller Based Variable Speed System in a 1/4-Scale Tractor
- Matt Wold and Tom Bon

Development and Evaluation of a Fluidized Bed System for Disinfection of Wheat Grains Using Ozone
- Bhavnita Dhillon, Dennis Wiesenborn, H. Dhillon, and Charlene Wolf-Hall

Development of a Micro-controller Based Monitoring and Display System for a 1/4-Scale Tractor
- Jessica Drutowski, Jamie Hegland, and Tom Bon

E.C.O. Shield (Senior Design Project)
- Mohammed Ansari, Dennis Wiesenborn, Darrin Haagenson, and Judith Espinoza-Perez

Economics of Variable Rate Fertilization in North Dakota
- Ganesh Bora and John Nowatzki

Empirical Model for High-throughput Prediction of Cold Soak Filtration Time of Canola Biodiesel
- Hongjian Lin, Dennis Wiesenborn, and Darrin Haagenson

Impact of Washing Method on Biodiesel Quality
- Mukesh Kumar Kansal, Y. Kim, Darrin Haagenson, Dennis Wiesenborn, and Rachel Brudvik

Red River Valley Tile Drainage Water Quality Assessment
- Roxanne Johnson and Tom Scherer

Strategies for Increasing Ethanol Yields and Irters Following Enzymatic Hydrolysis and Fermentation of Sugar Beet Pulp
- Rachel Rorick, Chad Sietsema, Nurun Nahar, and Scott Pryor

Soil Moisture Distributions for Subsurface Drainage and Subirrigation Soils
- Ishara Rijal, Xiao Pang, and Xinhua Jia

Water Quality Screening at North Dakota Field Days
- Tom Scherer and Roxanne Johnson

The NDSU Student Engineering Branch of the American Society of Agricultural and Biological Engineers (ASABE)

took second place honors in a student design contest at the 2009 ASA-BE/CSBE North Central meeting in Brookings, SD. Students designed and built a bridge from provided materials which included popsicle sticks, aluminum wrap, string, paper, sugar, and eggs. The bridge was loaded with weights until structural failure occurred.

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2009-2010 Scholarship Recipients

A. R. Bon Memorial Scholarship
- Marissa Nelson, ABEN
- Vernon C. Lee Memorial Scholarships
- Adam Aakre, ASM

E. L. Bon Memorial Scholarship
- Kelsey Kolars, ABEN
- Andrew Jasken, ASM

Caterpillar Foundation Scholarships
- Alec Bussman, ABEN
- Warren B. Diederich Fund
- Chad Sietsema, ABEN

Ernie French Memorial Scholarship
- Kelsey Kolars, ABEN
- Ernie French Memorial Scholarship
- Kelsey Kolars, ABEN

John Deere Development Foundation Scholarships
- Anthony Roy, ASM
- Michael Torrence, ASM

Holman-Breuer Memorial Scholarship
- Brandon Dingmann, ASM
- Frank Bain Agricultural Scholarships
- Wajira Asanga R. Manamperci, ABEN graduate student

2009-2010 Student Organization Officers

Agricultural Systems Management (ASM) Club
President .............. Matt Moxness, Maple Plain, MN
Vice President .......... Francis Dierickx, Marshall, MN
Secretary ............... Jacob Rust, Hillsboro, ND
Treasurer ............... Josh Martinez, West Fargo, ND
CSO Rep ............... Britt DeVries, Fargo, ND
CASAC ................. Britt DeVries, Fargo, ND
Advisor ............... Elton Solberg

Student Engineering Branch of the American Society of Agricultural and Biological Engineers (ASABE)

President .............. Jake Ellwein, Rosemount, MN
Vice President .......... Tyler Rath, Belgrade, MN
Secretary ............... Marissa Nelson, Watford City, ND
Treasurer ............... Jason Gross, Edgeley, ND
CSO Rep ............... Tim Runke, Maple Grove, MN
CASAC ................. Austin McLaen, Forman, ND
E&A Rep ............... Michael Meschke, Welcome, MN
Scribes ................. Jessica Drutowski, Inver Grove Heights, MN; Cody Frauenberg,
LaMoure, ND; Will Knox, Fisher, MN; Nikhil Kumar, New Delhi, India
Advisor ............... Tom Bon and Dennis Wiesenborn

Alpha Epsilon
President ............... Francis Dierickx, Marshall, MN
Vice President .......... Rachel Rorick, Monaca, PA
Secretary ............... Wajira Asanga Manamperci, Waragoda,
Kelaninaya, Sri Lanka
Treasurer ............... Mukesh Kumar Kansal, Haryana, India
Advisor ............... Scott Pryor

Bison Pullers (1/4-Scale Tractor)
President ............... Michael Meschke, Welcome, MN
Vice President .......... Jake Ellwein, Rosemount, MN
Secretary ............... Will Knox, Fisher, MN
Treasurer ............... Derek Zerface, Hillsboro, ND
Advisor ............... Tom Bon and Elton Solberg

