

## Message from the Chair



Dr. Sreekala Bajwa

Greetings!

I started at NDSU on February 29, 2012 as the chair of ABEN department. Once I was here, I have been quickly integrated into the ABEN family by the very welcoming and collegial faculty, staff, students and alumni. When a group of students invited me to share tea with them on my first week here, it emphasized my already strong feeling that I am at the right place, and this is the kind of place where I want to work. Such a positive feeling was also topped by the very mild winter of 2012 that made my family's transition from Arkansas to North Dakota a pleasant one.

It is always a challenging task to follow on the footsteps of excellent administrators such as Les Backer and Earl Stegman, who had long service at the department, great reputation as excellent teachers and advisors, and knew virtually every alumni of ABEN. I have been taking baby steps to establish good relationships with our alumni, employers and stakeholders. It is a great blessing to have strong support from these past administrators and fellow department chairs here at NDSU while dealing with the numerous issues of managing an academic unit.

We are living in exciting times of great challenges and opportunities. The foremost of these challenges is sustaining a growing population that would require significantly more food, fiber and fuel as well as fresh water and clean air. We have an excellent group of faculty and researchers who are focusing their research and educational efforts on solving local yet globally relevant problems. Being in academia, we are also expected challenge a new generation of students for jobs that may not exist today and to use technologies that are not invented yet. We have to prepare our students to be life-long learners with solid technical knowledge, good communication and people skills, and ethical values. Our faculty and staff have been addressing these challenges through innovative research, teaching and extension education.

One of the major challenges our department faces today is the inadequate space. We are preparing proposals for a new department building and a field laboratory, and welcome your comments or suggestions. We have been renovating some of the teaching spaces in the department to meet the demands of our growing student body. Our instrumentation/ electricity lab has been renovated to increase the capacity to 24. We are currently planning to renovate Room 223 into a larger computer lab where we can also teach our courses with a computer component. We have hired a new faculty in the Bioenvironmental Engineering area. Our enrollment is at an all-time high with a 100% growth in ABEN enrollment while ASM and graduate programs registered a 50% growth in the last 5 years. We have seen significant growth in women students in our ABEN program, from less than 2% in 2007 to 20% in 2012. Our internship and employment rate are at the highest levels, at or close to 100%.

We are currently working on expanding our advisory board. My sincere thanks to our alumni and employers who have agreed to serve. I am on a mission to meet as many of our alumni, employers and other stakeholders as possible to understand their needs and concerns so that we can better serve our constituents. If you happened to be in Fargo, please stop by to visit your ABEN home. I would appreciate an opportunity to visit with each of you.

Dr. Sreekala Bajwa

sreekala.bajwa@ndsu.edu, 701-231-7265, ABEN, room 100

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### 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

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.

# Congratulations 2012 Graduates!



Atandi,  
Eric  
M.S. ABEN



Borgerding,  
Adam  
B. S. AGEN  
Engineering  
Development,  
John Deere,  
Cary, NC



Dick,  
Ethan  
B. S. AGEN  
Farm Manager,  
L & S Farms,  
Munich, ND



Dufault,  
Christopher  
B. S. ASM  
Precision Ag,  
Titan Machinery,  
Crookston, MN



Feil,  
Joshua  
B. S. AGEN  
Project Manager,  
Gateway Building  
Systems,  
West Fargo, ND



Foss,  
Dylan  
B. S. ASM  
Owner/Operator,  
Foss Farm,  
Harwood, ND



Hogness,  
Bryce  
B. S. ASM  
Agricultural Sales,  
Mid-State Electric,  
Watertown, WI



Holmes,  
Nathaniel  
B. S. AGEN  
Field Engineer,  
Colfrac Wells,  
Williston, ND



Jangula,  
Jesse  
B. S. AGEN  
Advanced Tech.  
Engineer,  
Phoenix Int'l,  
Fargo, ND



Jordahl,  
Jason  
B. S. ASM  
Product Specialist,  
Horsch-Anderson,  
Andover, SD



Kuch,  
Andrew  
B. S. AGEN  
Quality Engineer,  
Bobcat,  
Gwinner, ND



Liebswager,  
Ethan  
B. S. BSEN



Loi,  
Sandeep  
B. S. BSEN



Martinez,  
Joshua  
B. S. ASM  
Ag Parts & Sales,  
Butler Machinery,  
Dickinson, ND



Merritt,  
Daniel  
B. S. AGEN  
Production  
Engineer,  
Red River  
Commodities,  
Fargo, ND



Meyer,  
Jacob  
B. S. ASM  
Procurement  
Merchandiser,  
CHS Co-op,  
Glenwood, MN



Morman,  
John  
B. S. AGEN  
Heavy Equipment  
Operator,  
Coteau Properties,  
Beulah, ND



Olson,  
Bryce  
B. S. ASM



Paumen,  
Nicholas  
B. S. ASM  
Grain Terminal  
Operator,  
ADM,  
St. Cloud, MN



Pecka,  
Jason  
B. S. AGEN  
Manufacturing  
Engineer, John  
Deer Seeding,  
Valley City, ND



Rutten,  
Adam  
B. S. ASM  
Farmhand,  
Rutten Family  
Farms,  
Mapleton, ND



Sharma,  
Nipurn  
B. S. BSEN



Sietsema,  
Chad  
B. S. BSEN  
Applied Mechanics  
Test Engineer,  
CNH,  
Fargo, ND



