

Purdue University

Agricultural & Biological ENGINEERING

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Congratulations to Bart Nelson who received an Honorary Doctorate from Purdue University at the 2006 May graduation. He was nominated and supported for this honor by ABE, due to his longtime association and cooperation with our department.

The ABE department hosted Bart his wife Karen and son Reid on Friday, May 12, with departmental tours, a reception and seminar. Department Head Dr. Bernie Engel, presented Dr. Nelson with an engraved watch celebrating his accomplishments.

Bart is the Chairman of the Board and President of Nelson Irrigation Corporation of Walla Walla, Washington. He graduated from Purdue in 1961 with a B.S. in General Agriculture having completed several Agricultural Engineering and Agronomy courses which aided his search for more efficient techniques for irrigating agricultural lands. Dr. Nelson is a passionate innovator and community leader.



Dr. Bart Nelson

In 1961 Dr. Nelson began working for R. L. Nelson Mfg. Co., a family business started in 1911 by his grandfather. He moved the company from Illinois to Portland, Oregon, in order to expand into the agricultural irrigation equipment market. As this market grew, he sold the R. L. Nelson Mfg. Co. in 1972 and founded Nelson Irrigation Corp. In 1974, he moved the company to its present location.

Nelson Irrigation plans, designs, develops, manufactures and sells proprietary products for the agricultural irrigation equipment market. The company's focus is to improve the state of the art of agricultural irrigation - saving water, energy and labor - to sustain and improve the standard of living of a growing world population.

Dr. Nelson has been recognized as an industry leader because of his accomplishments and innovations, having been awarded the Industry Achievement Award by the Irrigation Association in 1988, and Person of the Year by the Idaho Irrigation Equipment Association in 2002. Each year, the *Agricultural Engineering Resource Magazine* selects the 50 best new products engineered for agricultural, food, biological and related systems. Dr. Nelson's innovations have been recognized with this distinction 12 times since 1992.



Department Head Bernie Engel
and Dr. Bart Nelson

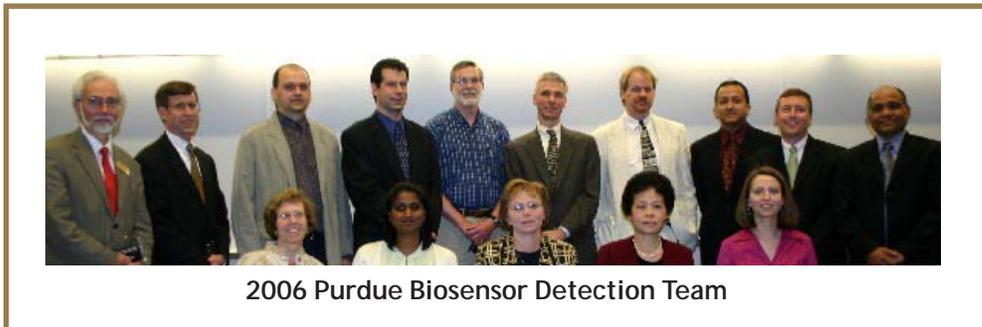
Dr. Nelson's lifetime pursuit of excellence and pioneering innovation in the engineering of agricultural irrigation products has included supporting ABE senior design and research projects to develop and evaluate sprinkler designs. He has also supported Purdue students with summer internships and an endowed scholarship. Dr. Nelson has been a member of the ABE Department Advisory Board since 1995 and has also collaborated with the Purdue University Forestry Department's Hardwood Tree Improvement and Regeneration Center. Dr. Nelson was named a 1995 Distinguished Agricultural Alumnus by Purdue's College of Agriculture for his accomplishments in business and contributions to the agricultural industry.

Dr. Nelson's corporate trademark of "Innovation in Irrigation" is not just a company slogan but is reality. His lifetime pursuit of excellence and his pioneering spirit have been common denominators in his professional and personal life. Dr. Nelson and wife Karen have four children.

Purdue Biosensor Detection Team

Congratulations to the Biosensor Detection Team which received the Purdue Agriculture 2006 Team Award, presented annually by the College of Agriculture. This truly interdepartmental and multicollege team of biologists and engineers was recognized and conducted a seminar in the Deans Auditorium of Pfendler Hall on May 16.

The team was honored for their development of rapid and sensitive diagnostic tools for pathogens to enhance the safety of our food supply throughout the country and the world. The technologies the team developed include a biochip that analyzes small amounts of food quickly and more cost effectively than current methods. The biochip sensor the team developed can determine if pathogen cells are present and if they are alive. The diagnostic method that includes the biosensor and the cell concentration technology has decreased detection time from two to three days to a few hours. The team's efforts have resulted in a start-up company and several patents. Team members from ABE include Michael Ladisch, Nathan Mosier and Tom Huang.



2006 Purdue Biosensor Detection Team

"Many hands, many minds, one goal"

Welcome to the Spring 2006 newsletter. The Purdue ABE students, staff and faculty have recently completed an outstanding academic year. In addition we had the opportunity to celebrate the accomplishments of several alumni.



