

FACULTY & STAFF

FACULTY

Leslie F. Backer
Ganesh Bora
Igathinathane Cannayen
Kenneth J. Hellevang
Xinhua Jia
Zhulu Lin
Scott W. Pryor
Shafiqur Rahman
Thomas F. Scherer
Elton G. Solseng
Dean D. Steele
Dennis P. Wiesenborn

ACADEMIC STAFF

Thomas A. Bon
Roxanne Johnson
John F. Nowatzki
Carl Pedersen
Bradley J. Schmidt

STAFF

Rachel Brudvik
Jana Daeuber
Myron Flaagan
Darrin Haagenston
Dongqing Lin
James Moos
Nurun Nahar
Janelle Quam
Lori Sholts
Nancy Stroh
Sheldon Tuscherer

PROFESSOR EMERITUS

Lowell A. Disrud
Harvey J. Hirning
Vern L. Hofman
Henry L. Kucera
James A. Lindley
Darnell Lundstrom
Charles W. Mollanen
George L. Pratt
Earl C. Stegman

ADJUNCT PROFESSORS

Robert G. Evans
Prabhakar R. Guduru

MARK YOUR CALENDAR

JANUARY

11..... Spring classes begin
at 4 p.m.
12..... First full day of classes
18..... Martin Luther King, Jr.
Day

FEBRUARY

10..... Spring Career Fair
13..... Agricultural Technology
Exposition
15..... President's Day

MARCH

15-19 .. Spring Break Week
30..... Extension Spring Conf.,
Bismarck, ND

APRIL

1..... Extension Spring Conf.,
Bismarck, ND
2-5 Holiday/Recess

MAY

7..... Last day spring classes
14..... Graduate/Professional
Spring Commencement
4 p.m., FargoDome
15..... Undergraduate Student
Spring Commencement
10 a.m., FargoDome
18..... Summer classes begin
31..... Memorial Day Holiday

JUNE

3-6 1/4-Scale Tractor Design
and Pull Competition
- Peoria, IL
20-23 .. 2010 ASABE Annual
International Meeting,
Pittsburgh, PA

Department Chair Comments



Leslie F. Backer

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 Tashkent Institute of Irrigation and Melioration, and a fluid power (hydraulics) course at Tashkent 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 Ph D 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

DEPARTMENT OF AGRICULTURAL AND BIOSYSTEMS ENGINEERING

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NDSU
Extension Service

Academic Programs:

Agricultural and
Biosystems Engineering
College of Engineering
and Architecture

Agricultural
Systems Management
College of Agriculture,
Food Systems, and
Natural Resources

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Department News

New Faculty

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 (NGPRL) 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 NGPRL 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 Univ., India.



Igathi enjoys star watching, melodious 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, Srividhya, three years old.

Dr. Zhulu Lin



Assistant Professor, Zhulu Lin, joined the Department in December 2008 with a 45% teaching, 55% research appointment. His teaching and research area is in water resources; more specifically, environmental systems analysis, surface and subsurface hydrology, and hydrologic, hydraulic and water quality modeling.

Zhulu received his Ph.D. in Water and Soil Resources and an M.S. in Statistics both from the University of Georgia. He earned

his B.Eng. and M.S. in Environmental Engineering from East China University of Science and Technology. He is a member of the American Geophysical Union, American Water Resources Association, American Society of Agricultural and Biological Engineers (ASABE), American Society for Engineering Education (ASEE), and Gamma Sigma Delta (Honor Society of Agriculture).

Prior to joining the Department, Zhulu was an engineer scientist at BCI Engineers & Scientists, Inc., Lakeland, FL, stationed at the St. Johns River Water Management District, Palatka, FL

Zhulu's ABEN teaching responsibilities include Numerical Modeling in Agricultural and Biosystems Engineering, and Transport Processes in Biological and Environmental Systems.



Zhulu and his wife, Siew Lim, have two sons, James, six years old, and Bruce, two years old. Zhulu and Siew enjoy living, working and raising their kids in a friendly neighborhood in Fargo, not withstanding inevitable subzero temperatures in the winter and possible flooding in the spring. Zhulu also enjoys occasionally swimming and playing badminton.

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.

Obituaries - Alumni & Friends of the Department

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 (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 (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 Alumnus 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 (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, 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.

Department Highlights

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



Dean Steele



Matt Borud

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.

Student Receives ASABE Foundation Engineering Scholarship



Leslie F. Backer and Tyler Rath

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 Scrib 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.

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.

Research and Extension Highlights

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 untilled field, respectively. The yield was 38% higher than the average corn yield in this region. Soil electric conductivity (EC) was higher in the untilled 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.

