

## FACULTY & STAFF

### FACULTY

Leslie F. Backer  
Ganesh Bora  
Kenneth J. Hellevang  
Xinhua Jia  
Suranjan Panigrahi  
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 Haagenson  
Dongqing Lin  
James Moos  
Nurun Nahar  
Janelle Quam  
Lori Sholts  
Nancy Stroh  
Sheldon Tuscherer  
Qingwu Xue

### PROFESSOR EMERITUS

Lowell A. Disrud  
Harvey J. Hirming  
Vern L. Hofman  
Dexter Johnson  
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

### NOVEMBER

- 1..... Harvest Bowl football game
- 5..... Tri-College Career and Internship Fair
- 11..... Veteran's Day
- 20..... RRV-ASABE Meeting and Tour
- 27..... Thanksgiving

### DECEMBER

- 12..... Last day of fall classes
- 20..... Fall Commencement, 10 a.m., FargoDome

### JANUARY

- 12..... Spring classes begin at 4 p.m.
- 13..... First full day of classes
- 19..... Martin Luther King, Jr. Day

### FEBRUARY

- 14..... Agricultural Technology Exposition
- 11..... Spring Career Fair
- 16..... President's Day

### MARCH

- 16-20 .. Spring Break Week

### APRIL

- 10-13 .. Holiday/Recess

### MAY

- 8..... Last day spring classes
- 15..... Graduate Student Spring Commencement, 4 p.m., FargoDome
- 16..... Undergraduate Student Spring Commencement 10 a.m., FargoDome
- 19..... Summer classes begin
- 25..... Memorial Day Holiday
- 28-31 .. 1/4-Scale Tractor Design and Pull Competition - Peoria, IL

### JUNE

- 21-24 .. 2009 ASABE Annual International Meeting, Reno, NV

## Department Chair Comments



Leslie F. Backer

Greetings! The past year has been good for the ABEN Department. My hope is that the past year has also been good for you and your family.

As you will read in more detail on the following pages, many good things have taken place in the ABEN Department. There have been a number of faculty changes, students have been active and have received recognition for their hard work, and alumni have been successful in their careers and in their personal lives.

With the support of our administration, our faculty numbers continue to grow. We have added two more faculty in the last year. These hires have enabled us to add two new research specialists. We are currently interviewing to fill yet another faculty position and are recruiting to fill another faculty position. The addition of new faculty, staff and graduate students has stretched our building capacity to the limit. In fact, we now occupy lab and office space in four different campus buildings! Our building is no longer adequate for our needs. This is a serious issue that will need to be addressed in the coming years if we are to continue to grow and be productive.

Enrollment in our Agricultural Systems Management program this fall is about even with last year. By the start of spring semester, we expect to have an increase in ASM student numbers over last year. Enrollment in our Agricultural and Biosystems Engineering program jumped from about 64 last year to 99 this year. Ten of the new undergraduate students come to us from the Ansal Institute of Technology in Gurgaon, India as a result of a "twinning" program with AIT. This is one step in the diversification of our student population.

We are also very proud of the achievement of our students. Our quarter scale tractor team earned eighth place overall last spring. This was a significant move up in standing from previous years. Of course, the team plans to do even better this year! The team has set high and achievable goals. The Student Engineering Branch took first place in the AEM competition (Group B) this year based on their report of student organization activities. We are also quite proud of the achievements of ABEN junior Matt Wold. Matt was successful in being awarded the ASABE Foundation Scholarship last spring. In addition, this fall he was awarded a \$10,000 per year renewable scholarship from the Astronaut Foundation; one of only 19 awarded nationally! The award was presented to Matt by Col (ret.) Al Worden, a member of the 1971 Apollo 15 mission, at an all University presentation ceremony.

We were also fortunate to have two of our alumni honored with Distinguished Alumni Awards. One, Scott Handy, was the recipient of the award from the College of Agriculture, Food Systems, and Natural Resources. The other, Bradley Schmidt, received the award from the College of Engineering and Architecture. Both are graduates of our department, ASM and ABEN, respectively, and both are employed by Cass County Electric Cooperative. Each was selected by independent College committees. Not only is this a great honor for our alums, but it brings honor to our department and its programs.

Dr. William (Bill) Bickert, BS and MS degrees in Agricultural Engineering (1959, 1960) from NDSU and PhD from Michigan State University (1964) has established the Dr. William G. Bickert Endowment Fund. The endowment is to serve as an ongoing source of financial support to fund annual seminars and speakers for the NDSU ABEN Department. Dr. Bickert's generous gift will enhance our programs and bring recognition to our department. We look forward to developing this annual lecture series.

Faculty continue to be active and productive in research and extension activities in addition to their duties in teaching, student and organization advisement, and in service. With the addition of new faculty, we are better able to develop teams to address research and extension needs within specific subject areas. We now have a critical mass of faculty in the areas of water resources and management and in energy and bioproducts development. We are continuing to strengthen our already productive team in the sensor and machine systems areas.

As we move toward another legislative session (January 2009), we thank the last legislature, SBARE membership, and our NDSU administrators for their generous support of our programs. It has allowed us to grow and become more productive. We look forward to continued support for our programs. It is our hope that additional funding will be provided for office and research support and for additional graduate students. These are critical needs and support of them will result in even greater faculty productivity.

However, amid the great things that have taken place, there were some significant losses as well. A very significant loss was the passing of Mr. (William) Promersberger on April 10 of this year. Mr. Promersberger touched the lives of everyone associated with our department for at least 39 years. He served as department chair for 36 of those years. He had a very positive influence on the lives of many students, faculty, and administrators. He was a mentor to many. We also mourn the loss of three of our alums; James Burke, Frank Deibler, and Dan Stiller.

I hope you enjoy the 2008 issue of the NDSU ABEN Newsletter. As always, you are welcome and encouraged to stop by for a visit. Your visits provide an opportunity for us to catch up with what is happening in your life and to bring you up-to-date on the many activities of the department. If you can't stop by, just drop us a short message. Thanks for your continued support.

Until next year - Leslie F. Backer

## DEPARTMENT OF AGRICULTURAL AND BIOSYSTEMS ENGINEERING

North Dakota State University  
NDSU Dept. 7620  
PO Box 6050  
Fargo ND 58108-6050  
Phone: 701-231-7261  
Fax: 701-231-1008  
[aben@ndsu.edu](mailto:aben@ndsu.edu)  
[www.ageng.ndsu.nodak.edu](http://www.ageng.ndsu.nodak.edu)

**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

NDSU does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, Vietnam Era Veterans status, sexual orientation, marital status, or public assistance status. Direct inquiries to the Executive Director and Chief Diversity Officer, 202 Old Main, 701-231-7708.

## Department News

### New Faces in the Department

#### Dr. Ganesh Bora



Assistant Professor, Ganesh Bora, joined the Department on September 16 with an 80% teaching, 20% research appointment. His teaching and research area is in precision agriculture, machinery systems engineering and systems management.

Ganesh received his Ph.D. in Biological and Agricultural Engineering from Kansas State University, and his M. Eng. in Agricultural Machinery and Management from the Asian Institute of Technology, Bangkok, Thailand. He has a Post Graduate diploma in Human Resource Management from Indira Gandhi National Open University, New Delhi, India, and a B. Tech. degree in Agricultural Engineering from Jawaharlal Nehru Agricultural University, Jabalpur, India.

Prior to joining the Department, Ganesh was the lead instructor in the Precision Agricultural Technology program at Oklahoma State University. While there, he was responsible for advising undergraduate students, teaching several undergraduate courses, recruiting students, and coordinating graduate placement. He also served as faculty adviser to the university chapter of FFA.

Ganesh's teaching responsibilities include introductory courses in the ABEN and ASM programs, and courses related to precision agriculture, post-harvest technologies, systems management, and engineering design.

Ganesh enjoys sports and played field hockey for his university in India. He loves writing poems and popular science articles, and organizing social activities. His wife, Mallika, is fond of gardening and cooking, and is an architect by profession.

#### Dr. Shafiqur Rahman



Assistant Professor, Shafiqur Rahman, joined the Department May 1 with an 80% research, 20% extension appointment. His research and extension area is in agricultural waste management systems, particularly livestock waste management engineering.

Shafiqur received his M.S. and Ph.D. degrees in Biosystems Engineering from the University of Manitoba. He has an M. Eng. in Agricultural Engineering from the Asian Institute of Technology, Thailand, and a B.S. in Agricultural from Bangladesh Agricultural University.

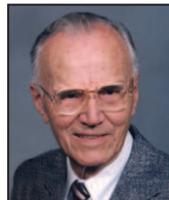
Prior to joining the Department, Shafiqur was a Post Doctoral Research Associate at Texas A&M University. While there he conducted field evaluation of new technologies to reduce animal waste pollution to surface water. He also fabricated, tested, and evaluated a field scale aeration system to control lagoon odor; demonstrated new technologies to dairy farmers and other constituents; and assisted grad students in establishing experimental plots for monitoring surface water phosphorous runoff from dairies. Shafiqur also served as a Post Doctoral Research Associate at the National Swine Research and Information Center at Iowa State University.