Swenson,  
Roy  
B. S. AGEN



Wagner,  
Blake  
B. S. AGEN  
Internship,  
Falkirk Mining,  
Underwood, ND



Woodbury,  
Wade  
B. S. AGEN  
Manufacturing  
Engineer,  
Bobcat,  
Gwinner, ND



Zachman,  
Mitchell  
B. S. AGEN  
John Deere,  
Peoria, IL

**ABEN**  
Graduate Degree

**AGEN**  
Agricultural  
Engineering  
Degree

**BSEN**  
Biosystems  
Engineering  
Degree

**ASM**  
Agricultural  
Systems  
Management  
Degree

# 3 Department Highlights

## New Faculty and Staff

**Debra Baer, Technical Communications Specialist**, joined our department on April 30, 2012. Deb works in the main office reviewing manuscripts, journal article submissions, and grant proposals. She prepares grant budgets and applications working closely with AES and SPA to provide the most competitive reports for ABEN faculty. Deb brings prior research knowledge from a strong microbiology, chemistry, and biotechnology background from previous work in the Plant Pathology department as a Research Specialist. She also has business and facilities management experience from running the tissue culture laboratory and greenhouse at the State Seed Department.

Deb lives in Fargo with her husband Jeff. They have two sons, Jacob and Jared, and a granddaughter, Morgan. Deb and her husband enjoy spending time at their lake home on Big Cormorant Lake.



Deb Baer

**Christina (Tina) Exner, Account Technician**, joined our department on June 1, 2012. Some of her responsibilities are to monitor and maintain department funds, including grant funds; research and maintain compliance of university policy, grant laws, and regulations; assist and advise the department chair in budget management and reporting; process and monitor payroll. Prior to joining our department she worked in Customer Account Services for a little over four years. Between Bismarck State College, Mayville University and NDSU, she has been with the University System for over 12 years.

Christina and her husband, Eric live in Fargo and have one daughter, Cassidy who is 8 years old and in the third grade. Cassidy participates in choir, soccer and swimming which keeps them all busy. They also enjoy their three dogs Baxter, Buzz, and Belveder.



Christina Exner

**Dr. Halis Simsek, Assistant Professor**, joined the department in Dec., 2012. He will be teaching ABEN 452, Bioenvironmental Systems Design and ASM 475, Management of Agricultural Systems. Dr. Simsek's research is in Bioenvironmental Engineering. He received his education from:

Ph.D. - North Dakota State University

M. S. - Purdue University  
West Lafayette, IN

M. S. - Gebze Institute of Technology  
Gebze, Turkey

B. Eng. - Selcuk University

Halis and his wife, Senay, have three daughters; Miray (9), Ilkay (6), and Melis (4). Halis enjoys listening to music and likes to play his Turkish instrument called a baglama. It is like a guitar with 8-9 strings. He also likes to learn different cultures and loves to travel.



Halis Simsek

## CHAIR

Sreekala Bajwa

## FACULTY

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

## ACADEMIC STAFF

Roxanne Johnson  
John F. Nowatzki

## STAFF

Deb Baer  
Md. Saidul Borhan  
Lori Buckhouse  
Jana Daeuber  
Christina Exner  
Myron Flaagan  
Darrin Haagenson  
Dongqing Lin  
James Moos  
Nurun Nahar  
Sheldon Tuscherer  
Melanie Ziegler

## PROFESSOR EMERITUS

Leslie F. Backer  
Lowell A. Disrud  
Harvey J. Hirning  
Vern L. Hofman  
Henry L. Kucera  
James A. Lindley  
Darnell Lundstrom  
George L. Pratt  
Earl C. Stegman

## Departures

**Carl Pedersen** began his employment with the department as an Extension Energy Educator in December, 2007. In 2008 the ND Association for Communication Excellence named him the Communicator of the Year.

Carl developed statewide educational and information programs on the efficiency use of energy in residential buildings, and small commercial and agricultural operations.

In August, 2012, Carl went to work for the Minnesota Department of Natural Resources as a Fisheries Specialist in Walker, MN.



Carl Pedersen

**James Perleberg**, Research Specialist for Dr. Dennis Wiesenborn accepted permanent employment with the Department of Plant Sciences as a Chemist.



James Perleberg

## Retirement



Nancy Stroh

Account Technician.

**Nancy Stroh**, Account Technician, retired on May 31, 2012. Nancy began working in the department on Nov. 21, 1997 as a part-time employee with Extension. She went full-time in Sept., 2004 when she became the

Nancy is enjoying retirement with her husband Bob, daughter Kelly, and three grandsons, Cody, Jackson, and Sam. They plan to do lots of traveling. Nancy loves to read and spend time outdoors in the sun. A favorite place of hers to escape is with close friends at their lake home in Minnesota.



## Promotion and Awards



Dr. Scott Pryor was named "Researcher of the Year" by the College of Engineering and Architecture in April, 2012.

*Dr. Scott Pryor*

In May, 2012, he successfully achieved his tenure and promotion to Associate Professor.



*Dr. Tom Scherer*

Dr. Tom Scherer received the NDSU Extension Program Excellence Large Team Award and the Irrigation Excellence Award from the ND Irrigation Association



*Dr. Ken Hellevang*

Dr. Ken Hellevang received recognition from the Epsilon Sigma Phi for "Flood Preparation and Recovery Education and Assistance". Other team members were Lori Scharmer, Extension Agent, and Debra Pankow, Family Economics Specialist.