Tile drainage and subirrigation evaluations in Richland County for effects on soil and water quality

Project objectives are to: 1.) demonstrate the use of tile drainage for subirrigation to enhance crop production in Richland County; 2.) monitor changes in specific soil chemical and physical properties (EC, pH, bulk density, porosity, crusting potential, aggregate stability, total cations, total nitrogen, and plant available phosphorus) overlying the drained and drained-subirrigated areas; 3.) monitor drainage water quality (total ions, EC, SAR, pH, trace elements) and determine ground water depth and water quantity in the drained, drained and subirrigated, and undrained areas; and 4.) share results and provide tile drainage and subirrigation management strategies to the NRCS and to land managers.



Preliminary results indicate that nitrate-nitrite nitrogen concentration was the highest in June for the tile drainage field; phosphorus concentration was the highest in July and August when the flow was low in the surface ditch; and the electric conductivity is higher at the sump when the flow was small. However, the EC in the field was much higher than that at the outlet, indicating that the source of salinity is from the soils in the field. Subirrigation reduced the EC level.

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.

Research and Extension Highlights

Educational Displays and Demonstrations at Big Iron Farm Show



John Nowatzki, Ken Hellevang, Roxanne Johnson, Carl Pedersen, and Tom Scherer

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 and attendee

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. Shafiqur 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.



Compost pile with sensors

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 (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 Bemboom (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 Braseth (BS ABEN 2007) and his wife, Afton, welcomed a baby girl, Ailey 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 Crookston, 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 1967).

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-DMS 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 Kadrmars, 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 ACI 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 Cookeville, 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 Hirning (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 Huettl (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 Steffes 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/correspondent banking 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.



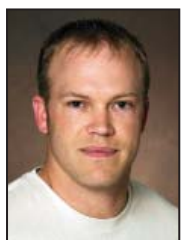
Unal Kizil (PhD ENGR-ABEN 2003) is an assistant professor at Canakkale University in Turkey. He was previously a chief research and development engineer with Elinsan Environmental Technologies in Bursa, Turkey. Unal's son Eren, pictured left, is in pre-school.

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.



David Lehman (BS ABEN 2000) is a manufacturing Extension specialist in Dickinson, ND. He was hired by the NDSU Dept. of Industrial and Manufacturing Engineering and works with the Center for Community Vitality and the Institute for Business and Industry Development.

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 Midtbo (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 NDSU in agronomy in 2008 and his son, Graham, is at NDSU 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 Otteson (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 Milnor, ND.

Kurtis Riffey (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) Schaack (MS AE 1962, BS AE 1956) owns Schaack 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 1991) farms near Kenmare, ND with his wife and three children.

Andrew Steinberger (BS ABEN 2004) is an ESN sales representative for Agrilum U.S. Inc. Agrilum 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 T9000 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 in Nashville, TN.



Erika (Hodgson) Williams (BS ABEN 2003) serves as a process pro/master black belt for the John Deere Des 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 ASM 2007) is an agronomy manager at the Farmer's Union Oil in Mohall/Sherwood, ND. He is in charge of sales and purchasing seed, 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.

Historical Highlights

Delving Into Department History



Henry Kucera, Earl Stegman, George Pratt, Charles Moilanen, and Leslie Backer

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 files. 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 faculty and staff:

Row 1: Bill Promersberger, Md. Aflatouni, Libby Iken, Agnes Evenson, Cindy Lothspeich, Kathy Morse, Cindi Binegar
Row 2: Chuck Moilanen, Tim Claus, Larry Roehl, Dick Wiltz, Kenton Kaufman, Dexter Johnson
Row 3: Earl Stegman, Lowell Disrud, Henry Kucera, Fred Vosper, Jacek Dobrzycki
Row 4: Dave Kneip, Jim Moos, George Pratt, Leslie Backer, Dave Swenson, Darnell Lundstrom
Row 5: Elton Solseng, Harvey Himing, Bob Fanning