Shafiqur's research responsibilities include conducting nationally and internationally recognized interdisciplinary research, recruiting and directing grad students, and publishing research. Extension program responsibilities include providing education and technical assistance; developing educational materials and programs for the public; and training and assisting Extension agents, farmers and ranchers, agency personnel and industry professionals.

Shafiqur and his wife, Nurun Nahar, have an 8 year old son, Raef Rahman. Shafiqur and his family enjoy travelling, fishing and other outdoor activities. He also loves to play with Raef.

### In Memoriam

#### William J. Promersberger



William J. Promersberger died April 10, 2008 at the age of 95. Mr. Promersberger served as department chair for 38 years. He accepted a position as professor of agricultural engineering at NDAC (NDSU) in 1939. In 1940 he took a leave of absence to attend graduate school at KSU where he received his MS degree. In 1941 he accepted the offer to become chairman of the Agricultural Engineering Department at NDAC. In 1972, he was selected as the NDSU Faculty Lecturer in recognition of distinguished academic achievements. Mr. Promersberger was the senior author of "Modern Farm Power," a textbook widely used in technical high schools and junior colleges throughout the country. He retired in 1979.

Mr. Promersberger was a life-long member of the American Society of Agricultural and Biological Engineers (ASABE) where he was elected a "fellow" in 1972. In 1979, ASABE awarded him the prestigious Massey-Ferguson Power and Machinery award.

Bill and his wife, Ann, would have celebrated their 70th wedding anniversary June 9, 2008. In addition to his wife, he is survived by his son Ken, daughter Nancy, four grandchildren, and five great-grandchildren.

### Alumni Obituaries

**James Edward Burke** (Mech Ag 1958) died April 24 at the age of 71. Born in Bowman, ND, he was raised on the same farm/ranch where he spent his final days. Jim was active in the N.D. Stockman's Association for over 30 years. On the day of his death, his sixteenth grandchild, James Martin Burke, was born, carrying on his name.

**Frank Deibler** (BS AM 1958) passed away on December 14 at the age of 77. He spent 30 years in the implement business; 10 as an employee of John Deere Company, and 20 as owner/operator of the John Deere dealership in Garrison, ND. He followed his implement career by working in insurance and real estate. He enjoyed travel, reading, hunting and fishing. He served in the Navy during the Korean War.

**Daniel Stiller** (BS AE 1984) passed away in August after a long battle with leukemia. He was a 20+ year employee at The Toro Company, starting as an engineer and more recently holding the international marketing manager position in the commercial division.

See alumni updates on pages 8 and 9.

### Red River Valley Section of ASABE

The activities of the Red River Valley Section of ASABE have waned over the last several years. The Executive Committee would like to rejuvenate and invigorate the organization. As with any organization, it can only be successful if the membership is active. To that end, if you have an interest in agriculture, engineering, or technology, your participation is welcome. To serve its members, feedback is being sought relative to those activities that would serve the membership. If you have ideas for activities and would like to actively participate, please share them with the Section chair, Jeremy Mahowald (jmahowald@kwh.com).

**RRV-ASABE Section Meeting & Tour**  
**November 20, 2008**  
 TOURS:  
 Phoenix International, Center for Nanoscale Science and Engineering, NDSU Campus  
**SOCIAL/DINNER/MEETING:**  
 NDSU Memorial Union Plains Room;  
 NDSU President Joseph Chapman, guest speaker

## Department Highlights

### New Faces continued

#### Rachel Brudvik



Rachel is a research specialist in renewable products processing based in the Bioproducts Research Laboratory of the NDSU Pilot Plant. She performs chemical and physical analysis of oilseeds, vegetable oil, meal, biodiesel and other renewable products in support of the Center of Excellence in Biotechnology and related grant-

funded research. Rachel received her BS in Food Science from NDSU in May.

#### Nurun Nahar



Nurun is a research specialist in biomass processing based in the Bioproducts Research Laboratory of the NDSU Pilot Plant. She supports research related to biomass characterization, harvest, storage, and processing for the production of fuels and other high-value products. Nurun received an M.S. in Soil Science from the University of Manitoba. She was

previously lab manager in the Department of Soil and Crop Sciences at Texas A&M University. Her husband, Shafiqur is also a faculty in the ABEN Department.

#### Carl Pedersen



As energy educator, Carl develops and delivers a statewide educational program on energy efficiency. He also promotes the use of resources available from the NDSU Extension Service, and develops web material, publications, and other educational materials. Carl received his B.S. in Biology/Secondary Education from Southwest Minnesota State Uni-

versity. He was previously a secondary science teacher at Hibbing High School. Carl is an avid outdoorsman who enjoys spending time with his wife, daughter, and newborn son. Carl was recently recognized as Ag Communicator of the Year.

### Faculty, Staff and Student Recognition

#### Jana Daeuber

– 10 Years of Service, North Dakota State University

#### Suranjan Panigrahi

– 2008 Mary McCannel Gunkelman Recognition Award Nominee

#### Carl Pedersen

– 2008 Communicator of the Year, NDSU Agricultural Communications and the North Dakota Association for Communications Excellence

#### Lori Sholts

– Donald and Jo Anderson Staff Award nominee, 2007 Agriculture Faculty/Staff Awards

#### Nancy Stroh

– Rick and Jody Burgum Staff Award nominee, 2007 Agriculture Faculty/Staff Awards

#### Jayendra Kumar Amamcharla (graduate student)

– 2008 Graduate Student Research Award, American Society of Agricultural and Biological Engineers (ASABE)

#### Judith Espinoza Perez (graduate student)

– Recipient of a \$1,200 Frank Bain Agricultural Scholarship

#### Lav R. Khot (graduate student)

– Recipient of the \$16,000 Frank Bain Dissertation Fellowship

#### Sindhuja Sankaran (graduate student)

– Recipient of a \$1,200 Frank Bain Agricultural Scholarship

#### Francis Dierickx (ASM/ABEN undergraduate student)

– Selected as an Ag Ambassador, College of Agriculture, Food Systems, and Natural Resources

#### Ronald Johnson (ASM undergraduate student)

– Ag Ambassador, College of Ag, Food Systems, and Natural Resources  
– 2008 Homecoming King Candidate

#### Ryan Nagel (ABEN undergraduate student)

– College Ambassador, College of Engineering and Architecture

#### Ross Petersen (ABEN undergraduate student)

– College Ambassador, College of Engineering and Architecture

#### Tyler Rath (ABEN undergraduate student)

– College Ambassador, College of Engineering and Architecture

#### Curtis Thoreson (ABEN undergraduate student)

– 2008 Homecoming King Candidate

#### Matthew Wold (ABEN undergraduate student)

– College Ambassador, College of Engineering and Architecture  
– Recipient of the \$10,000 Astronaut Scholarship Foundation award  
– Recipient of a \$1,000 ASABE Foundation Scholarship  
– Recipient of an \$850 NDSPE Educational Foundation scholarship

### Department Advisory Board

In response to accreditation and other needs, the department has re-established an advisory board for the ABEN program. The board's role is to 1) provide external perspectives and serve as a sounding board for departmental programs and planning; 2) strengthen programs by advising the department and helping gain access to appropriate resources; 3) help facilitate the department's interaction and communication with its constituencies, the profession, and the public; and to 4) support, as appropriate, the department's position when approaching decision makers on issues or specific requests. The current board members are Erica Althoff, Area Engineer, USDA-NRCS; Alex Friedt, Plant Engineer, Dakota Growers Pasta Company; Jeremy Mahowald, Energy Management Supervisor, Cass County Electric Cooperative; and Russell Stoltman, Vehicle Systems Integration Manager and Engineering Site Coordinator, CNH Fargo Plant.

### Student Receives Purple Heart



Sgt. Wyatt Goettle, a North Dakota National Guard soldier and native of Donnybrook, ND received the Purple Heart medal in a ceremony on December 14, 2007 at the state Capitol in Bismarck.

Goettle was serving with Company A of the 164th Engineer Battalion in Iraq when he was wounded.

Goettle suffered injuries when he was driving a Husky and a roadside bomb exploded. The incident occurred in mid-2006. A Husky is equipment that soldiers use to detect and clear roadside improvised explosive devices.

Goettle is a senior majoring in agricultural and biosystems engineering.

## Teaching, Research, and Extension Highlights

### Faculty, Students Participate and Present Research at International Conference

Faculty and graduate students from the Department attended the 2008 ASABE annual international meeting held June 29-July 2 in Providence, RI. Kenneth Hellevang, Xinhua Jia, John Nowatzki, Scott Pryor, Shafiqur Rahman, Thomas Scherer, Judith Espinoza-Perez, Lav Khot, Wajira Asanga Manamperi, Punyatoya Mohapatra, and Sindhuja Sankaran represented NDSU at the conference. Hellevang participated in two ASABE Board of Trustees meetings and two Meetings Council meetings.



Tom Scherer, John Nowatzki, and Xinhua Jia taking in the sites.

Jia, assistant professor, presented "Change of Soil Hardness and Soil Properties Due to Tile Drainage in the Red River Valley." Co-authors are Scherer, Thomas M. DeSutter, and Dean D. Steele.

Pryor, assistant professor, presented "Integrated Use of Field Pea Starch and Corn for Ethanol Production." Co-authors are Mark E. Lenling, and Dennis P. Wiesenborn.