Ken was also awarded the AGSCO excellence in Extension Award through the College of Agriculture, Food Systems, and Natural Resources



*Dr. Ganesh Bora and Dr. Tireuov K. M.  
Kazakh National Agrarian University*

Dr. Ganesh Bora, Assistant Professor, was invited by Dr. Tireuov K. M., First Vice Rector (Provost) to the Kazakh National Agrarian University to teach a course on "Agricultural Technology Management". Dr. Bora was in KazNAU from May 28 to June 10, 2012. During this time he presented lectures to undergraduate and graduate students on Precision Agriculture.

Dr. Bora also received the 2012 Superior Paper Award from ASABE for his paper on "Performance of a Pulse Width Modulated Single to Multifold Outlet System for Variable-Rate Anhydrous Ammonia Application".

*Congratulations!*

## ABET Accreditation

The Accreditation Board for Engineering and Technology (ABET) is a non-profit and non-governmental accrediting agency for academic programs in the disciplines of applied science, computing, engineering, and engineering technology. ABET accreditation provides assurance that a college or university program meets the quality standards established by the profession for which the program prepares its students.

Accreditation is value. It is proof that a collegiate program has met certain standards necessary to produce graduates who are ready to enter their professions. Students who graduate from accredited programs have access to enhanced opportunities in employment; licensure, registration and certification; graduate education and global mobility. Accreditation is an assurance that the professionals who serve us have a solid educational foundation and are capable of leading the way in innovation, emerging technologies, and in anticipating the welfare and safety needs of the public.

Accreditation provides an opportunity for academic institutions to demonstrate they are committed to maintaining their programs' quality and that their programs are performing at the level required by the professions they serve. Programs undergo the accreditation process every six years to ensure that they continue to meet quality standards set by the profession. The result provides lasting benefits to students, the institution, employers, the professions, and society as a whole.

Our ABET review was November 18-20, 2012. Our ABET report can be found at [http://www.ndsu.edu/aben/academics/faculty\\_resources/](http://www.ndsu.edu/aben/academics/faculty_resources/)

## RRV-ASABE Intersectional Conference

The Red River Valley Chapter of the American Society of Agricultural and Biological Engineers (RRV-ASABE) hosted the North Central Intersectional Conference in Fargo on March 30-31, 2012. Twenty-five papers were presented in Biofuels, Food and Feed Processing, Soil and Water, Building Environment, Instrumentation and Manure Co-digestion.

Participating students were from University of Manitoba, USDA-ARS Northern Great Plains Research Lab, South Dakota State University and North Dakota State University.

Sonia Maassel Jacobsen, ASABE President, spoke on the changes within ASABE. Tim Bertschi, United States Army Corps of Engineers, spoke on the engineering aspects of flood fighting.



*Dr. Sreekala Bajwa, Dept. Chair  
and Sonia Maassel Jacobsen,  
former ASABE President*



*Tim Bertschi,  
United States Army  
Corps of Engineers*

## Department Seminar Series

The department hosts seminars that are held two Friday's a month from 1:00-3:00 p.m. in the ABEN building. The purpose of the seminars are to share topics such as research, collaboration, career opportunities, student work, etc. from researchers, graduate students, extension, industry and federal agency personnel.

In 2012, our speakers were invited from North Central Research Extension Center, Theraldson Ethanol Plant, Automation Research Group, Autonomous Tractor Corporation and Blue Flint Ethanol. Our attendees were from Industrial Manufacturing Engineering, Mechanical Engineering, Crop and Weed Science, Electrical Engineering, Soils, Ag Economics, and Natural Resource Management in addition to ABEN faculty, staff, and students.

If you have a topic of interest and would like to present at a seminar, please contact Dr. Xinhua Jia at: [xinhua.jia@ndsu.edu](mailto:xinhua.jia@ndsu.edu), 701-231-6453. If you would like to receive seminar announcements to attend presentations, please contact Melanie at: [melanie.ziegler@ndsu.edu](mailto:melanie.ziegler@ndsu.edu), 701-231-7261

## Teaching Highlights

ABEN student numbers as well as student diversity have been steadily increasing. We taught 33 classes/labs this year. New technology and software were procured for improved hands-on student experience. Several high level guest speakers provided exposure to real life engineering situations. Extreme improvement was seen in class performance according to pre and post testing, exam scores, and student feedback. New curriculum was developed for the Numerical Modeling course, and a new course is in development to expose students to Matlab.

ABEN department has submitted a program review report for the oncoming review and accreditation of its undergraduate engineering program by ABET.

ABEN undergraduate students participated in the international quarter scale tractor competition held by ASABE.

ABEN faculty participates in the AgIDEA program; an online agricultural program offered through a consortium of accredited universities.

## Research Highlights

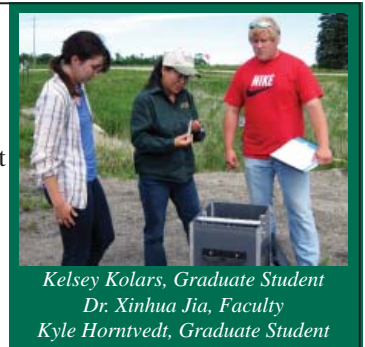
ABEN faculty published 23 peer reviewed journal articles, and more than 40 invited research presentations, proceeding papers, and poster presentations.