Our students continue to excel in their studies and in leadership roles within student organizations on campus and beyond. Our graduating students continue to find excellent career opportunities (see page 6 for a list of graduating students). If your company or organization has job or internship opportunities, please let us know so that we insure our students continue to have excellent job opportunities.

We were very fortunate to have Bart Nelson (BS 1961) receive an honorary doctorate degree at the May graduation (see page 1). Matt Reynolds (BS AGEN 1983) was recognized as a Distinguished Agricultural Alumni (see page 13).

ABE faculty had an outstanding year on many fronts. Professor Bernie Tao was recognized for his excellence in education as one of five Purdue Murphy Award winners (page 4). Professor Dirk

Maier was recognized as the College of Agriculture Outstanding Researcher (page 12). Professor Monika Ivantysynova led the Purdue team that has been awarded an NSF Engineering Research Center on compact fluid power (page 14).

We are considering moving more of our communications with you to electronic forms including this newsletter. Therefore, we would like to update your contact information and get your feedback. See page 4 for additional details.

Preparations for the Accreditation Board of Engineering and Technology (ABET) review of our undergraduate engineering programs are underway. The review will occur during the fall of 2007. As we continue preparations, we could use your assistance. If you are a B.S. graduate of one of our engineering programs, especially in the past 6 years, we would appreciate you completing an online survey that can be accessed by visiting www.purdue.edu/ABE and selecting "Surveys" from the "Quick Links" menu in the upper right-hand corner. Please follow the prompts and answer the questions to the best of your ability. Thank you if you have already completed the survey. We could also use your help with the employer survey available at the same location. We would appreciate it if you would ask your immediate supervisor to complete the employer survey at this location. The employer survey is an evaluation of our program, not of you or your skills. Thank you in advance for your assistance.

Go Boilermakers!

Sincerely

Bernard A. Engel
Department Head & Professor

Our Mission

"To prepare students, citizens, and industry for the future through innovative education and extension/outreach programs, and the discovery of knowledge."

Eleanor Kaplan Award



Congratulations go out to Kathy Moore of the ABE Business Office who received the Eleanor Kaplan Award. This award is given to recognize current Purdue University administrative and clerical staff members who have demonstrated excellence and leadership in providing customer service.

Winners receive a \$100 cash prize and have their names engraved on a plaque displayed in Freehafer Hall. Kathy was also recently promoted to the position of Business Assistant in the ABE Business Office.

Let's Make a Deal!

In an effort to get departmental information to you faster we are planning to go "electronic". We will not sell, or share your information, and will only use the information you provide to keep you updated on ABE events and activities via the Internet or email.

In exchange for your updated information and email address, we will give you your choice of either a long sleeve ABE tee shirt or ABE hat!

Go to www.purdue.edu/ABE and click on the "Let's Make a Deal" logo to fill out the on-line form and see the new ABE hat and long sleeve tee. Or if you prefer to provide your information by phone call Micky Creech at 765-494-1213.



ABE Faculty Awards

Congratulations to our faculty! Dan Ess has been named ABE's Outstanding Agricultural Teacher, Bernie Tao Outstanding Engineering Teacher and Martin Okos Outstanding Counselor. The selection process involved collecting feedback from our seniors, and a recommendation for each of these awards was made by the student club leadership using the materials from seniors.

Professor Bernie Tao also received the Charles B. Murphy Award. This award is one of Purdue's premier teaching awards. Five or six candidates are selected each year by a committee with representation from all academic disciplines of the campus community.



Professor Dan Ess



Professor Bernie Tao



Professor Martin Okos

ABE Scholarship Winners

ABE Scholarships - Anna Alzman, Brandon Bechtel, Chad Cepeda, Robert Gordon, Jessica Lobo, Wade Miller, Chelsea Steele, Brett Summers, Logan Vaughn and Adam Zeller.

ADM Scholarships - Brent Kaufman, Joshua Schmidt, Wade Miller, Dwight Ludwig and William Hoffmeyer.

Bridgestone/Firestone Scholarships - Greg Long and Joseph Mallory.

CB Richey Scholarships - Scott Federer.

Eaton Scholarships - Keith Harmeyer, Michael Holland, Christopher Torsell, Philip Wetzel and Jess Yegerlehner.

G.W. Krutz Scholarship - Keith Mears.

GEAPS Scholarship - Brent Mulder.

General Mills Scholarships - Rebecca Albrecht, Ruth Pinto, Di Wu, Robert Gordon and Alice Wilson.

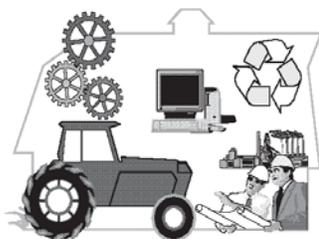
Greiner Scholarships - Allison Calahan, Joe Dynes, Kristin Gill, Ruth Pinto, John Schumm, Alice Wilson, Di Wu and Xiaoda Yuan.

Matthew & Lesa Reynolds Scholarships - James Bartlett and Amy Penner.

Parker Hannifin Scholarships - John Mahrenholz and Peter Rummel.