Rahman, assistant professor, presented "Fabrication and Performance Evaluation of a Surface Aeration System to Control Odor from an Aerobic Poultry Lagoon in Texas." Co-authors are Saqib Mukhtar, and James J. Zhu. Rahman also presented "Efficacy of a Microbial Treatment to Reduce Phosphorus and Other Substances from an Anaerobic Dairy Lagoon Effluent." The co-author is Saqib Mukhtar.

Scherer, associate professor, presented "A Site-Specific Web-Based Irrigation Scheduling Program." The co-author is Dallas J. Morlock.

Espinoza-Perez, graduate research assistant, presented "Optimization of the Epoxidation of Canola Oil." Co-authors are Wiesenborn, Chad A. Ulven, and Darrin M. Haagenson.

Khot, graduate research assistant, presented "Olfactory Sensing with Adaptive Wavelet Transform for Food Safety Application." Co-authors are Panigrahi, Yen Wei Chang, and Jacob Glower.

Manamperi, graduate research assistant, presented "Alteration of Osborn Sequence Extraction for Isolation of Canola Proteins." Co-authors are Kow Ching Chang, and Pryor.

Mohapatra, graduate research assistant, presented "Surface Enhanced Raman Spectroscopy Based Sensor for Pathogen Detection in Food Products." Co-authors are Panigrahi, Catherine M. Logue, and Julie S. Sherwood.

Sankaran, graduate research assistant, presented "Investigation on Selected Metal Oxide Sensor for Contamination Detection in Food." The co-author is Panigrahi.

Jayendra Kumar Amamcharla, doctoral candidate, also participated in the 2008 ASABE graduate student research paper competition. The paper, titled "Simultaneous Prediction of Acetic Acid/Ethanol Concentrations in their Binary Mixtures Using Porphyrin Based Opto-Electronic Nose for Food Safety Applications," written by Amamcharla and his adviser, Panigrahi, earned fifth place out of 14 papers submitted.

### Software/Training Gift from Bobcat

The Department received a software and training gift worth \$6,600 from Bobcat Company last fall. The gift will aid the Department in enhancing the student learning experience in hydraulics. It will be used to support hydraulics courses in the Agricultural and Biosystems Engineering and Mechanical Engineering programs. The gift will also be used to enhance other Department courses.

The gift is part of a commitment by Bobcat Company to support enhancement and upgrading of fluid power and machinery courses offered by the Department. The arrangement was fostered by Dr. Thomas Bon, senior lecturer, and Shawn Vasichek from Bobcat Company.

### State-of-the-Art Equipment Donated by John Deere



The Department received a state-of-the-art air seeder unit worth \$25,000 from John Deere Company this fall. The unit includes electrical, hydraulic, and mechanical systems, and will be used for teaching several ABEN and ASM courses.

The gift arrangement was fostered by Kade Nice and Matt Hagen, Manufacturing Engineers at the John Deere Seeding Group in Valley City, ND. Kade is a 2003 graduate of the BS ABEN program, and Matt, a 1999 ABEN graduate.

### Water Sampling Drain Tile Research

The installation of subsurface drains to improve crop production on salinized land is becoming a common practice for farmers in eastern North Dakota. As the number of acres drained increase each year, so do concerns of environmental consequences to water quality in the Red River Basin. Roxanne Johnson, Extension Water Quality Associate with the Agricultural and Biosystems Engineering Department received funding from the Environmental Protection Agency's 319 Nonpoint Source Pollution program to monitor effluent from nineteen tile drains in Cass and southern Trail counties. With the cooperation of the Cass County Soil Conservation District, samples are collected weekly and sent to the North Dakota Department of Health for analysis of major anions and cations, trace metals, and a general chemistry panel. Data from this study will provide land owners and resource managers with important information to manage environmental effects from tile drains. Future monitoring (Phase II) includes collaboration with 8 soil conservation districts over a 5 year period to monitor and develop best management practices as needed.

## Research and Extension Highlights

### Strip Till Demonstration - Big Iron Farm Show



The NDSU Extension Service and the Agricultural and Biosystems Engineering Department, in cooperation with the Lake Agassiz Resource Conservation and Development office in Fargo, held a strip-tillage equipment demonstration during the Big Iron Farm Show in West Fargo on September 10. John

Nowatzki, NDSU Extension Service agricultural machine systems specialist, planned and coordinated the demonstration and educational program.

Nine strip till equipment manufacturers from five states and one Canadian province demonstrated their equipment during the program. The demonstration was a part of the annual NDSU Extension Service educational program at Big Iron. Approximately 350 people attended.

Companies selling strip-tillage equipment demonstrated their machines on a wheat stubble field. A company representative described the features of his or her equipment.

The trend among northern Plains farmers is toward using less tillage to produce field crops so more residue is left on the soil surface. Strip-tillage is a system that combines no tillage and full tillage to produce row crops.

Strip-tillage demonstration videos and links to equipment manufacturers are available at [www.ag.ndsu.nodak.edu/abeng/conservation\\_tillage/](http://www.ag.ndsu.nodak.edu/abeng/conservation_tillage/).

### Bio Energy and Product Innovation Center

Dr. Ken Hellevang, Professor and Extension Agricultural Engineer, serves as Co-Director of the NDSU Bio Energy and Product Innovation Center (BioEPIC). The Center provides comprehensive, coordinated and collaborative resources in research, technology, Extension and education, leading to economic viability of bioenergy and bioproducts while ensuring a sustainable, healthy environment. BioEPIC identifies and enhances opportunities for expanding North Dakota's role in producing renewable energy and bioproducts, and develops action plans for NDSU to work with agriculture, industry, organizations, institutes of higher education and government agencies to capture these opportunities.

A recent BioEPIC report highlights many NDSU renewable energy and bioproduct activities and is available at [www.ndsu.nodak.edu/ndsu/bioopportunities/](http://www.ndsu.nodak.edu/ndsu/bioopportunities/). Click on "BioFocus Magazine: NDSU Advancing Bioopportunities." Many related activities are being conducted by faculty and staff in the Agricultural and Biosystems Engineering Department including Scott Pryor (cellulosic ethanol and biocomposites), Dennis Wiesenborn (bioproducts), Carl Pedersen (energy efficiency) and Ken Hellevang.

NDSU recently held a conference (September 29, 2008) to address the question "The Northern Plains Biomass Economy: What Makes Sense?" Presentations focused on National Policy Implications, Cellulosic Processing Technology, Production, Harvest and Transportation of Feedstock, and Community and Economic Development Implications. The presentations are on the NDSU BioEPIC website. Posters showing some of the work being done at NDSU related to renewable energy and bioproducts are also available at this website. Several state and federal officials provided their insight on the topic including Roger Johnson, Commissioner, North Dakota Department of Agriculture; Scott Stofferahn, State Director-East, Office of Senator Kent Conrad; Shane Goettle, Commissioner, North Dakota Department of Commerce; Governor John Hoeven, and Senator Byron Dorgan.

### Energy Efficiency Education

The Extension energy efficiency and renewable energy educational program has expanded to assist people make wise decisions and save money related to using energy. Carl Pedersen is working with Ken Hellevang to enhance these efforts. Carl's position is possible with funding from the North Dakota Department of Commerce. Several publications have been written to educate the public on how to save money by using energy more efficiently.

#### AE-1366, Farmstead Energy Audit

- Provides steps to reduce energy consumption or improve energy efficiency related to tractor and field operations, grain drying, home, lighting, farm shops, irrigation, and livestock buildings.

#### AE-1373, Determining Insulation and Air Infiltration Levels Using an Infrared Thermometer

- Provides guidelines for using an infrared thermometer to estimate insulation levels and air infiltration points.

#### AE-1375, Corn and Biomass Stoves

- Provides a description of the operation of and points to consider when purchasing corn and biomass stoves. It includes a table that compares the cost of burning corn to other fuels.

#### AE-1368, Insulating to Reduce Heating Costs

- Describes where to focus attention first, types of insulation, and how to insulate. It also steps you through a process of evaluating your home in heating efficiency.

#### AE-1359, No Cost, Low Cost Home Energy-saving Tips

#### AE-1370, Strip Till for Field Crop Production

The website [www.ndsu.edu/energy](http://www.ndsu.edu/energy) is the focal point for energy information at NDSU. It includes energy efficiency information related to farm and ranch, and housing and renewable energy.

Leadership is being provided for a group of organizations and agencies in North Dakota addressing energy conservation and energy efficiency. This enables cooperation on projects to help people save money by using energy more efficiently and provides the public with information on energy efficiency.

Testimony was provided to the EmPower North Dakota Commission related to work regarding energy efficiency education and biomass energy and assisted them as they developed energy policy recommendations. The Commission includes representatives from traditional and renewable energy sectors. The Biodiesel Coalition and the Biomass Energy Group were assisted in evaluating strengths, weaknesses, opportunities and threats for growth of these energy sectors. Ken assisted the Office of Renewable Energy and Energy Efficiency in the Department of Commerce draft a report section on Energy Efficiency.

Carl and Ken are participating in national energy efficiency efforts including working on teams to develop energy information related to Home Energy and Agricultural Energy for [www.extension.org](http://www.extension.org). Extension.org is an interactive learning environment delivering the best, most researched knowledge from land-grant universities across America.