Faculty in this department received 23 grants totaling \$3,031,416, and 10 Pending grants totaled \$715,000. Two faculty members are collaborating on 2 additional pending grants totaling between an anticipated \$1 million to \$10 million, and 39 grant proposals were submitted that were not funded.

ABEN faculty maintained active international collaboration with Kazakhstan, China and Uzbekistan by serving on thesis committees of graduate students and hosting international scientists including a Fulbright scholar from Uzbekistan.

## Drainage and Wetland Management

Kyle Horntvedt and Kelsey Kolars joined the ABEN Department this summer as M.S. students, and are working on Dr. Xinhua Jia's subsurface drainage and subirrigation project, "Effect of optimal water management for sustainable and profitable crop production and improvement of water quality in Red River Valley" in Clay County, Minnesota funded by a United States Department of Agriculture - Sustainable Agricultural Research and Education grant. Agricultural drainage water management is one of the fastest growing practices in the Red River Valley, due to the inherently flat land found throughout the area. Drainage water management is the practice of installing drain tile in agricultural fields, and controlling the water table by "shutting off" drainage flows at the outlet, to optimize moisture conditions in the plant root zone throughout the growing season. In addition, irrigation water can be added to the tile systems to provide additional water to the root zone during high usage times, through a process called subirrigation (SI). Currently there has been little research performed in the Red River Valley on best management practices regarding these technologies.



Kelsey Kolars, Graduate Student  
Dr. Xinhua Jia, Faculty  
Kyle Horntvedt, Graduate Student

## Extension Highlights

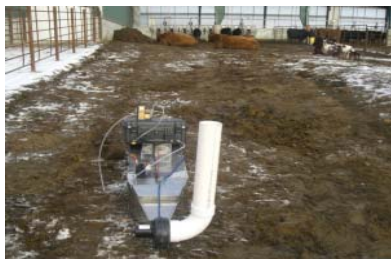
ABEN faculty generated 45 book chapters, production guides, bulletins, reports, non-refereed articles and abstracts.

The department faculty prepared 25 videos, news releases, and newsletters.

ABEN faculty participated in 38 interviews and meetings.

ABEN faculty were active members of several professional organizations, served on proposal review panels and journal/conference editorial boards, and participated in many service activities including university/college/departmental committees, multistate project groups, ASABE committees, planning committee for BigIron, etc.

## Greenhouse Gases



(Top) A portable wind tunnel and (Bottom) greenhouse gas chromatography (GC) are used in this study.



Ruminant livestock is the predominant source of enteric methane emissions in the atmosphere, whereas manure storage and management systems are the primary sources of methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O), which are greenhouse gases (GHGs), emissions. To meet the increasing global demand for livestock and poultry meat, livestock production will grow and this industry needs better feed efficiencies for economic sustainability and minimizing environmental impact due to intensive production systems.

GHG emissions from confined animal feeding operations (CAFO) are a major concern due to their contribution to global warming. Globally, methane is contributing 22%, and nitrous oxide is contributing 6% of the total GHG. There are many available mitigation options to

reduce GHG from livestock production system, but feeding management, animal genetics, and manure management are likely the best approaches. Feeding cattle and adding bedding in North Dakota feedlot poses environmental challenges due to cold climatic conditions. Cold ambient temperature increases maintenance energy needs and feed intake in most ruminants, which can influence the extent of pollutant gas emissions.

Little attention has been given to the environmental impact resulting from livestock production system in North Dakota, including greenhouse gas emissions. Therefore, in this study on-farm GHG emissions will be measured using a portable wind tunnel and greenhouse gas chromatography (GC) as shown below. Management practices will be followed for mitigating GHG emissions. This project has been funded by the North Dakota Corn Council.

## Biomass Engineering

Manlu Yu, a current graduate student, has been working on the research area of biomass feedstock process engineering issues towards her dissertation. She is funded through the research projects under the Specific Cooperative Agreement between NDSU and Northern Great Plains Research Laboratory (NGPRL), USDA-ARS, Mandan. She works under the direction of Dr. Cannayen. She carries out her experiments in the "NDSU Biomass Testing Laboratory," developed using the funds by ND Industrial Commission and NGPRL, and "NDSU Biomass Processing Laboratory" at NGPRL.

Manlu evaluated the mechanical characteristics, namely, tensile and shear stress and energy of big bluestem, corn stalks, intermediate wheatgrass, and switchgrass after developing specialized universal testing machine attachments. She also determined the moisture hydration characteristics of switchgrass, big bluestem, and bromegrass, developed moisture prediction hydration models capable of predicting hydration characteristics of these biomass at any temperature between 20°C and 60°C as well as easy to read nomograms. These results were submitted as peer-reviewed publications. In her research, she will also be studying the size reduction process of selected biomass feedstocks and the energy involved in the process. She will be correlating the size reduction with mechanical strength characteristics. Calorific value and thermo-gravimetric analysis (TGA /DSC) on biomass feedstocks were also considered. Manlu received her Master's degree in Biosystems Engineering from the University of Tennessee, Knoxville, TN and her Bachelors degree in Mechanical Engineering from the Northeastern University in Shenyang, China.