Roy Brandt Memorial Scholarship - Katherine Bush.

21st Century Scholars - Craig Barcus, Benjamin Dietrich, Krista Eakins, Clark Jordan, Eric Kaiser, Michael McCoy, Joshua McCurley, Alexander Mehl, Erin Rosswurm and Jeff Sipes.



Graduate Student Recognition & Awards

Magoon Award Honorees - Keith Harmeyer, Brian Hoover, William van Doorn.

Celebration of Graduate Student Teaching Honoree - Brian Hoover.

Purdue Student Engineering Foundation Outstanding Graduate Student - William van Doorn.

Andrews Fellowships - Rebecca Davis, Catherine McInnes.

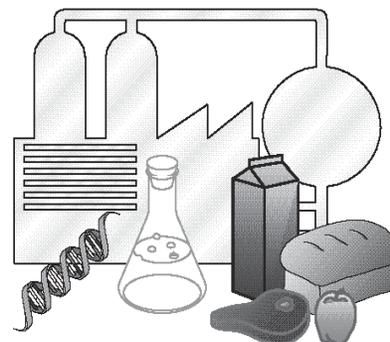
Special Initiatives Fellowship - Majdi Abou Najm.

Charles C. Chappelle Fellowship - Michael Holland.

Ross Fellowship - Lan Sun.

Innovative Realization Lab Fellowship - Jianxiu Zhao.

CIC/GE Predoctoral Fellowship - Louis Nelson.



ABE Outstanding Students

2006 Outstanding ABE Graduate Students

Ph.D. Student: **Ricardo Bartosik**

M.S. Student: **Sabrina Jadlicka**

Congratulations to ABE graduate students Dazhi Mao and Tushar Sinha who participated in the Purdue University Discovery Park Center for the Environment (C4E) 2006 Seminar and Graduate Research Showcase held on April 4, 2006.

Their posters presented were:

- Dazhi Mao and Keith A. Cherkauer, Effects of Land use Change on Evapotranspiration and Water Yield in the Great Lakes Region.
- Tushar Sinha and Keith A. Cherkauer, Hydrologic Time Series Analysis of Climate Variables to Study Changes in Soil Freezing and Thawing Processes for Indiana.

Dazhi Mao won 3rd place in the Research Showcase.

2006 Outstanding ABE Students

Senior: **Elspeth Larson**

Junior: **John Mahrenholz**

Sophomore: **Di Wu**

Freshman: **Clark Jordan**



Elspeth Larson &
Professor Jenna Rickus

Congratulations ABE Graduates!

December Graduates

Jason Beuligmann
Adam Edwards
Curt Elpers
Anthony Holtkamp
Gideon Nobbe
Matthew Prarat
Matthew Roberts
Timothy Sarver
Yunita Wijaya
Michael Gregg

May Graduates

Jared Baird
Kalen Bell
Michael Bournias
Daniel Bowers
Brandon Bules
Ross Chapman

May Graduates

Keith Convery
Andrew Cook
Bradley Craycraft
Justin Daugherty
R. David Ferguson
Juan Galan Gutierrez
Cornelius "Cory" Geers
Matthew Hurm
Benjamin Johnson
Steven Kilkus
Paul Klockow
John Koehler
Elspeth Larson
Nicole Macaluso
Andrew Marchese
Mark Mellencamp
Alex Miller
Daniel Murphy

May Graduates

Jamie Prochno
William "Cole" Raber
Michelle Rajna
Christopher Rice
Kyle Roth
Steven Semenick
Lance Setterdahl
Daniel Shonkwiler
Louis Stephon
Matthew Thronton
Diana Tjahjono
Christopher Torsell
Gerardo Urruela
Kevin Wenning
Philip Wetzel
Neal Wolheter
Jess Yegerlehner
Evan Zimmerman

December Graduates

Richardo Bartosik PhD
Randy Beaver MS
Nathan Fleck MS
David Gonzalez PhD

December Graduates

Andrew Heber MS
Pablo Mercuri PhD
Rajesh Singh PhD
David Szabela MS

May Graduates

Matthew Bischoff MS
Gang Chen MS
Andrew De Carlo MS
Linda Indrawati MS
Sabrina Jedlicka MS

ABE Activities

ASABE MIDWEST RALLY - February 24 & 25

On February 24 and 25 Purdue University hosted the 2006 ASABE Midwest Regional Rally, led by ABE students, James Bartlett, Phil Wetzel and Emily Raderer. The Rally moves each year to a different location and students are in charge of all Rally events and tours.

Approximately 75 students from seven universities attended tours of Caterpillar, Subaru of Indiana Automotive and Eli Lilly and Company Tippecanoe Labs on Friday. These students, along with about 20 ABE Alumni, toured Purdue facilities on Saturday including:

The ABE Air Quality Research, Hydraulics, Dynamometer, Controls Labs, USDA Soils Lab, Laboratory of Renewable Resources Engineering, MAHA Fluid Power Laboratory, and Discovery Park.

The department also invited alumni to attend the Saturday program. The ABE Alumni joined the undergraduates on tours of various areas of the Purdue campus, and then had lunch with students, fellow alumni and faculty.