# Research Highlights

## Graduate Student Research

The graduate students in the Department of Agricultural and Biosystems Engineering are involved in a variety of cutting-edge research projects. Under the guidance of their faculty advisors, they conduct research in the areas of food safety sensors; water quality systems and tile drainage; and canola oil, sugar beet pulp, field peas, and biodiesel as energy sources.

### Jayendra Kumar Amamcharla



PhD ABEN  
Advisor: Suranjan Panigrahi  
Research: *Multiple Methods for Developing Quality Sensors for Food Safety*  
Hometown: Singaraya, Konde, India

### Bhavнита Dhillon



PhD ABEN  
Advisor: Dennis Wiesenborn  
Research: *Develop and Evaluate Ozonated Water System for Durum Wheat Grain*  
Hometown: Tohana, India

### Judith Dolores Espinoza Perez



PhD ABEN  
Advisor: Dennis Wiesenborn  
Research: *Production and Characterization of Epoxides from Canola Oil*  
Hometown: Saltillo, Coahuila, Mexico

### Matthew Kasper



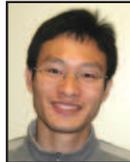
MS ABEN/ME  
Advisor: Suranjan Panigrahi  
Research: *Intelligent Olfactory Sensor*  
Hometown: Grand Forks, ND

### Lav Ramchandra Khot



PhD ABEN  
Advisor: Dennis Wiesenborn  
Research: *Intelligent Quality Sensors for Food Safety*  
Hometown: Tal-Shiral, India

### Hongjian Lin



MS ABEN  
Advisor: Dennis Wiesenborn  
Research: *Advanced Analytical Methods for Biodiesel Quality*  
Hometown: Hangzhou, China

### Wajira Asanga Ratnayake Manamperi



PhD ABEN  
Advisor: Scott Pryor  
Research: *Use of Canola Meal Proteins for Plastics and Biocomposites*  
Hometown: Waragoda Kelaniya, Sri Lanka

### Punyatoya Mohapatra



PhD ABEN  
Advisor: Suranjan Panigrahi  
Research: *Identification of Gaseous and Liquid Metabolites in Contaminated Beef Using Surface Enhanced Raman Spectroscopy as a Form of Artificial Taste Sensor*  
Home: Bhubaneswar, Orissa, India

### Kate Overmoe



MS ECS\*  
Advisor: Xinhua Jia  
Research: *Water Quality and Effectiveness of Artificial Aeration on Heinrich-Martin Dam, LaMoure County, ND*  
Home: Watertown, SD  
\*Environmental Conservation Science

### Xiao Pang



MS ABEN  
Advisor: Xinhua Jia  
Research: *Impact of Tile Drainage on Water Availability in the Red River Valley*  
Hometown: Beijing, China

### Rachel Rorick



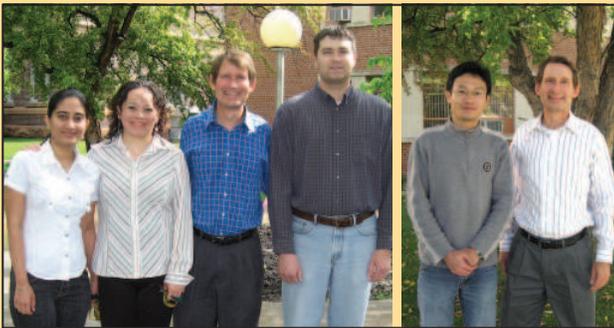
MS ABEN  
Advisor: Scott Pryor  
Research: *Ethanol Production from Sugar Beet Pulp*  
Hometown: Monaca, Pennsylvania

### Sindhuja Sankaran



PhD ABEN  
Advisor: Suranjan Panigrahi  
Research: *Novel Sensing Techniques for Meat Safety*  
Hometown: Chennai, India

## Graduate Students and Advisors



Left picture: Bhavnita Dhillon, Judith Espinoza Perez, Dennis Wiesenborn, and Andrew Wilhelm; Right picture: Hongjian Lin and Dennis Wiesenborn



Xiao Pang, Kate Overmoe, and Xinhua Jia

### Andrew Wilhelm



MS ABEN  
Advisor: Dennis Wiesenborn  
Research: *Synergy of Using Field Peas as an Ethanol Feedstock*  
Hometown: Nekoma, ND



Sindhuja Sankaran, Lav Khot, Jayendra Amamcharla, Punyatoya Mohapatra, Matt Kasper, and Suranjan Panigrahi



Rachel Rorick, Scott Pryor, and Wajira Asanga Ratnayake Manamperi

For more information on graduate study in the Department of Agricultural and Biosystems Engineering, please go to the following website.

[www.ageng.ndsu.nodak.edu/grad](http://www.ageng.ndsu.nodak.edu/grad)

## Alumni Highlights

### Distinguished Alumni Award Honorees

The second annual NDSU Distinguished Alumni Award Program was held in April. Sponsored by each of the seven colleges at NDSU, the program was an opportunity to educate students by introducing them to successful alumni and an opportunity to recognize and honor outstanding alumni.

The Department of Agricultural and Biosystems is proud to have two alumni honored, one from the College of Agriculture, Food Systems, and Natural Resources, and one from the College of Engineering and Architecture.

#### Scott Handy

College of Agriculture, Food Systems, and Natural Resources



Scott Handy, president and chief executive officer of Cass County Electric Cooperative Inc., earned his bachelor's degree in agricultural mechanization

(now agricultural systems management) from NDSU in 1980. He worked as an energy consultant for the NDSU Extension Service prior to beginning his career with Cass county Electric Cooperative in 1982. He held several positions before being named president and chief executive officer in 2002.

Handy has active in the community serving as chair of the board for the Greater Fargo-Moorhead Economic Development Corporation's Growth Initiative, advisory board member for the Quentin N. Burdick Center for Cooperatives at NDSU and past board chair for the Chamber of Commerce of Fargo Moorhead. He currently serves on the board of directors for the NDSU Alumni Association. He also served on the Valley City State University Foundation Board and Cass County Community of Care Steering Committee.

Handy has received many honors including Cass County Electric's Willard Grager Achievement Award and Essence of Innovation Award, North Dakota Association of Rural Electric Cooperatives Community Service Award and International Association of Administrative Professionals Boss of the Year.

Handy presented "We Proceeded On: Electrifying the Land Explored by Lewis and Clark" to students, faculty, alumni, and the NDSU community.

#### Bradley J. Schmidt

College of Engineering and Architecture



Bradley J. Schmidt, senior vice president of transmission and distribution services for Cass County Electric Cooperative, earned his bachelor's and master's

degrees in agricultural and biosystems engineering from NDSU in 1979 and 1980.

A native of Linton, ND, he has spent the past 28 years with Cass County Electric Cooperative holding positions as electric use specialist, staff engineer, manager of engineering and director of engineering and operations. He has been senior vice president for 11 years.

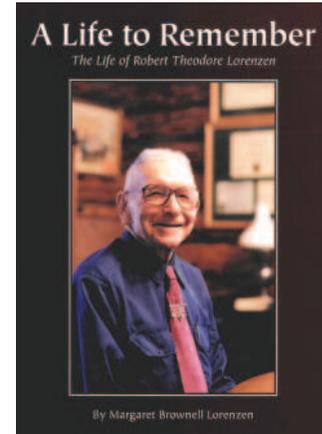
Schmidt maintains a strong relationship with NDSU by serving on the electrical and computer engineering department advisory board and as a lecturer for the past four years in the agricultural and biosystems engineering department teaching post-harvest technology.

He has received several awards including the North Dakota Power Use Council Achievement Award and Boss of the Year award from the Red River Chapter of Professional Secretaries in 1996. He is a member of the FM Engineers Club, American Society of Agricultural and Biological Engineers, Institute of Electrical and Electronics Engineers and the National Society of Professional Engineers.

Schmidt presented "They Taught Us Much More Than  $E=MC^2$ " to students, faculty, alumni, and the NDSU community.

### A Life to Remember

*The Life of Robert Theodore Lorenzen*



A biography of Bob Lorenzen who received his BS in Agricultural Engineering at NDSU (then NDAC) in 1943, was recently written by his wife, Margaret Brownell Lorenzen. The biography contains notes, photos, mementos, and personal journals. Forwards for the

work were written by NDSU President Joseph Chapman and ABEN Chair Leslie Backer.

Lorenzen taught for 23 years in the Department of Biological and Environmental Engineering at Cornell University before retiring from the faculty in 1982. Prior to Cornell, he held appointments at the University of Wisconsin, the University of California at Davis, and the Colorado State University at Fort Collins.

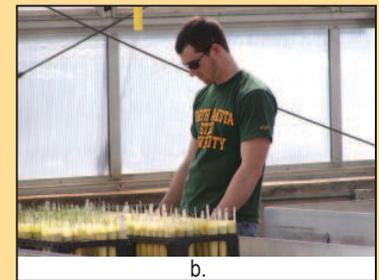
### Recognize us?

*Do you recognize these former students?*

*See answers at the bottom of the page.*



a.



b.