Manlu Yu, Graduate Student

## Big Iron



John Nowatzki

Education was again the main focus at the 2012 Big Iron Show in West Fargo, ND. There was a high volume of activity in the field demonstration area to Extension Service seminars and programs in the Issues and Events Center.

John Nowatzki, Ag Machine Specialist, organized field demonstrations, including a driverless tractor. Nowatzki also had information on using "in-field sensors" for a variety of field applications.

Roxanne Johnson, Extension Water Quality Specialist, had a display that focused on residential water treatment equipment such as iron removers and water softener.

Igathinathane Cannayen, Assistant Professor, displayed his latest research findings for the energy beet program.

Shafiqur Rahman, Extension Waste Management Engineer, presented information on livestock carcass disposal methods.

Several local Extension Service agents were on hand to field questions from Big Iron visitors. The show continues to grow each year. All in all, Big Iron 2012 was another great success!



Roxanne Johnson



Igathinathane Cannayen



Shafiqur Rahman



## 2012 Agricultural Technology Exposition - Tiling Into The Future

Sixty-two students were involved in the 64th Annual Agricultural Technology Expo. These students displayed 35 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.

### Managers

- Chad Sietsema, (ABEN, Sacred Heart, MN)
- Joshua Martinez, (ASM, West Fargo, ND)

### Assistant Managers

- Chris Dufault, (ABEN, Crookston, MN)
- Vance Zacharias, (ASM, Kathryn, ND)

### Secretary

- Nick Paumen, (ASM, Maple Lake, MN)

### Treasurer

- Nicole Wallace, (ABEN, Frazee, MN)

### Booklet Manager

- Jacob Keith, (ASM, Mohall, ND)

### Public Relations Manager

- Laura Chavez, (ABEN, Kindred, ND)

### Awards and Banquet Manager

- Cody Brantner, (ASM, Felton, MN)

### Machinery Division Manager

- Richard Lewis, (ABEN, Comstock, MN)

### Power Division Manager

- David Staples, (ASM, Harwood, ND)

### Precision Agriculture Division Manager

- Brandon Hofer, (ASM, Aberdeen, SD)

### Soil, Water, and Environment Manager

- David Dybdahl, (ASM, Clinton, MN)

### Structure, Elec. Power & Process Division

- Daniel Merritt, (ABEN, Howard Lake, MN)

## Expo Results:

### Power Division

- 1st . Application of Butanol as a Diesel Fuel, Josh Fiel, Ethan Liebswager
- 2nd. Diesel Electric Tractor, Nick Morrison, Joel Shipley
- 3rd.. Quarter Scale Tractor, Chris Fedje, Jacob Hanson, Levi Thatcher

### Structures, Electrical Power, & Processing Division

- 1st . Ground Fault Interrupter, Roy Swenson
- 2nd Grain Handler, Justing Johnson, Vance Zacharias
- 3rd. Dairy Cow Housing Options, Josh Seibert

### Machinery Division

- 1st . Tritura Processor and Natural Flow System, Mitch Agre, Dan Eslinger, Mitch Field
- 2nd John Deere 900 Series Baler, Brandon Flynn, Jacob Weinreis
- 3rd. Vertical Tillage, Jason Gapp, Ryan LaPlante

### Soil, Water, and Environment Division

- 1st . Case IH SCR Technology, Aidarus Abdinasir
- 2nd Recycling Phosphorus to Increase the Nutrition Value in Crops, Nipurn Sharma
- 3rd. Drain Tiler, Ethan Bruer, James Grommesh

### Precision Agriculture Division

- 1st . John Deere Machine Sync Technology, Lisa Buchholz, Derek Olson
- 2nd CASE IH Advanced Farming System, Connor Kelly, Lucas Laudenbach, Thomas Pederson
- 3rd Robotic Milking, Michael Backman, Ethan Huttunen, Jake Longlet

### Senior Design Award

- Design, Construction and Testing of a Lab Scale Algae Photobioreactor, Nate Holmes, Andrew Kuch, Chad Sietsema

## Congratulations Expo Winners!

### Grand Champion



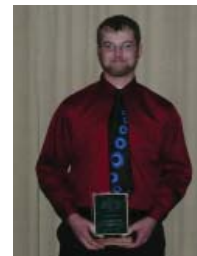
Derek Olson and Lisa Buchholz - ABEN  
John Deere Machine Sync Technology

### Reserve Champion



Mitch Field, Mitch Agre, and Dan Eslinger - ASM  
Tritura Processor and Natural Flow System

### Freshman Award



Matthew Mortenson - ABEN  
Soil-Max Gold Digger Tile Plow

## CommonGround



Jody Hanson

CommonGround is a national movement of farm women who want to share information about farming and the food they grow. Jody Hanson is part of CommonGround and also the President of Sigma Alpha sorority. Jody says CommonGround gives her an opportunity to talk about growing up on their family farm in Comfrey, MN and the food she and her family raise. "It's a way for me to stay connected with the agricultural industry. I'm an engineer, so I don't necessarily get that in my day-to-day life".

Jody is a senior majoring in agricultural engineering.