Year: 1977-1978



Seb Vogel

Henry Kucera



Darnell Lundstrom

Dick Wiltz



George Pratt

Dexter Johnson

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

Year: 1960

Department Timeline

1890	North Dakota Agricultural College (now NDSU) was established when North Dakota became a state	1892	E.S. Keene was appointed Agricultural Engineer with the Agricultural Experiment Station
1895-1897	H. M. Ash served in the School of Engineering as Assistant in Farm Mechanics	1899	F. W. Warren was named Instructor of Steam Engineering and Mathematics. Phillip 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	1906	Robert M. Dolve began as an instructor in Agricultural Engineering, becoming professor in 1910. He served as an assistant professor and professor in Mechanical Engineering from 1912 to 1926 when he became acting Dean of the School of Mechanic Arts and Dean in 1929. Dolve Hall was named in his honor in 1954.
1905	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 bulletins 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. McColly 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 Engr. This program was in addition to the 4-yr "major" in Ag Engr. in the College of Ag (see 1948)	1937	Farm Folk School short course program was established
1940	1940-1941 L. E. Holman served as acting Department Chair	1941-1977	W. J. Promersberger served as Department Chair for 36 years
	1948 To clarify the differences between the two curriculums, the "major" in the College of Ag was renamed Mechanized Agriculture	1951	B.S./M.S. degree program in Mechanized Agriculture established
	1952 Construction of the Agricultural Engineering building	1960	Building expansion; Faculty in this period developed strong teaching programs in power and machinery, soil and water, structures and environment, and rural electrification
	1976 Mechanized Agriculture program name was changed to Agricultural Mechanization	1977-1989	George L. Pratt served as Department Chair
1980	1980 Interdisciplinary Ph.D. program established as a component of the College of Engineering and Architecture; Research emphases were expanded in irrigation engineering, livestock waste mgmt., and crop storage/post-harvest technology	1989-1991	Leslie F. Backer served as Interim Department Chair
	1989 1st food engineering faculty hired to begin collaborative/interdisciplinary studies in development of value-added processes	1990	Pilot Plant constructed for research on food products from northern grown crops
	1992 Academic programs converted to a semester system	1993	Administrative restructuring at NDSU resulted in the integration of the Agricultural Engineering Extension program into the Department
	1996 Department/program name changed to Agricultural and Biosystems Engineering (ABEN)	2000	Dealership Management Specialization option added to the ASM curriculum
2000	2002 Ph.D. ABEN program established	2003-present	Leslie F. Backer appointed Interim Chair, 2003; appointed Chair in 2004
	2006 First female faculty hired	2007	Two concentrations established in ABEN program: Agricultural Engineering (AGEN) and Biosystems Engineering (BSEN)
	2009 First faculty hired to be remotely stationed (Bismarck/Mandan)	2008	NDSU agreement with Ansal Institute of Technology (India) results in 10 undergraduate students from India joining the ABEN program

Department Highlights

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 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 ASABE/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.

The following papers were presented:

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

- Shafiqur 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 titers 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

2009-2010 Scholarship Recipients

A. R. Bon Memorial Scholarship

- Marissa Nelson, ABEN

E. L. Bon Memorial Scholarship

- Kelsey Kolars, ABEN

Caterpillar Foundation Scholarships

- Alec Bussman, ABEN
- Jason Gross, ABEN
- Jason Pecka, ABEN
- Tyler Rath, ABEN
- Paul Readell, ABEN

Warren B. Diederich Fund

- Chad Sietsema, 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

Vernon C. Lee Memorial Scholarships

- Adam Aakre, ASM
- Andrew Jasken, ASM

Walter and Pearl Nyquist Memorial Scholarship

- Brandon Hoffman, ASM

Bill and Ann (Wick)

Promersberger Scholarship
- Jayme Helmer, ASM

Department Scholarships

- Marissa Nelson, ABEN
- Tyler Rath, ABEN
- Dylan Foss, ASM
- Joshua Martinez, ASM

Frank Bain Agricultural Scholarships

- Wajira Asanga R. Manamperi, ABEN graduate student
- Bhavnita Dhillon, ABEN graduate student

Thanks to all the donors who have helped our students and the Department! If you would like to donate, please return the enclosed form.

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 Brett DeVries, Fargo, ND
CASAC Brett DeVries, Fargo, ND
Advisor Elton Solseng



Matt Moxness

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
Advisors Tom Bon and Dennis Wiesenborn



Jake Ellwein

Alpha Epsilon

President Francis Dierickx, Marshall, MN
Vice President Rachel Rorick, Monaca, PA
Secretary Wajira Asanga Manamperi, Waragoda, Kelaniya, Sri Lanka
Treasurer Mukesh Kumar Kansal, Haryana, India
Advisor Scott Pryor



Francis Dierickx

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
Advisors Tom Bon and Elton Solseng



Mike Meschke

Student News

Agricultural Technology Exposition

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 Stellpflug (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)

Awards and Banquet Managers

- Matt Borud (ASM-DMS, Kenmare, ND)
- Brandon Caulkins (ASM, Hector, MN)

Machinery Division Manager

- Francis Dierickx (ABEN, Marshall, MN)

Power Division Manager

- Andrew Haataja (ABEN, Fergus Falls, MN)

Precision Agriculture Division Manager

- Cody Frauenberg (ABEN, LaMoure, ND)

Soil, Water, and Environment Manager

- Evan Schoenfish (GA, Devils Lake, ND)

Structure, Elec. Power & Process Division

- Mitch Zachman (ABEN, Belgrade, MN)