*For more information on these alumni and many more, go to:*

[www.ageng.ndsu.nodak.edu/alumni/careers.htm](http://www.ageng.ndsu.nodak.edu/alumni/careers.htm)

## Alumni Updates

**Shawn Adrian** (BS ASM 2000) is an agricultural loan officer with Farmers and Merchants State Bank in Tolna, ND. He was previously and ag loan officer with Dakotah Bank in Valley City, ND.

**Pete Almen** (BS AE 1982) continues to work as chief engineer at Summers Mfg. Co. Inc. in Devils Lake, ND.

**Sundar Balasubramanian** (PhD ENGR 2005) is a research associate in the Department of Biological and Agricultural Engineering at Louisiana State University's Ag Center in Baton Rouge. His wife, Mini, is a graduate student in the LSU Department of Civil and Environmental Engineering majoring in Transportation Engineering. Their son, Vishnuh, 3.5 years old, attends pre-school.



**Joey Bata** (BS ABEN 2007) is a Continuous Improvement (CI) Coordinator at the John Deere Seeding Group in Valley City, ND.

**Justin Beckstrand** (BS ASM 2005) is a loan officer with Citizens Community Credit Union in Devils Lake, ND. He also continues to farm near Warwick, ND.

**Joshua Behrens** (BS ASM-DMS 2006) is an agricultural account manager with RDO Equipment Company in Moorhead, MN. He was previously with Larsons, Inc. in Wheaton, MN.

**Todd Berhow** (BS AE 1987) is currently a product quality engineer with General Electric in Louisville, KY. He investigates and determines deficiencies within laundry transmissions, and then engineers appropriate decisions. He retired from the U.S. Navy in March, 2007 after 20 years service. He received his green belt six sigma qualification/certification in October, 2007.

**Bruce Berlinger** (BS ABEN 1997) works for Superior Industries in Morris, MN. The company designs and fabricates a full line of conveying equipment, telescoping conveyors, and feed systems.

**Brad Bjerke** (BS AE 1990) is southern Arizona regional sales manager of Road Machinery LLC in Tucson, AZ.

**Dan Bjur** (BS ASM 1999) is a research agronomist with SES VanderHave Sugarbeet Seed in Fargo. He was previously with Interstate Seed Co.

**Michael Brekhus** (BS ABEN 2004) is southern Cass County area manager for Peterson Farm Seed, Harwood, ND.

**Bruce Carlson** (BS AE 1976) is General Manager of Verendrye Electric Cooperative in Velva, ND. He has fond memories of the Ag Engineering Department and NDSU. His son, Shawn, graduated from NDSU in Electrical Engineering in 2006 and is employed by Basin Electric Cooperative in Bismarck, ND.

**Dan Claussen** (BS ABEN 2002) was deployed to Iraq as a combat engineer with the Air National Guard. He is also a field engineer at the USDA-NRCS, Minot, ND.

**Josh Dukart** (BS ABEN 2003) is an SCD technician with the USDA-NRCS in Bismarck, ND.

**Steven Ebertowski** (BS ASM 2006) married Nicole Johnson last November.

**Greg Davidson** (BS AE 1983) is an engineering manager with Cargill, Inc. in AgHorizons, Plymouth, MN.

**Mark Ekre** (BS AM 1991) farms in the Hawley, MN area with his wife Pam, and two young children, Lily and Carl. Mark and Pam were named the 2007 Red River Valley Emerging Leaders for Clay Co. MN.

**Kevin L. Erickson** (BS AM 1976) is a risk management specialist with the USDA Risk Management Agency in St. Paul, MN.

**Tanner Erickson** (BS ABEN 2005) is an associate marketing manager at The Toro Company in Bloomington, MN. He left the Toro Siteworks Systems engineering team for the Consumer Riding Products Group last January.

**Jennifer (Lees) Evans** (BS ABEN 2004) moved to the Dallas, Texas sales branch of John Deere Co. in the fall of 2007. She is a field product specialist with Frontier Equipment.

**R. Ryan Evenson** (BS ABEN 2001) is a senior design engineer in the Building Construction Products division at Caterpillar, Inc. where he is lead Blade and C-Frame designer for Small Track-Type Tractors. He and his wife, Kelley, and nearly two year old daughter, Haley, live in North Carolina.



**Michael Follman** (BS AE 1992) is employed by Western Finance and Lease in Devils Lake, ND, as a risk management program administrator. He was previously a manufacturing engineer at Sioux Manufacturing. He and his wife and three children live in rural York, ND.

**Craig Froehling** (BS AE 1988) relocated to Minneapolis, MN as a procurement and engineering manager with Horizon Milling, a Cargill Foods Affiliate.

**Mark Gehlhar** (BS AM 1976) is manager of Barnes County Equipment in Wimbledon, ND.

**Travis Giffey** (BS ABEN 1998) and **Gail (Skalet) Giffey** (BS ABEN 1998) welcomed another baby boy to their family in December, 2007. They continue to live in Cookeville, TN.

**Christopher Gillund** (BS ABEN 2001) is a design engineer with Applied Engineering in Fargo, ND. He was previously a field test engineer with John Deere Seeding in Illinois.

**Robert "Yabo" Gjellstad** (BS AM 1977) is manager of the South McHenry Soil Conservation District in Velva, ND. He was previously a research specialist with the North Central Research Extension Center in Minot. Yabo and his wife live on the farm his great grandfather homesteaded in 1883.

**Jason Goltz** (BS ASM 2006) recently returned from guard duty. He was also married on July 1. He is an extension agent in cropping systems with the Kidder County Extension office in Steele, ND.

**Brian Gregor** (BS AE 1988, MS ABEN 1997) took a position with Bobcat Company in Gwinner, ND. He was previously with CNH.

**Peder Gulleason** (BS ABEN 2001) is now in the Gwinner, ND office of Bobcat.

**Dallas Hager** (BS ABEN 2002) is a project engineer with Mag Tec Energy in Fargo, ND. He was previously with TerraMarc Industries.

**Roger Hapka** (BS AE 1982) is currently an engineer with Cummins Engine Co. in Columbus, IN. He was previously with Polaris in Warroad, MN.

**Louis Hartke** (BS ABEN 1999) is a project engineer with Vermeer Mfg. Co. in Pella, IA. He has actively recruited students for employment by representing Vermeer at several NDSU career fairs.

**Dustin Hase** (BS ABEN 2001) married Laura Seifert in July, 2008. He continues to be employed as a structural engineer with Micada, Hope, ND.

**David Held** (BS AE 1985) has been at Cummins Engine Co. since graduating from NDSU; starting in Columbus, IN, and now in Minneapolis, MN.

**Peter Herman** (BS AE 1987) is senior technical advisor at Cummins Filtration (Fleetguard) in Stoughton, WI. He is responsible for advanced analysis in the area of thermal/fluid science using CFD and other tools. He also serves as the functional leader for the "thermal and fluid science" group. He received the Perr Innovation Award in 2006, an award given to Cummins employees whose patented inventions have significantly improved the company, industry, or environment. Herman holds 33 patents.

**Vincent Hoffarth** (BS ASM 1994) is a Senior Special Agent with the Union Pacific Railroad Police in Portland, OR. He investigates crimes against the railroad, conducts surveillance, and provides traffic enforcement and executive protection. He recently celebrated his 6 year anniversary and has two children, Vince Jr., 5 years old, and Isabella, 3 years old.

**Jeremy House** (BS ABEN 1999) is an engineer with Caterpillar Paving Products in Brooklyn Park, MN.

**Michael Hunt** (BS ABEN 2004) started GeoFurnace Mfg. Inc. in March, 2008. The company designs geothermal heat pumps for year-round climates.

**Ryan Jacobson** (BS ABEN 2004) married Cassie Shook in March. He is employed by Bobcat Co. in Gwinner, ND.

**Jeremy Jahner** (BS ABEN 1997) lives in Dickinson, ND and is employed by Steffes Corporation.

**Marvin E. Jensen** (BS AE 1951) lives in Fort Collins, CO. He is retired director of the Colorado Institute for Irrigation Management.

**Cassie Joicks** (BS ABEN 2005) accepted a position with the USDA-NRCS in Conrad, MT in June.

**Loren Johnson** (BS AE 1992) is a project engineer with Harriston Industries located in Minto, ND.

**Nicholas B. Johnson** (BS ABEN 2003) is a senior associate engineer in the forestry and industrial equipment of CAT Forest Products.

**Russell D. Johnson** (BS AM 1989) was accepted into the U.S. Army War College in Carlisle, PA last fall.

**Steve Jorissen** (BS AE 1979) is a program manager with Phoenix International in Fargo, ND.

**Nathan Keller** (BS ABEN 2006) is an engineer with Rapat Corporation in Hawley, MN.

**Troy Kind** (BS ASM-DMS 2004) moved to the Moorhead RDO Equipment Co. location where he is a member of the Core Accounts team.

**Robert Kitterman** (BS AE 1950) is retired and resides in Devils Lake, ND.

**Jerald Klages** (BS AE 1995) is a product manager with Phoenix International Corporation, Fargo, ND. He previously was a sprayer product support engineer with John Deere in Des Moines, IA.

**Daniel Koeppe** (BS ABEN 1998) is a senior quality engineer at Rosemount Inc. in Chanhassen, MN. Daniel manages the company's quality system, including documentation, internal auditing, and computer system support. As a six sigma black belt, he leads continuous improvement teams. Daniel is also attending the University of St. Thomas for his MBA.