Alumni and students enjoy lunch

Purdue University Springfest - April 8

Springfest allows the community to visit the Purdue University campus, various departments and explore many of the activities and teaching tools that are used, as well as participate in many fun events.

Springfest 2006 in ABE was a great success! For this year's Springfest the weather was windy and cold but all activities were well attended. Over 35 pounds of popcorn was popped and over 400 balloons and 400 coloring books were handed out. Alpha Mu and Alpha Epsilon had great success this year with their pork/buffalo burger and soft drink sales. The playhouse contest question was: "How many Joe Tiller bobble heads will fit in one playhouse?" (The correct answer is 2,510).

Many thanks to the Breaking New Ground program for their handicap tractor display, Al Heber and his group for their popular "sniffer table" and Mack Strickland, the ASM 570 class, and the ASM Club for their playhouse construction. A new activity this year that was a big hit: face painting!

Outstanding Alumni/Student Award Celebration - April 20

The 2006 Student Banquet was held at the University Inn. Approximately 150 people attended with many students receiving various scholarships and awards (see page 5).

Those who received ABE awards earlier that day were also recognized: Professor Tetuo Hara and Terry Brown received the Outstanding Alumni Award, and R. John Rodgers received the Outstanding Service Award (see pages 9, 10 and 11).

Dr. Dirk Maier, University Faculty Scholar - The University Faculty Scholar program recognizes outstanding faculty colleagues who are on the accelerated path for academic distinction in the discovery and dissemination of knowledge. Dr. Dirk Maier was designated a University Faculty Scholar at a convocation in April. Criteria used in selecting University Faculty Scholars include achieving national and international recognition and leadership and/or entrepreneurial activities in research, teaching, and service. *Congratulations, Dirk!*

ABE News

Outstanding Graduate Educator Award - Dr. Bernie Engel

Congratulations to our department head, Dr. Bernie Engel, who recently received the 2006 Outstanding Graduate Educator Award from the Purdue College of Agriculture.

Dr. Engel has had a tremendous positive impact on graduate education in our department, the Colleges of Agriculture and Engineering, Purdue University and beyond. He has been involved in all aspects of graduate education including teaching graduate courses in our ABE and ASM programs, advising graduate students (he has served as major professor of over 30 students and has served on more than 85 graduate student advisory committees), and serving as the chair of ABE's Graduate Education Program Committee from 1996-2004. In this role, he helped to nearly double the size of our graduate program, expand departmental graduate level course offerings, improve the quality of incoming graduate students as measured by GREs and GPAs, actively recruit prospective students, increase the number of underrepresented minority graduate students, and provide administrative support for all ABE graduate program activities. Thanks in large part to his effective administrative leadership, the ABE graduate program is the top U.S. graduate program in our field.



Dr. Bernie Engel

First Conference for Expatriate Arab Scientists in Doha, Qatar

Professor Rabi Mohtar was among 6 international scientists invited to organize and lead the 1st Conference for Expatriate Arab Scientists held in Doha, Qatar April 24th through the 26th.



Professor Rabi Mohtar

The main objective of the conference was to bring together elite worldwide Arab scientists to participate in a forum for the exchange of ideas concerning the future of science in the Arab world. Additional goals were to develop comprehensive plans of action taking into account the needs for the Arab scientists and the available resources in the region in order to raise the level of Research & Development in the Arab world, and to set up a mechanism for immediate incubation for tangible projects that meet the development needs in the Arab region.

Purdue University was well represented at the conference with ABE's Bernie Engel and Rabi Mohtar attending.

Indiana Watershed Leadership Academy



Professor
Jane Frankenberger

ABE's Jane Frankenberger and Brent Ladd plus Shorna Broussard (FNR) hosted the first Indiana Watershed Leadership Academy training session, January 26-27, for members of watershed organizations throughout the state. The first academy had 25 members and is a five month long training program focused on building community expertise for watershed planning and restoration in the area of social, financial and physical land and water skills.



Brent Ladd

ABE Outstanding Alumni

In 1998, the Agricultural & Biological Engineering Department established ABE Outstanding Alumni and ABE Outstanding Service Awards. These awards were created *to recognize and honor alumni and friends of the department who have achieved significant professional, community, and social accomplishments in areas involving agriculture, engineering, and technology.*

On April 20, the ABE Department honored Terry Brown (B.S. Ag Mech '73) and Tetuo Hara (M.S. '72) as our Outstanding Alumni and R. John Rodgers (B.S. Ag Ed '64) as our ABE Outstanding Service Award recipient. Congratulations to all.

2006 OUTSTANDING ALUMNUS - TERRY BROWN

ACCOUNT MANAGER

JOHN DEERE COMPANY

EVANS, GEORGIA

B.S. - Ag Mechanization, Purdue University, 1973

M.S. - Ag Mechanization, Purdue University, 1974

M.B.A. - University of Chicago, 1978



Upon graduation from Purdue with both BS and MS degrees in ASM (Ag Mechanization now called ASM), Terry began his career with International Harvester where he helped start Pro-Ag. This was a service, based on the Purdue Model B-9 farm management computer program, offered through the IH dealer organization to help growers identify profit opportunities in their farming operation. He went on to become the Product Marketing Manager of Grain and Cotton Harvesting Equipment. During his tenure at IH, Terry earned an MBA from the University of Chicago.