## Student Organization Officers



Joshua Martinez

### Agricultural Systems Management (ASM) Club

President.....Joshua Martinez  
 Vice President.....Brandon Hofer  
 Secretary.....Derek Aho  
 Treasurer.....Sam Livingston  
 Adviser.....Elton Solseng



Juan Vargas Ramirez

### Alpha Epsilon

President.....Juan Vargas Ramirez  
 Vice President.....Harjot Sidhu  
 Secretary.....Ewumbua Monono  
 Treasurer.....Janelle Mauch  
 Advisor.....Scott Pryor



Chad Sietsema

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

President.....Chad Sietsema  
 Vice President.....Jason Pecka  
 Secretary.....Richard Lewis  
 Treasurer.....Mitch Zachman  
 CASAC.....Jason Pecka  
 E&A Rep.....Chad Sietsema  
 Head Scribe.....Nolan Swenson  
 Advisors.....Tom Bon

































Will Knox

### Bison Pullers (1/4-Scale Tractor)

President.....Will Knox  
 Vice President.....Chad Smith  
 Secretary.....Chris Fedje  
 Treasurer.....Derek Zerface  
 Advisors.....Tom Bon

## Scholarship Recipients

## Congratulations Students!

<b>A. R. Bon Memorial Scholarship</b>  Matthew Mortenson, ASM	<b>E. L. Bon Memorial Scholarship</b>  Joshua Martinez, ASM	<b>Vernon C. Lee Memorial Scholarship</b>  Jacob Keith, ASM	<b>Walter and Pearl Nyquist Memorial Scholarship</b>  Vance Zacharias, ASM	<b>North Dakota Grain Dealers Scholarship</b>  Derek Aho, ASM
<b>Bill and Ann (Wick) Promersberger Memorial Scholarship</b>  Matraca Steen, ABEN	<b>AGCO Scholarship</b>  Jeff Dockendorf, ABEN  Zane Frick, ABEN		<b>Ernie French Memorial Scholarship</b>  Steven Gruber, ABEN  Christopher Mortenson, ABEN	<b>Holmen-Breuer Memorial Scholarship</b>  Kalli Berning, ABEN  Shane Weller, ASM
<b>Frank Bain Graduate Student Agricultural Scholarship</b>  Ewumbua Monono, ABEN  Atikur Rahman, ABEN		<b>Caterpillar Foundation Scholarship</b>  Nathan Wiese, ABEN  Chase Rosenau, ABEN  Cody Kallock, ABEN		<b>Lawrence and Elizabeth Shaw Scholarship</b>  Lisa Buchholz, ABEN  Jody Hanson, ABEN  Jeff Dockendorf, ABEN
<b>Robert Bushey Scholarship</b>  Thomas Pederson, ABEN  Nathaniel Thomas, ABEN  Richard Lewis, ABEN  Roy Swenson, ABEN			<b>Department Scholarships</b>  Tyrell Martin, ASM  Nathan Wiese, ASM  Zane Frick, ABEN  Derek Aho, ASM  Andrew Knox, ASM  Cade Robertson, ASM	

Thanks to all the donors who helped our students and the Department!

If you would like to help a student with a financial gift towards a scholarship, please go to [www.ndsu.edu/aben/alumni](http://www.ndsu.edu/aben/alumni). Fill out, print, and mail in the Alumni Information Form. All gifts are greatly appreciated.



## ASM Club

The ASM Club kicked off the beginning of the year with an activity at Thunder Road. They enjoyed the go karts, batting cages, and also “batted” stories around about what they did over the summer.

Many of the ASM Club events intertwine with the ASABE Club and Bison Pullers and Homecoming was one of them. The ASM Club had their own float along with seventeen tractors, one team of Clydesdale horses, and an old time planter. The tractors included the John Deere B, several Allis-Chalmers G's, International 606, International 140, McCormick 22-36, and Farmall 400 to the newest Case IH 105U.



Michael Burkle driving the three-wheeler.  
Brandon Hofer passing out candy.



Tractors, Clydesdale horses, and an old time planter at the Homecoming Parade.

The ASM Club hosted the annual Lawnmower/Snow Blower clinic that is held each fall and spring (typically October and April). General maintenance includes a tune up, oil change, spark plug change, air filter cleaning, gearbox oil check, blade sharpening, and wash. Profits from the clinic help send students to professional meetings, industrial tours and agricultural trips.

## Bison Pullers

Bison Pullers along with the ASM Club attended the Organization Fair to recruit new members. Both the 2011 and 2012 tractors and the ASM Club John Deere “B” were on display.

At the Big Iron Farm Show the 2011 and 2012 tractors along with the John Deere “B” were on display with members present to talk about the tractors. The 2011 pulled the “B” during a field demonstration. The Bison Pullers were live on Farm News with Valley News and a radio interview with Mick Kjar.

Butler Machinery, a proud supporter of the Bison Pullers, wrote an article explaining their support towards our organization in their Fall 2012 Butler Zone Ag Division Newsletter.

MAC's, a local tool business, displayed both tractors for a week in the store. Members still receive recognition when entering the store.



Derek Aho, John Deere B tractor, and Cody Brantner, Bison Puller tractor, at the Big Iron demonstration pull.

## ASABE Club

The ASABE club along with the ASM Club organized the fall picnic. It was an opportunity to welcome our new Chair, Dr. Bajwa. There were approximately 70 students, faculty, and staff that attended.

The club invited Collin Miller from AGCO-Amity JV. He spoke about their merger, his position and responsibilities, and open positions within his company.