## Alumni Updates

**Keith L. Larson** (BS AE 1983) is director of engineering at The Goodrich Corporation, Jamestown, ND.

**Matthew Laubach** (BS ASM 1999) completed his MS in Animal Science at NDSU in July. He is manager of the Dairy Research and Training Facility and a lecturer in the Dairy Science Department at South Dakota State University in Brookings, SD.

**Travis Lee** (BS ABEN 2001) started with CNH in CE Systems Architecture in November, 2007, where he works on hydraulic system design for wheel loaders.

**Norman Lemmon** (BS AE 1958), pictured here with Elton Solseng, stopped by the Department in September, 2007. He is retired from the advanced tractor engineering department at John Deere Company in Waterloo, IA.



**Matt Loecken** (BS ABEN 2004) is with Nilfisk-Advance Inc. in Plymouth, MN. As a New Product Development Design Engineer, he is working on the development of a new rider floor scrubber.

**Douglas Lundstrom** (BS ABEN 1998) joined Donaldson Company in Bloomington, MN in the fall of 2007 as a project engineer.

**Robert Mau** (BS AE 1963; MS AE 1965) - While essentially retired on a wheat farm on the edge of Spokane, WA, Mau owns and operates an apartment building. He previously worked at four electrical utility companies (two in Min. and two in Alaska). After retiring as Vice President of Engineering and Operations at the second largest utility company in Alaska, he was an engineering consultant in Alaska and the island of Saipan.

**J. Raymond Mewes** (BS AE 1969, MS AE 1971) and his son, Jason, were featured in a January 2008 Northharvest Bean Grower article. Raymond is President of Mewes Farms Inc. in rural Hope, ND. Raymond's son, Jason, an NDSU graduate in agricultural economics, is a member of the North Dakota Dry Bean Council.

**Terry Miller** (BS AM 1989) is County Executive Director of the USDA-Farm Service Agency in Grand Forks, ND.

**Justin Muscha** (BS ABEN 2004) is currently a test engineer with Bobcat Co. in Gwinner, ND. He performs sound and vibration analysis on skid steer loaders. He also conducts machine performance tests (cooling tests, cold start tests) and component performance tests. He and his wife, Laura, have a 14 month old girl, Mary Kathleen.

**Cody Montgomery** (BS ASM 2005) is a store manager at Twin City Implement in Mandan, ND. He was previously an affiliated agent/commodity broker with Progressive Ag.

**Tim Nebosis** (BS ABEN 1996) recently moved back to the area as the engineering manager at Rapat Corporation in Hawley, MN.

**Randall (Randy) Neva** (BS AE 1985) owns Neva Farms, a farming and ranching operation near Kensal, ND.

**Nicolaus Nowatzki** (BS ASM 2003) is Plant Operations Superintendent with ADM in Corpus Christi, TX, where he conducts daily operations coordination for the port terminal elevator. He coordinates rail, truck, and ship loading and unloading. Nick was married on July 12, 2008.

**Nathan O'Brien** (BS ABEN 2006) is currently a manufacturing engineer with Bobcat in Gwinner, ND. He was previously a field engineer with The Industrial Company in Steamboat Springs, CO.

**Scott Ostlie** (BS AM 1992) continues to manage the Northwood Equity Elevator in Northwood, ND. He was featured in a November 2007 Ag Week article on the aftermath of the Northwood tornado.

**Sudhanshu Sekhar Panda** (PhD ENGR 2003) is an Asst. Professor of GIS and Environmental Science at Gainesville State College, Gainesville, GA. His research and teaching area is in GIS, remote sensing, and GPS.

**Jeremy Peter** (BS ASM-DMS 2005) recently joined Phoenix International as a warranty and reliability analyst II.

**Noul S. Petersen** (BS ABEN 2000) continues to work for Caterpillar in East Peoria, IL, as a design engineer in hydraulic lines.

**George Pratt** (BS AE 1950) was chosen to go on the first "Honor Flight" to Washington DC for three days in May, 2007. Accompanied by his wife, Patti, they viewed the World War II monument, Arlington Cemetery, The Marine Museum and many other sites. George was professor and served as department chair from 1977-1989.

**Rixon Rafter** (BS AE 1960) lives in Salinas, CA and is retired from the USDA-NRCS.

**Dan Reisenauer** (BS ABEN 2003) and **Anna (Zehrer)**



**Reisenauer** (BS ABEN 2003) are proud parents of a baby girl, Lucy Jo, born on May 28. Dan and Anna are each a Design Engineer II at Bobcat Company in Bismarck, ND.

**Verdine D. Rice** (BS AE 1939) is retired from Williston Public School. He served in the North Dakota state legislature House of Representatives from 1980-1988 and was on the appropriations committee. Verdine and his family established the Rice Family Scholarship at NDSU which is open to industrial engineering and ag education majors.

**Justin Risovi** (BS ASM 2005) works for Kozojed Ent. Inc. and K&M Ag Services in Hillsboro, ND. He and his wife reside in Hillsboro and are anxiously awaiting the birth of their first child.

**Chris Rodel** (BS ABEN 2006) accepted a position as an associate plant manager with Cargill Animal Nutrition in Flora, IL.

**Larry Roehl** (BS AE 1975; MS AE 1978) is a county road engineer at Louisa County in Wapello, IA. He manages the engineering staff and road maintenance crew to maintain and improve 560 miles of local roads and 125 bridges.

**Robert Schiffman** (BS AM 1969) is a computer and programmer analyst with Raytheon Co. in Aurora, CO.

**Jared Schultz** (BS ABEN 2006) married Kyla Tracy in December, 2007. He continues to work as a systems engineer at Black Gold Farms in Grand Forks, ND.

**Matthew Schultz** (BS ASM 2000) is a corporate manager for Hormel Foods Corporation in the harvest and fresh meat quality assurance division in Austin, MN.

**Casey Severance** (BS ABEN 2005) is an air/emissions test engineer with Fleetguard Inc. (Cummins Filtration, Inc.) in Stoughton, WI. He was married in September, 2007 to Stephanie Faber.



**Jerry Shae** (MS ABEN 2002) joined Bartlett & West as an engineer manager in the rural water division. His emphasis is in planning, designing, construction phase engineering and management of water deliver systems.

**Earl Stegman** (BS AE 1959; MS AE 1961) travelled to Europe in the summer of 2007 with his wife Dottie where they toured the Alps of Bavaria/Germany, Austria, Italy, and Switzerland. Earl is previous chair, and professor emeritus in the ABEN Department.

**David Straley** (BS ABEN 1997) is currently Manager of North Dakota Government and Public Affairs



Photo courtesy of the Bismarck Tribune.

at the North American Coal Corporation. He previously served as VP of Governmental Affairs at the Greater ND Chamber of Commerce. He, and his wife, Bonnie, and three children, Brianna, Mia, and Harry, live in Bismarck, ND. David also holds MBA and Law degrees.

**Robert I. Strand** (BS AE 1962) operates Robert Strand and Associates as a consulting engineer in Lakewood, CO.

**Hua Sun** (PhD ENGR 1996) is involved in work related to cellulosic ethanol with Purdue University. He was previously a processing engineering manager in oil milling at Buhler in Minneapolis, MN.

**Stuart Swartz** (BS ASM 2002) joined Grafton Equipment in John Deere sales last year. He was previously a service manager at Jamestown Implement.

**Dhruv Tapasvi** (MS ABEN/Agribus App Econ 2006) continues to work as a process engineer with AMEC in Minneapolis, MN. He was married in February.

**Roger L. Thompson** (BS AE 1971) is a project engineer with the USDA-NRCS where he is responsible for the technical phases of watershed projects in northeast North Dakota. He served four years in the Air Force Civil Engineering squadron and 32 years with the NRCS, working at the Dickinson Area Office, and Grafton and Grand Forks Project Offices. He is married with four children (one son and three daughters).

**Scott Torgerson** (BS ABEN 2006) was recently promoted to Product Manager at Phoenix International in Fargo, ND. He married Jenna Fevig in July, 2008.

**Sherwin Wanner** (BS AE 1991) returned home from Iraq last spring after serving a year with the Engineer Brigade, 34th Infantry Division, Bismarck, ND. Wanner resumed his position as Operations Manager at Houston Engineering in Bismarck.



**Richard Wenberg** (BS AE 1957) retired from the USDA-SCS (now NRCS) after 35+ years with the organization. He is currently a consultant/manager and member of Water Management Engineers, LLC.

**Erika (Hodgson) Williams** (BS ABEN 2003) continues to travel the United States and works with farmers to improve John Deere equipment. Erika is a product design engineer in the test and reliability division of John Deere Des Moines Works.

**Will Wright** (BS ABEN 2000) is project engineer in new product development at CNH in Wichita, KS.

**Qingjun (John) Zhang** (MS ABEN 2001) is a test engineer at E-Z-Go (a Textron Company) in Augusta, GA, where he tests and validates golf cars. He has three daughters and states that he has good memories of school, the Department, and the faculty.