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 Zerface: Tier IV Emissions

Structures, Electrical Power, & Processing Division

- 1st.....Scott Stroh: Barn Design
- 2nd.....Aaron Hoppe, Preston Leier and Thomas Vetter: Tharaldson Ethanol
- 3rd.....Rohit Agrawal and Nikhil Kumar: Sugar and Jaggery Production

Machinery Division

- 1st.....Benjamin Brutlag: Grain Bagging Systems
- 2nd.....Anthony Kraling and Nick Paumen: Super Singles vs. Duals
- 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

Grand Champion



Jesse Jangula, Shay Richter and Chad Sietsema:
Micro-Algae for Bio-Fuels

Reserve Champion



Scott Stroh: Barn Design

Freshman Award



Marissa Nelson and Kelsey Kolars:
Soil Quality Management

Alpha Epsilon Membership; Monument Plan

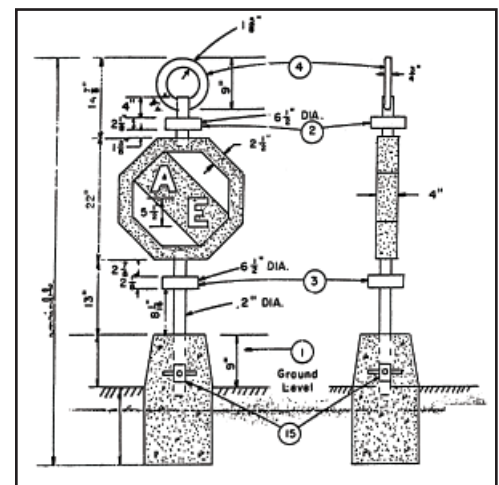


Francis Dierickx, Mukesh Kumar Kansal, Rachel Rorick, Josh Heimbuch
Not pictured: Jason Gross, Michael Hiedeman, Hongjian Lin, Chad Mayfield,
Xiao Pang, Josh Seibert

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.

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, Joshua Heimbuch, Michael Hiedeman, Mukesh Kumar Kansal, Hongjian Lin, Chad Mayfield, Xiao Pang,



Alpha Epsilon key blue print

Student News

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 28-31 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.



A Team: Dan Coffman, Michael Meschke, Jake Ellwein, Matt Wold, Jamie Helgland, Ross Peterson, Jessica Drutowski, Curt Thoreson, Marissa Nelson, and Advisor, Tom Bon



X Team: Advisor, Tom Bon, Will Knox, and Derek Zerface



2010 Design

2008-2009 Graduates (December 2008 - August 2009)

BS DEGREE: Agricultural and Biosystems Engineering

Justin Balsdon Osnabrock Farmers Coop Elevator Langdon, ND
 Mark Dose North Dakota Dept. of Health, Bismarck, ND
 Wyatt Goettle MW Industries, Kenmare, ND
 Michael Gross Crary Company, West Fargo, ND
 Andrew Haataja Amity Technology, Fargo, ND
 Joshua Heimbuch Heimbuch Potatoes LLC, Cogswell, ND
 Nicholas Hodnefield Sears Manufacturing Company, Davenport, IA
 Steven Mickolich John Deere - Hay Equipment Div., Ottumwa, IA
 Ryan Nagel Titan Machinery, Moorhead, MN
 Ross Petersen Cargill Inc. Horizon Milling LLC, Ogden, UT
 Paul Stellpflug Hormel Foods, Austin, MN
 Cory Tammen CNH, Fargo, ND
 Curtis Thoreson Pursuing MS ABEN at Iowa State University, Ames, IA
 Drew Thurlow Pursuing MBA at NDSU

BS DEGREE: Agricultural Systems Management

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

M.S. Agricultural and Biosystems Engineering

Matthew Kasper (MS ABEN and MS Mech. Engr.)
 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-NRCS
 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

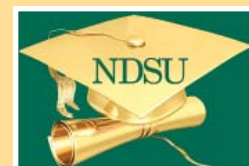
Lav Ramchandra Khot
 Post Doctoral Research Associate
 Agricultural and Biological Engineering
 Citrus Research & Education Center (CREC)
 University of Florida, Lake Alfred, FL
 Thesis: *Characterization and Pattern Recognition of
 Selected Sensors for Food Safety Applications*

Sindhuja Sankaran
 Post Doctoral Research Associate
 Institute of Food and Agricultural Sciences
 Citrus Research & Education Center (CREC)
 University of Florida, Lake Alfred, FL
 Thesis: *Development and Evaluation of Novel Sensing
 Materials for Detecting Food Contamination*

*Congratulations
 Graduates!*



Dan Coffman, Brandon Caulkins, Owen Fiedler, and Celia Norgaard



North Dakota State University
 Department of Agricultural and Biosystems Engineering
 NDSU Dept. 7620
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 Fargo, North Dakota 58108-6050

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