In 1981, Terry joined John Deere as the Manager, Market Evaluation in the Product and Market Planning department at Deere & Company. His primary responsibilities focused on developing long-term forecasts to be used in capital expenditure decisions.



Professor Strickland & Terry Brown

In 1982 Terry joined the John Deere sales organization where he held the position of Territory Manager, first in Sioux City, IA, and then transferred to a similar position for the Chicago area.

In 1998 Terry moved to Augusta, GA, as the Project Manager, Small Tractor Task Force, and then was promoted to Product Manager, Compact Tractors. During his tenure as Product Manager, Terry began a co-op marketing program where several Purdue ASMs got their start at John Deere.

Terry currently works as an Account Manager in a new area of John Deere called AgriServices. His current focus is on aerial imagery to help drive site specific management practices.

Terry's wife, Judy, is also a Purdue graduate and currently works in Human Resource Management for Club Car, a business unit of Ingersoll Rand.

His daughter, Jacqueline, who graduated from Miami of Ohio, is a third grade teacher in the Cincinnati area. His son, Judson, graduated in May from Purdue with a ME degree minoring in Computer Graphics Technology.

ABE Outstanding Alumni

2006 OUTSTANDING ALUMNUS - PROFESSOR TETUO HARA

Consultor Tecnico

CENTREINAR - Centro Nacional De
Treinamento Em Armazenagem

Campus Da Universidade Federal de Vicosa

B.S. - Agronomy - Univ. Fed. Vicosa, Vicosa, MG - Brazil 1964

M.S. - Ag Engineering, Purdue University, 1972



Tetuo Hara is a retired professor and former head of the Department of Agricultural Engineering of the Federal University of Viçosa (UFV) Minas Gerais, Brazil. He was the founding director of the National Center for Post-Harvest Grain Storage Training (CENTREINAR) and remains a recognized leader in Brazil's grain industry. Although he retired in 1993, Tetuo continues to work at the university and serve as a technical consultant for CENTREINAR.

Tetuo decided in high school that he wanted to work in the area of engineering related to agriculture. He decided to study at UFV and just prior to his graduation, Prof. Paulo Mário del Giúdice, also a Purdue alumnus and later Rector of the same university, invited him to join the staff in Grain Processing Engineering.

Purdue University had a collaborative project for 20+ years with UFV and beginning in 1955 had two staff from Purdue's Agricultural Engineering Department working there; Ray M. Lien and John R. Foley. Tetuo felt fortunate to be working with John R. Foley for almost four years at UFV.

While Dr. Gerald W. Isaacs was the head of Purdue's Agricultural Engineering Department, he concentrated his efforts into developing grain storage and handling, and shared this knowledge by advising Tetuo and Prof. del Giúdice. Dr. Isaacs also asked Bruce A. McKenzie and George H. Foster to help.



Professors Maier, Hara & Engel

Tetuo has made many important contributions to the development of the Post-Harvest Area in Brazil. With the Purdue group of professors that came to Viçosa University in the 1960's, he introduced the use of steel bins for grain storage in Brazil. Before that time, Brazil only stored agricultural products in bags. Together with the Purdue professors he conducted many field tests to show that it was possible to store various grain crops in bulk using steel bins given Brazil's challenging climatic conditions. This successful research effort established Viçosa University as Brazil's leading university in the Post-Harvest Area.

In 1970, Tetuo enrolled at Purdue University to pursue a graduate degree in the department of Agricultural Engineering. After returning to Brazil, he served in a key leadership role and helped the Brazilian Government and private companies in the decision-making process regarding numerous issues related to post-harvest grain handling, drying, storage and processing.

In 1975, Tetuo participated in the establishment of CENTREINAR and became its first director. He has contributed greatly to the development of Agricultural Engineering in Brazil beyond his own area of specialization. He served as an advisor for the Agricultural Engineering Graduate Program at Viçosa University and in the start up process of the undergraduate programs. He served as Department Head from 1977 to 1982.

Tetuo and his wife Veronica live in the small country town of Viçosa, which has about 70,000 residents. They have three sons; Flavio, Luciano and Andre and one daughter, Suzana.

ABE Service Award

2006 OUTSTANDING SERVICE AWARD

R. JOHN RODGERS

PERSONNEL RECRUITER - VICE PRESIDENT: EQUIPMENT INDUSTRY

AGRA PLACEMENTS, LTD.