Update your contact info or share news

[aben@ndsu.edu](mailto:aben@ndsu.edu)

## Student News

### Agricultural Technology Exposition

The 60th Annual Agricultural Technology Expo (Ag Engineering Show) was held February 9, 2008. Managers and staff of this year's Expo included:

#### Managers

- Ryan Nagel (ABEN, Linton, ND)
- Eric Voller (ASM, Hazelton, ND)

#### Booklet Manager

- Ross Petersen (ABEN, Clara City, MN)

#### Treasurer

- Matt Wold (ABEN, Thief River Falls, MN)

#### Public Relations Manager

- Ron Johnson (ASM, Ruso, ND)

#### Machinery Division Manager

- Justin Mosset (ASM, Linton, ND)

#### Soil, Water, and Environment Manager

- Corey Vetter (ASM, Linton, ND)

#### Assistant Managers

- Dan Coffman (ASM, West Concord, MN)
- Paul Stellpflug (ABEN, Rochester, MN)

#### Secretary

- Bobby Volesky (ASM-DMS, Wyndmere, ND)

#### Awards and Banquet Managers

- Matthew Brantner (ASM, Felton, MN)
- Aaron Walsh (ASM, Harvey, ND)

#### Power Division Manager

- Tyler Rath (ABEN, Belgrade, MN)

#### Structure, Elec. Power & Process Division

- Cody Frauenberg (ABEN, LaMoure, ND)

#### Precision Agriculture Division Manager

- Jake Aakre (ASM-DMS, Madison, MN)

Sixty students were involved in the 60th Annual Agricultural Technology Expo. These students displayed 26 projects in five divisions. 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

#### Grand Champion; Freshman Award



Francis Dierickx - "Methane as Fuel"

#### Reserve Champion; People's Choice Award



Adam Novak and Lee Trautman  
- "Efficient Grain Handling"

#### Power Division

- 1st Derrick Wolter and Drew Thurlow: CA-40 Fuel Additive
- 2nd Francis Dierickx: Methane as Fuel
- 3rd Mukesh Kumar Kansal: Biodiesel Use in Engines

#### Structures, Electrical Power, and Processing Division

- 1st Travis Weinreis, Bruce Erdmann, and Jayme Helmer: Grain Bin Safety
- 2nd Andrew Wilhelm: Low Temperature Properties of Biodiesel
- 3rd Michael Meschke: Biomass Processing

#### Machinery Division

- 1st Adam Novak and Lee Trautman: Efficient Grain Handling
- 2nd James Wavra and Kyle McMahan: Monosem Planter Unit
- 3rd Shawn Carnahan: Case IH Patriot Sprayer

#### Soil, Water, and Environment Division

- 1st Mark Dose and Andrew Haataja: Irrigation Scheduling
- 2nd Austin McLaen and Josh Heimbuch: Tile Drainage
- 3rd Blake Johnson: Environmental Wildlife Production

#### Precision Agriculture Division

- 1st Matt Grove, Brandon Dingmann, and Jason Pecka: Greenstar 2
- 2nd James Faul and Owen Fiedler: Site Specific Agriculture
- 3rd Dan Latt and Eric Loomer: SMS Advanced

#### Senior Design Award

Wyatt Goettle and Steven Wosick: Harriston Potato Planter Modification

### Student Engineering Branch Takes 1st Place in National Awards Competition



Ross Petersen and Ryan Nagel

The NDSU Student Engineering Branch of the American Society of Agricultural and Biological Engineers (ASABE) took first place (Group B) in the annual Student Engineering and Mechanization Awards conducted by the Association of Equipment Manufacturers (AEM) at the 2008 ASABE meeting. The NDSU report was prepared

by ABEN majors, Ryan Nagel, a senior from Linton, ND, and Ross Petersen, a senior from Clara City, MN.

### New Members Initiated into Alpha Epsilon



Raymond Maas, Ryan Nagel, Matt Wold, Joseph Sheldon, Lav Khot, Sindhuja Sankaran, Curt Thoreson, John Nowatzki, and Jay Amancharla

Nine new members were initiated into the Theta Chapter of Alpha Epsilon at an initiation ceremony April 23, 2008. It was attended by current student members and several current and retired faculty. Former President, Wyatt Goettle, conducted the meeting

and the initiation. The new members, including two honorary members, are pictured above. Membership in the honor fraternity is offered to those ABEN students meeting strict academic and character standards.

### Student Organization Officers for 2008-09



Brandon Caulkins



Ryan Nagel



Matt Wold

#### Agricultural Systems Management (ASM) Club

President ..... Brandon Caulkins  
Vice Pres ..... Adam Novak  
Secretary ..... Francis Dierickx  
Treasurer ..... Dan Coffman  
CSO Rep ..... Adam Novak  
CASAC ..... Brandon Caulkins  
Advisor ..... Elton Solseng

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

President ..... Matt Wold  
Vice Pres ..... Ryan Nagel  
Secretary ..... Ross Petersen  
Treasurer ..... Paul Stellpflug  
CSO Rep ..... Dan Coffman  
CASAC ..... Open  
E&A Rep ..... Mike Meschke  
Scribes ..... Cody Frauenberg  
Andrew Haataja  
Tyler Rath  
Curt Thoreson  
Advisor ..... Dennis Wiesenborn

#### Alpha Epsilon

President ..... Ryan Nagel  
Vice Pres ..... Joseph Sheldon  
Secretary ..... Ross Petersen  
Treasurer ..... Matt Wold  
Advisors ..... Scott Pryor and  
Dennis Wiesenborn

## Student News

### 1/4-Scale Tractor Design and Pull Competition



**A Team:** Chelsey Lewis, Justin Balsdon, Curt Thoreson, Mike Gross, Jess Dutrowski, Nic Hodnefield, Nancy Hart, Matt Wold, and Tom Bon

The 1/4-Scale Tractor "Bison Pullers" team entered two tractors at the ASABE design and pull competition May 29 - June 1 in Peoria, Illinois. The "A" team placed 8th overall which marks their first top ten finish. "We had a tractor that really stood out from the rest in that we took a risk in creating a lower power tractor with hopes of doing more with less, and we made it work," said team member, Curt Thoreson.

Twenty-seven collegiate teams participated from across the U.S. and Canada. The "X" team came in 9th overall in the X team competition using last year's tractor.

The students raised funds, designed, and built the tractor. The teams and tractors are judged on the following categories: 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 12th annual competition will be held May 28-31, 2009 in Peoria, IL.



**X Team:** Dan Coffman, Paul Stellflug, Mike Meschke, and Tom Bon

### Student Receives Astronaut Scholarship



ABEN student, Matthew Wold was presented with a \$10,000 scholarship from the Astronaut Scholarship Foundation by Apollo 15 astronaut Al Worden during a presentation and ceremony on September 11, 2008.

The Astronaut Scholarship is the largest monetary award given in the United States to science and engineering undergraduate students based solely on merit. Nineteen of these prestigious awards are distributed each year through the Astronaut Scholarship Foundation to worthy college students majoring in a science or engineering field.

Wold is a junior from Thief River Falls, MN majoring in ABEN. He is conducting research on cellulosic ethanol with department faculty. Sensor calibration and reactor testing and modification are among his main responsibilities. Not only is Matt an exceptional student academically, he also is a CEA Ambassador, President of the Student Engineering Branch of ASABE, one of the leaders of the Quarter Scale Tractor team, and is involved with a team of students in the development of a tractor for use in developing countries. Wold is also the recipient of a \$1,000 ASABE Foundation Scholarship.

The Astronaut Scholarship Foundation is a non-profit organization established in 1984 by the six surviving members of America's original Mercury astronauts. Its goal is to aid the United States in retaining its world leadership in science and technology by providing scholarships for college students who exhibit motivation, imagination and exceptional performance in the science or engineering field of their major.

### 2007-2008 Graduates

(December 2007 - August 2008)

#### BS DEGREE: Agricultural Systems Management

Jacob Aakre.....Kibble Equipment, Montevideo, MN  
Benjamin Bakko.....CHS, Savage, MN  
Dustin Ehli.....Monsanto, Glyndon, MN  
Andrew Gordon.....Gordon Farms, Murdock, MN  
Benjamin Griffith.....Burlington Northern Santa Fe Railway, Fort Worth, TX  
Tyler Kirkeide.....Verizon Wireless, Fargo, ND  
Kody Kylo.....Farming, Grandin, ND  
Tyler Maus.....Dakota Farm Equipment, Inc., Elgin, ND  
Justin Mosset.....Farm Service Agency of the USDA, Fargo, ND  
Adam Riesen.....Evergreen Implement Co., Warren, MN  
Eric Voller.....Voller Farms, Hazelton, ND  
Aaron Walsh.....Gooseneck Implement, Harvey, ND  
Carl Zeltinger.....Berthold Farmers Elevator, Berthold, ND

#### BS DEGREE: Agricultural and Biosystems Engineering

Peter Gates.....Neustel Law Offices, Inc. Fargo, ND  
Badger Koepplin.....Burlington Northern Santa Fe Railway, Fort Worth, TX  
Robert Leiseth.....Bobcat Company, Gwinner, ND  
Danny Middlestead.....  
Joel Skalet.....Caterpillar, Inc., Mossville, IL  
Steven Wosick.....Polaris Industries, Inc., Roseau, MN

#### Ph.D. Agricultural and Biosystems Engineering

Jayendra Kumar Amamcharla  
Post Doctoral Research Associate  
Dairy Science Department  
South Dakota State University, Brookings, SD  
Thesis: *Multiple Methods for Developing Quality Sensors for Food Safety*

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

NON-PROFIT ORGANIZATION  
 U.S. POSTAGE PAID  
 Fargo, ND  
 Permit No. 818

Address Service Requested

# Thanks to Our Donors!

Donors make important contributions to the scholarship program and other activities that enhance the student experience. Below is a summary of donors to the department July 2007 - June 2008.