In October the club had a pumpkin carving contest during the week of Halloween. There were 24 participants and candy was given to the top three place winners.



ASABE Club pumpkin carving contest.

## Student Appreciation for Faculty

Thomas Bon is wise and knowledgeable beyond belief. His quirky offbeat sense of humor can bring a smile to your face, even in the gloomiest of times. He is a man dedicated to his professions: both engineering and educating. He can always lead you to the answer you are seeking, whether it be by giving it to you directly, helping you to discover it for yourself, or by directing you to someone that will be better able to help you.

Dr. Bon is not afraid of taking on an overwhelming workload. He teaches several courses, sets up weekly lab experiments, and invites guest speakers for his students to get the most from their education. He advises students and is the advisor for the Bison Pullers and ASABE Club. All of this shows that Dr. Bon works extremely hard to ensure that his classes are top-notch. He provides students with a variety of examples, viewpoints, and activities to keep his students engaged in what they are learning. Several students decided it was time to do something special for Dr. Bon.



(Left to Right): Dr. Dennis Wiesenborn, Chad Sietsma, Chris Mortenson, Richard Lewis, Nicole Wallace, Matthew Mortenson, Lisa Buchholz, William Knox, Dr. Tom Bon (birthday superstar), Janelle Mauch, Roy Swenson, Jody Hanson, David Watson, Matraca Steen, Derek Olson, Daniel Merritt, and Nolan Swenson.

One day a group of students were sitting in the ABEN lab, possibly doing homework, but most likely not! A photo of Dr. Bon was taken from the ABEN web page, pasted it into AutoCAD, and his face was traced. The rest of the photo was deleted which gave us a

great outline, mustache and all. We collected orders from students so we could all have Dr. Bon's face on a T-shirt of our own.

Shortly thereafter, we found out Dr. Bon's birthday was coming up, so obviously we had to throw him a surprise birthday party. We put up decoy flyers for a fake ASABE meeting and Dr. Bon even invited the Department Chair, Dr. Bajwa, to the meeting. Little did Dr. Bon know that the joke was on him.

The students pitched in to get a card, a t-shirt for Dr. Bon, cake, ice cream, and pop (Diet Coke for Dr. Bon). The cake had a generic tractor image on it and was green so we decided to call it a John Deere B. Later we found out that Dr. Bon grew up with Internationals. Clearly more research should have been conducted on our part! There were about 20 students, faculty, and staff at the party and we had a great time!

In closing, the students would just like to say **Thank You** to Thomas Bon, PhD, P.E. and to all the faculty, staff, and students here at ABEN. No other department on campus is as much of a family to us then you are. The laid back atmosphere and quality program that we all continue to maintain is the reason that our enrollment is on the rise.

Nolan Swenson, ASABE President



## ASABE 2012 Annual International Conference

Several faculty and graduate students attended the ASABE 2012 Annual International Meeting that was held July 29 to August 1 at the Hilton Anatole Hotel in Dallas Texas. The meeting included networking opportunities, more than 1,000 technical and poster presentations, professional development sessions, specialty sessions which included invited speakers, panel discussion and round-table discussions, technical and cultural tours, professional development hours/credits, and career fair. Some papers that were presented from North Dakota State University were:

- \* Recovery and Efficacy of Cellulases Immobilized on Magnetic Core Polymer Brushes, Scott Pryor, **Ashani Samaratunga**, O. Kudina, Nurun Nahar, S. Minko, and A. Voronov
- \* Nondestructive Analysis of Single Plant Canola (Brassica napus) Seeds Using Near Infra-red Spectroscopy, **Harjot Sidhu**, Darrin Haagenon, and Dennis Wiesenborn
- \* Effect of Reaction Scale up on Properties of Epoxidization Canola Oil, **Ewumbua Monono**, Darrin Haagenon, Dennis Wiesenborn
- \* Improving the Storage Life of Raw Beet Juice for Ethanol Production, **Juan Vargas-Ramirez**, Dennis Wiesenborn, Scott Pryor, and Darrin Haagenon
- \* Develop and Scale Up Aqueous Surfactant-assisted Extraction of Canola Oil for Use as a Biodiesel Feedstock, **Nattapong Tuntiwiwattanapun**, C. Tongcumpou, and Dennis Wiesenborn



(Left to Right): Ashani Samaratunga, Harjot Sidhu, Ewumbua Monono, Juan Vargas-Ramirez, and Nattapong Tuntiwiwattanapun

## Engagements and Weddings

Nichole Schilling and **Jesse Jangula, BS, 2012, ABEN**, were married on June 30, 2012. Nichole is from Venturia, ND and Jessie is from Edgeley, ND.



Krista Michlitsch and **Alec Bussman, BS, 2011, ABEN**, announced their engagement. The wedding was July 28th at St. Arnold's Catholic Church in Milnor, ND.

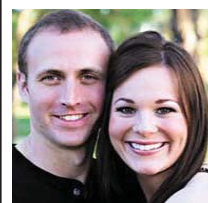


Bobbi Jo Thompson and **Wade Woodbury, BS, 2012, ABEN**, announced their engagement. The wedding was at Grace Lutheran Church in Oakes, ND.

Jessilynn Johnson and **Matthew Borud, BS, 2009, ASM**, announced their engagement. The couple was married July 7th at Our Redeemer's Church in Minot, ND. A reception was held at the Grand International Inn.