PERU, INDIANA

B.S. - Ag Education, Purdue University, 1964

M.S. - Ag Education, Purdue University, 1970

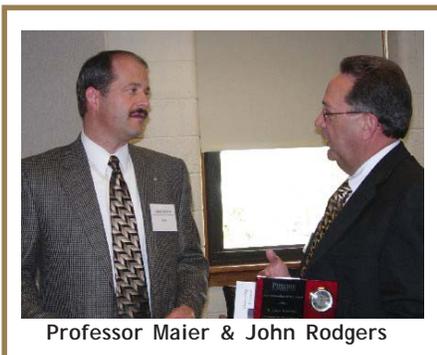


John Rodgers is a Vice President and the Equipment Industry Personnel Consultant for the Peru, IN, office of Agra Placements, Ltd. Founded in 1974, Agra Placements, Ltd recruits candidates for placement with domestic and international agriculture client companies. John joined Agra Placements, Ltd in 1988 and has introduced Purdue University graduates into career opportunities with companies like Deere & Company, Kubota Tractor Corporation, Yanmar Diesel of America, Case New Holland, Claas of America, Unverferth Manufacturing Company, AGCO, WestfaliaSurge Inc., AG-Chem, Agro-Chem, Willmar Manufacturing, Friesen, Thurston Manufacturing, Laidig Systems, Maurer Manufacturing, Spectrum Technologies, Farm Fans, FDS, Butler Manufacturing, Waitt Companies, Ditch Witch, and OXBO International.

John has presented classroom programs for the senior seminar class for ABE and ASM students for over ten years. He provides counsel regarding resume preparation, interviews, follow-up letters, references, negotiating offers, professional appearance, sourcing positions, value of internships, and evaluating opportunities.

From 1977 to 1988, John served as a direct sales representative for A.O. Smith HARVESTORE for Tri-State Harvestore and Hoosier Harvestore Systems in Indiana. He received several dealership, region and national awards for sales of livestock feeding and storage systems, and manure storage and handling systems.

Graduating from Purdue University in 1964 with a BS and 1970 with an MS in Agriculture Education, John taught Vocational Agriculture and served as Advisor to the Pierceton, Larwill and Fairfield FFA Chapters from 1964 to 1976. He was awarded the Honorary State FFA Degree and Elkhart County Conservation Educator Award.



Professor Maier & John Rodgers

John and his wife Linda reside in Peru, IN, and enjoy three children and nine grandchildren in Peru, Avon, and Noblesville. They are members of First Baptist Church of Peru, where he has served as Moderator, Deacon Chair, Head Usher; and Pastoral Search, Budget, Constitution, and Nominating Committee member.

John has enjoyed working with ABE and ASM students and professors at Purdue University. John says it is personally rewarding to be a part of the Purdue University team assisting graduates as they enter the work force, and leveraging their skills and experiences throughout their careers.

Outstanding Research Award



Dean Randy Woodson & Dr. Dirk Maier

Congratulations to Dr. Dirk Maier on receiving the 2006 Agricultural Research Award. The award recognizes research excellence by a faculty member in the school of agriculture with less than 15 years experience beyond the Ph.D.

Dirk joined Purdue University in 1992 and quickly established an outstanding research and outreach program focused on engineered technologies for the protection of stored products and the delivery of identity-preserved, traceable and biosecure quality grains to the food, industrial and feed processing industries.

Professor Maier's efforts have greatly benefited Indiana's producers, handlers, processors and buyers that make up the state's \$35 billion grain-based food and feed ingredient supply

market. The additional value he has added to this important Indiana industry has been through methods he developed and evaluated which reduce the use of toxic chemicals and energy, thus improving the quality of life in rural Indiana and for consumers worldwide.

Dirk's primary research contributions have been in the following areas:

- *Grain chilling as an alternative non-chemical stored product protection technology.* This has benefited U.S. producers, handlers and processors of high-value identity-preserved and organic grains and oilseeds (including Indiana's \$31 million popcorn crop). Dr. Maier's research has been adopted in Brazil where grain chilling has been commercialized as an economically viable technology for food grain preservation.
- *Commercial use of grain ozonation as an alternative non-chemical stored product technology.* Current research is benefiting producers, handlers and processors of all quality grains and oilseeds (including Indiana's \$3.5 billion crop and the U.S. organic food market currently valued at \$12 billion).
- *Use of carbon dioxide detectors to monitor the biological activity of fungi and insects in stored grains.* This benefits producers and handlers of the \$25 billion U.S. grain and oilseed crop financially because it allows for the early detection of spoilage. Work with private industry is ongoing to refine and commercialize the technology.
- *Commercialization of a new fan and heater control system for improved in-bin drying of high value, identity-preserved grains.* Research during the past five years has included extensive computer simulation and field testing. Work with private industry has resulted in the introduction of a new controller into the U.S. market.
- *Development of a comprehensive IPM-based stored grain ecosystem model.* Professor Maier's experimental research is complemented by the development and refinement of the PHAST-FEM model to predict heat, mass and momentum transfer, gas movement (CO₂, fumigants), biological activity and pest prevention and control practices as a function of site-specific environmental conditions and storage structure configurations. PHAST-FEM is the most comprehensive model of its kind in the world.