Thanks to all the donors who have helped our students and the Department! If you would like to donate, please return the enclosed form.
The 61st Annual Agricultural Technology Expo was held February 14, 2009. Managers and staff of the 2009 Expo included:

**Managers**
- Dan Coffman (ASM, West Concord, MN)
- Paul Stellplugg (ABEN, Rochester, MN)

**Assistant Managers**
- Adam Novak (ASM, Hillman, MN)
- Tyler Rath (ABEN, Belgrade, MN)

**Secretary**
- Celia Norgaard (ASM, Northfield, MN)

**Treasurer**
- Alan Maier (ASM, Elgin, ND)

**Booklet Manager**
- Mike Gross (ABEN alum, Edinburg, ND)

**Public Relations Manager**
- Dylan Zubke (ASM-DMS, Watford City, ND)

Sixty-nine students were involved in the 61st Annual Agricultural Technology Expo. These students displayed 31 projects in five divisions plus a senior design division. The Ag Technology Expo is a valuable learning experience for those who participate as well as for those who attend. Students have the opportunity to develop organizational and communication skills as either a manager or a show participant. Skills learned in this activity are directly applicable in their careers after graduation. Elton Solseng serves as the advisor to the Expo staff. The event is hosted by the Student Engineering Branch of ASABE and the ASM Club.

**Expo Results:**

### Power Division
1st: Curt Thoreson: 1/4 Scale Tractor Drivetrain
2nd: Jessica Drutowski and Jamie Hegland: Bison Puller Instrumentation Cluster
3rd: Will Knox, Tyler Larson & Derek Zerfaced: Tier IV Emissions

### Structures, Electrical Power, & Processing Division
1st: Ben Johnson: Barn Design
2nd: Anthony Kraling and Nick Paumen: Super Singles vs. Duals
3rd: Rohit Agrawal and Nikhil Kumar: Sugar and Jaggery Production

### Machinery Division
1st: Benjamin Brulage: Grain Bagging Systems
2nd: Andrew Haataja and Preston Leier and Thomas Vetter: Tharaldson Ethanol
3rd: Robert Mahar: Cropsavers

### Soil, Water, and Environment Division
1st: Kelsey Kolars and Marissa Nelson: Soil Quality Management
2nd: Jesse Jangula, Shay Richter and Chad Sietsema: Micro-Algae for Bio-Fuels
3rd: Andrew Jasken and Kyle Ostenson: Deep Banding

### Precision Agriculture Division
1st: Austin Williams: Precision Planting
2nd: Nicholas Bendickson: EZ-Steer Applications

### Senior Design Award
Cory Tammen and Matt Wold: 1/4 Scale Tractor CVT & Front Axle Design

---

### Alpha Epsilon Membership; Monument Plan

Ten new members were initiated into the Theta Chapter of Alpha Epsilon at initiation ceremonies on April 22 and November 4, 2009. The ceremonies were attended by current student members and several current and retired faculty. The new members include Francis Dierickx, Jason Gross, Michael Hiedeman, Mukesh Kumar Kansal, Hongjian Lin, Chad Mayfield, Xiao Pang, Rachel Rorick, and Joshua Seibert. Membership in the honor society is offered to those ABEN students meeting strict academic and character standards.

Alpha Epsilon members are constructing an Alpha Epsilon key monument to be placed in front of the Agricultural and Biosystems Engineering building.
1/4-Scale Tractor Design and Pull Competition

The 1/4-Scale Tractor “Bison Pullers” team entered two tractors at the ASABE student design and pull competition May 29-31 in Peoria, Illinois. The “A” team placed in the top 10 in the categories of written design, manufacturing, and ergonomics. Twenty-three collegiate teams participated from across the U.S. and Canada. The “X” team came in 6th overall in competition using last year’s tractor.

The students raised funds, designed, and built the tractor. The teams and tractors are judged on oral presentation, written report, static design judging, maneuverability, and performance (tractor pull).

The ASABE Annual International 1/4-Scale Tractor Student Design competition provides university students with a “360-degree” design experience, in which they must build a tractor from the ground up, documenting their market research, testing and development; presenting their design to a mock corporate management team; and demonstrating performance in a live tractor pull.

The 13th annual competition will be held June 3-6, 2010 in Peoria, IL.

2008-2009 Graduates (December 2008 - August 2009)