<b>A</b> Robert (AE 1984) and Carla (1984) Adamek Rodney (AE 1969) and Barbara (1969) Adrian Harold Amstrup (1949) Robin (1974) and Gaylon Anderson Ronald AM 1958) and Hallie Anderson Mark (1985) and Barbara Askegaard	Michael Fick (AE 1992) and Patty Jaeger Daniel (1984) and Sandy Filipi Dennis (1976) and Joyce (1993) Fjeld Edward (1965) and Theresa Forster Ron (1978) and Gwen (1978) Fraase Mary Ann French (1957) Robert (AE 1969) and Diane Fritel Steve (AM 1972) and Linda Frosлие	Gary (AE 1966) and Karen Justus	Craig (1988) and Pam Ostebee Perry (1985) and Patti Ostmo	Jacque (1943) & Louise(1978) Stockman Robert (AE 1962) and Etta Strand Neal (1980) and Debra (1981) Sundet
<b>B</b> Leslie (AE 1969) and Catherine Backer Mark (AE 1991) and Stephanie (1991) Bares Kurt D. Bassett (Engr 1996) Bradley (AE 1987) and Brenda Baumann Christopher (ABEN 1997) and Jane Beach Kelly (AE 1981) and Trina Bengston Mark (1990) and Karen Bertram William (AE 1960, 1659) and Rosie Bickert Robert (AE 1968) and Jeannie Bird Keith (1961) and Marian (1961) Bjerke Thomas Bon (Engr 2003, AE 1977) Patrick (2000) and Anna (2001) Boyle Andrew (1989) and Teresa (1990) Braaten James (1958) and Kaydell Breyer David Brossart (1979) Ross (1995) and Becky Brossart	<b>G</b> Joshua (AE 1973) and Linda Gartner Dave (1977) and Renee (1977) Gauslow Robert (1951)and Mae Gee Curtis (AE 1969) and Carol (1968) Glasoe Orlando (1972) and Connie (1971) Gordier Leo (1961) and Doreen Grobe John (1974) and Judy (1960) Gunkelman Duane Gustafson (1966) Michael (AM 1970) and Lois Gustafson	<b>K</b> John and Marcella Kelzer James (1957) and Eloyce Kenward Donald and Jo Kilander Robert (AE 1950) & Dorothy (1944) Kitterman Gary (AE 1971) and Connie Klein James (1988) and Jacalyn (1986) Kokett Glenn (AE 1963) and Kelley Kranzler	<b>P</b> Gerald (1963) and Nancy (1964) Patterson Les and Bernice Pavek Kenneth (1973) & Cheryl (1974) Pazdernik Harold L. Pederson (1961) Paul (ABEN 2000) & Lindsay (2001) Petersen Terry (1965) and Norma Petersen Ralph (AM 1966) and Janet Polasky George (AE 1950) and Patricia (1955) Pratt Ken (1964) and Jan (1964) Promersberger Eric (AM 1982) and Charlotte Pueppke	<b>T</b> Dean (1990) and Rhonda Tenderholt Jacqueline D. Thompson (1973) Lloyd O. Thompson (1986) Ralph (AM 1960) and Cleo Thompson Roger (AE 1971) and Betty Thompson Virgil Jons and Sharon Trieglaff Jons Duane Twedt (AM 1991) Rodney (1979) and Paula Tweten
<b>C</b> Bruce (AE 1976) and Cynthia (1975) Carlson Jeffrey (1990) and Mary Chwialkowski Lillian Cole (1978)	<b>H</b> Scott (AM 1980) and Mary Handy Christopher (ABEN 2001) and Nicole (2001) Harmsen Donald (1954) and Carol Hart Ross (AE 1989) and Jan Haugeberg Milo (AE 1964) and Lillian Hellickson Peter (AE 1987) and Tammy (1987) Herman Jon Hillestad (AE 1972) Brenda (1987) and Stanley Holmberg Russ (AE 1989) and Deb Honeyman Jeremy F. House (ABEN 2000)	<b>L</b> Roberta E. Lana Shelly (1979) and Jeff Langlie Keith (1983) and Leslee (1983) Larson Abner (1959) and Lorraine Lee Vic (1950) and Marlys (1948) Legler Robert (1964) and Suzanne (1964) Lervick James and Carol (1981) Lindley Roald (1955) and Janet (1956) Lund Richard (AE 1963) and Sandra Lunde Darnell (AE 1964) & Judy (1971) Lundstrom	<b>R</b> Randy (1978) and Donna Raeder Rixon Rafter (AE 1960) Darold and Lyla Rath Alvin (1977) and Rebecca (1980) Reich Mark and Anette Rockeman Larry (AE 1975) and Laurie Roehl Robert (1964) and Claudia Rose	<b>U</b> David (AE 1971) & Rebecca (1968) Utke
<b>D</b> Scott (AE 1981) and Laurie Dale Richard (1973) and Laura Danielson Glen (AM 1955) and Verla DeKrey Roger (AM 1959) and Marlene Diehl Ima Dinusson Allan Dragseth (1958) Timothy (1988) and Marlene Dufault	<b>J</b> Harold (1955) and Ruth Jenkinson Marvin (AE 1951) and Doris Jensen Don (1955)and Leanore Johnsen Dexter (AE 1960) and Anna Marie Johnson Em Johnson (AM 1951) Glen (AE 1958) and Irene Johnson Richard (AM 1957) and Valerie Johnson Stephan (AE 1961) and Rita Johnson Mike (1969) and Barb (1970) Jones Blaine (AE 1995) and Jennifer Jorgenson Glenn (AE 1971) and Susan Jorgenson	<b>M</b> Stanley (1949) and Betty Melroe Rome H. Mickelson (AE 1955) Marvin (1961) and JoAnne Miller Terry (AM 1988) and Joanne Miller Chuck (AM 1953) and Erva Moilanen Andrea Moon-Malmquist (1965) and Paul Malmquist	<b>S</b> Richard (1982) and Kelly (1981) Sager Robert (AM 1968) and Eiko Schiffman Brad (AE 1979) and Suzanne Schmidt Thomas (AM 1984) and Lucille Scholin Robert Schroeder (1962) Darrol (1949) and Jean 1952) Schroeder Raymond (1991) and Cheryl Seibert Richard (AE 1980) and Elaine Seidel James (1967) and Deborah Selland David (1968) and Bonita (1967) Selvig John (AE 1986) and Anne Seppanen Lawrance (AE 1957) and Elizabeth Shaw Paul (AE1961) and Gerry (1959) Shea Gary (AE 1975) and Kathleen Shulstad Harold (AM 1957) and Lois Solberg Elton (AM 1980, 1972) and Colleen Solseng Jane and Carol (1982) Somody Gary (AE 1961) and Judith Spangelo Earl (AE 1959) and Dorothy Stegman Earl (1953) and Granis Stewart	<b>V</b> Kyle Vig (AE 1986)
<b>E</b> Mark (AM 1991) and Pam Ekre Kevin (AM 1976) and Nancy Erickson R. Ryan (ABEN 2001) & Kelley (2001) Evenson Wesley (AM 1968) and Mary Ewine		<b>N</b> Donna Nabben (1986) and Michael Schindler Jessica (1998) and Brad Nachriener Randall (AE 1985) and Tracy Neva Stuart (1977) and Teresa Nielsen Keith Nilson (1977) Nancy J. Novak (1973, 1974) Robert and Jo Ann Nyquist	<b>W</b> Steven (AE 1983) and Sherry Wagner Jared (AE 1991) and Tonya Walter Donald(AM 1988) &Debra(1988) Wanner Margaret F. Wasche (1945) Cecil (AE 1959) and Marilyn Watson Jason W. Webster (ABEN 2005) Richard (AE 1957) and Mary Wenberg Dennis and Diane Wiesenborn Matthew (1995) and Erika (ABEN 2003) Williams Jack and Amy Wilson Ryan (ABEN 2000) and Amanda (2001) Wingenbach	<b>Z</b> Qingjun Zhang (ABEN 2001) & Wenhong Song
<b>F</b> Tim and Julie Farrell		<b>O</b> Howard M.(AE 1948) & Barbara N.(1948) Olson John (1967) and Margaret Olson Kathy Olson Steven (1991) and Angela Olson Paul (AE 1961) and Dorie Orr	<b>X</b>	<b>INDUSTRY</b> The Boeing Company Caterpillar Foundation Dow Chemical Co. Eaton Corporation Ingersoll Rand Company John Deere - Seeding Group Kellogg Company Raytheon Company Textron Inc.

We are grateful for contributions of any size to our programs! If you wish to designate your contribution for a particular use, please feel free to do so. Fill out the enclosed form.