Angelique Savageau and **Jason Gross, BS, 2010, ABEN**, of Grand Forks, ND announced their engagement. The wedding was July 14th at Holy Spirit Catholic Church in Fargo, ND followed by a reception at the Hjemkomst Center in Moorhead, MN.



Paige Turner and **David Laughlin, BS, 2005, ABEN**, of Fargo announced their engagement. The wedding was at Grace Lutheran Church, Deeplaven, MN followed by a reception at the Bayview Event Center on Lake Minnetonka.



Britni Duerre and **Bobby Volesky, BS, 2008 ASM**, announced their engagement. The couple was married on January 26th at Holy Cross Catholic Church in West Fargo, ND followed by a reception at the Ramada Plaza Suites.



Extension Water Quality Specialist, Roxanne Johnson and Dan Vondrachek, were married on July 20, 2012, at St. Hildegard's Catholic Church. A reception and dance was held at the Elks in Bismarck, ND.





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## Alumni Updates

**Agricultural Systems Management (ASM), Agricultural and Biosystems Engineering (ABEN), Agricultural Engineering (AE), Agricultural Mechanization (AM)**



Dale O. Anderson, **BS, 1959, AM**, received the Heritage Award at the 2012 Alumni Awards celebration on Thursday, April 26th. The Heritage Award honors individuals who have demonstrated outstanding support of time and talent to NDSU projects or activities.

Dale went on to receive his MS in Agricultural Economics in 1960 from NDSU. He received his Ph.D. in Agricultural Economics in 1965 from Oklahoma State University. Dale is retired, President of the Greater ND Association and former faculty at NDSU.

Dale O. Anderson

**Robert Strand, BS, 1962, AE**, celebrated his 50th year as a practicing engineer.

**Charles Linderman, BS, 1967** and **Jared Hagert, BS, 1998, ASM** have been elected members of the board of directors for the North Dakota Soybean Council.

**Mark Otteson, BS, 1980, AE**, accepted a manufacturing engineer position with Johnson Screens in New Brighton, MN.

**Kevin Capistran, BS, 1999, ABEN**, became the new President for NSA Board.

**Eric Halverson, BS, 1999, ABEN**, was recently named Executive Vice President of Black Gold Farms.

**Chris Rodel, BS, 2006, ABEN**, relocated with Cargill to Guntzville, AL. He is the production supervisor II at the facility.

**Cary Slominski, BS, 2006, ABEN**, began a three year assignment with John Deere as Territory Customer Support Manager. He will oversee the states of Washington, Idaho, and Oregon.

**Nolan Braseth, BS, 2007, ABEN**, was hired by Karges-Faulconbridge as a Mechanical Project Engineer.

**Mitchell Kramer, BS, 2007, ASM**, began working for Midwest Machinery in Stewart, MN in the sales department.

## Obituaries



Elizabeth Iken

**Elizabeth (Libby) Iken** passed away on December 22, 2012 at the age of 95.

Libby moved to Fargo, ND in 1921 where she lived most of her life. She attended St. Mary's Grade School, Sacred Heart Academy and North Dakota State University. She married Lyle R. Iken on Christmas Eve in 1942 in Lubbock, Texas. They had four children: Donald, Margaret, James, and Mary.

Libby held several jobs including secretary and book keeper at the Hanna, Clay & Lancaster Clinic and Northern State Power Company, secretary to the Trial Judge Advocate for the Air Force in Garden City, KS, owner/operator of a diner in Christine, ND and Libby's Hickory House in Fargo. She worked as secretary for the Agricultural Engineering Department at NDSU from 1960 until her retirement in 1978.



Lambert Vogel

**Lambert Prospect Vogel** passed away in January, 2012 at the age of 86.

Lambert was the 7th of 9 children. He attended grammar school in rural Fargo and graduated from Sacred Heart Academy in 1944. He attended seminary at St. John's University for 1 year then returned to college to complete his degree in Mechanical Engineering. He pursued graduate studies and earned a Master's degree in Engineering from Kansas State University and then entered the Army. After completing his tour of duty, Lambert taught Engineering at NDSU. Other career pursuits included working as an energy expert for the Agricultural Extension Service at NDSU. He eventually went on to start his own consulting Engineering and Land Surveying business, L.P. Vogel and Associates.

He was preceded in death by his parents, brothers William, Henry (BS, 1946, AE), Sebastian (BS, 1947, AE) and John and two sisters, Mary and Jane.

**Carroll Drabols**, age 80, BS, 1954, AE, and MS, 1959, AE  
**Glenn Giese**, age 62, BS, AM, 1971,  
**Glen Johnson**, age 83, BS, AE, 1958  
**James Johnson**, age 85, BS, AM, 1952  
**Roderick Monroe**, age 85, BS, AE, 1952  
**Robert Morrison**, age 85, BS, AM, 1952  
**Joe Neuenschwander**, age 74, BS, AE, 1963  
**John Olson**, age 80, BS, AM, 1953

## Keep in touch

We encourage you to send information to be included in next year's newsletter. Articles, photographs, etc. can be sent to [ndsu.aben@ndsu.edu](mailto:ndsu.aben@ndsu.edu).

You can also update your contact information or share news at [www.ndsu.edu/aben/alumni](http://www.ndsu.edu/aben/alumni) then click on the Alumni Information/Contribution Form. We look forward to hearing from you.



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