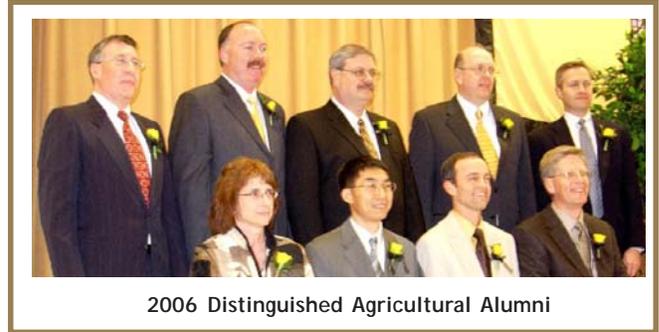
An impressive aspect of Dirk's research program is the complementary nature of his exceptional extension program. He has been able to establish strong synergies between his research and outreach programs. His extension program provides a very effective means of rapidly delivering the results of his research to Indiana stakeholders. He has also developed and taught on-campus courses as well as for-credit distance education courses in grain storage.

ABE Distinguished Agricultural Alumni - Matthew Reynolds

Purdue University and the Agricultural & Biological Engineering Department recently honored Matthew C. Reynolds (AGEN BS '83) as he received the title of Distinguished Agricultural Alumni, presented by the College of Agriculture.

Matt, along with eight other distinguished alumni received this prestigious title on March 3rd in a ceremony on the Purdue campus.

Matt is Director, Interior Component Systems, at the Daimler Chrysler Corporation in Auburn Hills, MI. He is responsible for all Chrysler Group Interior Systems Core Component Engineering on current and future programs.



2006 Distinguished Agricultural Alumni



Matthew Reynolds

Matt has been an active alumnus, continually providing assistance to Purdue's teaching and research programs. He supported the Daimler Chrysler Industrial Roundtable and Chrysler's Freshman Engineering Scholarship presence, and his involvement is ongoing. He has helped recruit engineering students in the Detroit area. He readily states that his outstanding career success is based upon the excellent and broad-based education he received at Purdue. He has been actively engaged with ABE and has established two endowed ABE undergraduate scholarships plus a Bindley matched scholarship through his generous contributions.

Matt has recently provided senior design projects and visits campus regularly to meet with students. His keen interest in senior capstone projects is understandable given his experience in this area while at Purdue. For his senior design project, he designed and fabricated a low cost chair lift that would enable a farmer with paraplegia to gain access to the operator's seat of a farm tractor.

This simple design concept developed into a workable proto-type that was eventually installed on a large agricultural tractor. Matt received the first place award in the on-campus Senior Design Competition. Matt's final report, with photos of the working lift, was submitted to the 1983 Rehabilitation Engineering Society of North America's (RESNA) Annual Design Competition and was awarded first place. He was invited to present his work and receive his award at RESNA's international meeting held in Toronto, Canada in June of 1983. Matt's efforts were fundamental to the early refinement of lifts for off-highway equipment that have now been installed on hundreds of tractors, combines, and other large equipment across North America.



Department Head Bernie Engel, the Matt Reynolds family & Dr. Gary Krutz

The ABE Department enjoying hosting Matt during his visit and Department Head, Bernie Engel presented Matt with a Purdue University watch as a token of the department's appreciation.

BioTown, USA



Professor Klein Ileleji

The students in Dr. Ileleji's ABE 591K class (Biomass Feedstock Systems Engineering) participated in the Biotown, USA project this semester. The Indiana Department of Agriculture has granted the title of BioTown, USA to the town of Reynolds, IN, and has as its goal to meet all energy needs by bio-fuels.

The students in the class took on BioTown as their project, examining the different resources in and around Reynolds (including White County in general and the state of Indiana as a whole). Through multiple meetings with community members as well as collaboration with Ball State University students studying under Dr. Martha Hunt and Dr. John Motloch (both in Landscape Architecture). This research culminated in a poster session held in the community of Reynolds where the faculty spoke to the community members en masse, followed by students explaining their research and making recommendations. This was covered by Lafayette's WFLI-TV, and by the Lafayette *Journal Courier* and the Monticello *Herald Journal*.

Lafayette's WFLI-TV, and by the Lafayette *Journal Courier* and the Monticello *Herald Journal*.

Fluid Power Research Center

The National Science Foundation announced a \$15 million, five-year grant to support the new Engineering Research Center for Compact and Efficient Fluid Power. Industrial partnerships will augment the funding with \$3 million, and seven universities involved in the center will contribute an additional \$3 million. Purdue will house one of the center's research labs in its MAHA Fluid Power Laboratory led by ABE Professor Ivantsynova.

Three goals of the new multimillion-dollar research center are to discover new ways to reduce fuel consumption, develop devices for people with mobility impairments and design state-of-the-art rescue robots.

Fluid-power technology encompasses most applications that use liquids or gases to transmit power in the form of pressurized fluid and is a 33 billion dollar industry worldwide. Monika Ivantsynova, ABE and MAHA Professor of Fluid Power Systems, stated that they are working to create the next generation of pumps and motors, which are the heart of each fluid power system. Monika predicts we can reduce the energy consumption of fluid power systems up to 30% by using a new generation of pumps, motors and new throttleless actuators, which would be an annual savings of 100 million barrels of oil in the transportation sector alone. Monika also stated that each 10% improvement in the efficiency of current uses of fluid power would save about 7 billion dollars a year in U.S. energy costs.