**BS DEGREE: Agricultural and Biosystems Engineering**

<table>
<thead>
<tr>
<th>Name</th>
<th>Company/Position</th>
<th>Address</th>
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</thead>
<tbody>
<tr>
<td>Justin Balsdon</td>
<td>Osnabrock Farmers Coop Elevator</td>
<td>Langdon, ND</td>
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<tr>
<td>Mark Dose</td>
<td>North Dakota Dept. of Health</td>
<td>Bismarck, ND</td>
</tr>
<tr>
<td>Wyatt Goettle</td>
<td>Midway Industries</td>
<td>Kenmare, ND</td>
</tr>
<tr>
<td>Michael Gross</td>
<td>Cargill Co.</td>
<td>West Fargo, ND</td>
</tr>
<tr>
<td>Andrew Haataja</td>
<td>Amity Technology</td>
<td>Fargo, ND</td>
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<tr>
<td>Joshua Heimbuch</td>
<td>Heimbuch Potatoes LLC</td>
<td>Cogswell, ND</td>
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<tr>
<td>Nicholas Hodnefield</td>
<td>Sears Manufacturing Company</td>
<td>Davenport, IA</td>
</tr>
<tr>
<td>Steven Mickolichek</td>
<td>John Deere – Hay Equipment Div.</td>
<td>Ottumwa, IA</td>
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<tr>
<td>Ryan Nagel</td>
<td>Titan Machinery</td>
<td>Moorhead, MN</td>
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<tr>
<td>Ross Petersen</td>
<td>Cargill Inc.</td>
<td>Ogden, UT</td>
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<tr>
<td>Paul Steffljug</td>
<td>Hormel Foods, Austin</td>
<td>MN</td>
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<tr>
<td>Cory Tammen</td>
<td>CNH, Fargo, ND</td>
<td>MN</td>
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<tr>
<td>Curt Thoreson</td>
<td>Pursuing MS ABEN at Iowa State University</td>
<td>Ames, IA</td>
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<tr>
<td>Drew Thurlow</td>
<td>Pursuing MBA at NDSU</td>
<td>MN</td>
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**BS DEGREE: Agricultural Systems Management**

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<tr>
<th>Name</th>
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<tr>
<td>Matthew Borud</td>
<td>Gooseneck Implement</td>
<td>Kenmare, ND</td>
</tr>
<tr>
<td>Matthew Brantner</td>
<td>Brantner Farms</td>
<td>Felton, MN</td>
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<tr>
<td>Brandon Calkins</td>
<td>Fixin Farms</td>
<td>Galchutt, ND</td>
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<tr>
<td>Daniel Coffman</td>
<td>Osnabrock Farmers Co-op</td>
<td>Osnabrock, ND</td>
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<tr>
<td>Tyler Doeling</td>
<td>Wells Fargo Bank</td>
<td>Hillsboro, ND</td>
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<tr>
<td>Owen Fiedler</td>
<td>Wes Fiedler Farms</td>
<td>Butte, ND</td>
</tr>
<tr>
<td>Ronald Johnson</td>
<td>Anderson Ranch/Custom Fencing</td>
<td>Russo, ND</td>
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<tr>
<td>Daniel Latt</td>
<td>Farming, Litchville</td>
<td>MN</td>
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<tr>
<td>Celia Norgaard</td>
<td>MN Crop Improvement Association</td>
<td>Northfield, MN</td>
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<td>David Oberg</td>
<td>Oberg Farms</td>
<td>Moorhead, MN</td>
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<td>Matthew Peterson</td>
<td>Farming/Ranching</td>
<td>Antler, ND</td>
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<tr>
<td>Corey Vetter</td>
<td>Farming, Linton</td>
<td>MN</td>
</tr>
<tr>
<td>Robert Volesky</td>
<td>RDO Equipment, Inc.</td>
<td>Fargo, ND</td>
</tr>
<tr>
<td>James Wavra</td>
<td>Farming, East Grand Forks</td>
<td>MN</td>
</tr>
</tbody>
</table>

**M.S. Agricultural and Biosystems Engineering**

Matthew Kasper (MS ABEN and MS Mech. Eng.)
Graduate Research Assistant, Nanoengineering Lab
Mechanical Science and Engineering
University of Illinois at Urbana-Champaign
Thesis: Development and Evaluation of a DVD Optical Pickup-Based Microcantilever Chemical Sensor for Biological Applications

Andrew Wilhelmi
Agricultural Engineer
USDA-ARS
Jamestown Area Office, Jamestown, ND
Thesis: Field Peas to Supplement Corn Ethanol: Engineering Process Models, Capital Investment, and Annual Operating Costs

**M.S. Natural Resources Management**

Kraig Nelson
Precision Ag Consultant
GK Technology
Bismarck, ND; Halstad, MN
Thesis: Application of Remotely Sensed Imagery for Early Detection of Cercospora Leaf Spot in Sugarbeets in MN and ND

**Ph.D. Agricultural and Biosystems Engineering**

Lav Ramchandra Khot
Post Doctoral Research Associate
Agricultural and Biological Engineering
Citrus Research & Education Center (CREC)
University of Florida, Lake Alfred, FL
Thesis: Characterization and Pattern Recognition of Selected Sensors for Food Safety Applications

Sindhuja Sankaran
Post Doctoral Research Associate
Institute of Food and Agricultural Sciences
Citrus Research & Education Center (CREC)
University of Florida, Lake Alfred, FL

Congratulations Graduates!
Donors make important contributions to the scholarship program and other activities that enhance the student experience. Below is a summary of donors who have made gifts to the NDSU Development Foundation designated to the Department during its past fiscal year (June 2008 to July 2009).

Thanks to Our Donors!

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