Professor Monika Ivantsynova

Research at the center will find ways to use fluid power more efficiently in off-road and on-road vehicles, in manufacturing and other areas, as well as new applications such as surgery and rescue robots. Research in the area of state-of-the-art rescue robots could lead to medical and rehabilitation robots that could be used in rescue missions. The hope is to develop portable, wearable and autonomous fluid-power devices capable of operating for long periods of time without external energy sources.

The Nation Science Foundation funds engineering research centers that conduct pioneering research in emerging technologies and train the next generation of engineers to be leaders in innovation.

Capstone Poster Contest

Each year students in our ABE and ASM senior capstone courses participate in semester-long team projects, then prepare a poster highlighting the problem, objectives, analysis and results of their study. The posters are judged by volunteers of outstanding alumni, industry representatives and faculty who attend the poster session. The winners are announced at the Student Banquet that evening. This year's winners are:

Agricultural & Biological Engineering - 1st Place - Basic Utility Vehicle: Team Ruggedly Simple. Team members - Kyle Anderson and Cory Geers. 2nd Place - Design of a Quick Detachable Bed System for a Semi-Tractor. Team members - Curt Elpers and Michael Bournias.

Biological & Food Process Engineering - 1st Place - Large Scale Ethanol Production with CO₂ Separation. Team members - Jared Baird, Keith Convery and Kyle Roth. 2nd Place - Dehydrated Powdered Marinara Sauce. Team members - John Koehler, Louie Stephon, Matt Thorntown and Melanie Bendiburg.

Agricultural Systems Management - 1st Place - Monsanto Utility Sprayer: Updating, Rebuilding and Adapting Project. Team members - Dan Murphy, Sam Nesbitt, David Ferguson and Andy Marchese. 2nd Place - Eaton Utility Vehicle Research Project. Team members - Neal Wolheter, Jess Yegerlehner, Kory Ross and Daniel Shonkwiler.

A big **THANK YOU** to our outstanding judges who did a terrific job - Terry Brown (Ag Mech BS '73 MS '74), Carlos Corvalan, Suzie Delay (AGEN BS'93), Professor Harry Gibson, Tetuo Hara (Ag Mech MS '72), Professor Mark Morgan, Matt Pearson (AGEN BS '92), John Rodgers (AG ED BS '64) and Bob (AGEN BS '82) and Carol (Sallman) Stwalley (COA BS'83 ABE MS '85 PhD '90).

Alumni Update

Keith Gilmore AGEN BS '69 - Keith retired as an Area Engineer from the Natural Resources Conservation Service, USDA on 12/30/05 after 36 years. Keith is looking forward to playing golf, volunteering for church missions and gardening!

Austin Ehle ABE & EE BS '03 - Austin will be moving within Caterpillar to a new role as Electro-Hydraulics (E-H) Systems Expert, serving all three product groups. Austin will specialize in new E-H feature development, troubleshooting of E-H systems on pilots and current product in the factory, root cause analysis of problems during field follow-up, and system re-design to resolve such problems.

Kurt Henricks ABE BS '95 - Kurt has been named Industrial RBS Manager for Rexnord Bearings, Downer's Grove, IL. Kurt joins Rexnord from Parker Hannifin Corporation - Cylinder Division in Des Plaines, IL, where he was a Lean Manufacturing Manager.

JULY

- 11 ASABE - Alumni & Friends Breakfast
- Oregon Convention Center

AUGUST

- 1-3 Farm World Expo - Terre Haute
9-20 Indiana State Fair
16 Purdue Day - Indiana State Fair
21 Fall Classes Begin

SEPTEMBER

- 2 Football - Purdue (home) vs Indiana State (Legends Weekend)
9 Purdue (home) vs Miami (Ohio) (Family Day)
16 Football - Purdue (home) vs Ball State (Band Day/Varsity P Club)
19-21 Farm Science Review - London, OH
23 Football - Purdue (home) vs Minnesota (Homecoming)

OCTOBER

- 21 Football - Purdue (home) vs Wisconsin (Boilermaker Spirit Weekend)
23-27 National FFA Convention in Indianapolis
28 Football - Purdue (home) vs Penn State

NOVEMBER

- 18 Football - Purdue (home) vs Indiana (Captains' Table Food Drive)

<http://www.purdue.edu/abe>

Retirements

The Harry Gibson Retirement Dinner on February 25 was a huge success with 83 people in attendance. Several alumni and retired faculty were also present.

Two of Harry's daughters (one from Kokomo and one from Florida) were able to attend. Unfortunately his daughter from South Carolina, his son from West Virginia and his son in England were not able to attend.

Harry and his wife Darlene live in Lebanon, Indiana and are planning a trip to England and Scotland this summer and to do a lot more traveling in retirement.



Harry & Darlene Gibson

Nancy Drake retired from Purdue University on April 28, 2006. Nancy began her employment at Purdue on May 8, 1978 - she was just a few days short of having 28 years of service.



Nancy Drake

Nancy transferred to ABE in March of 1987 as an account clerk. She was promoted to Business Assistant in October 1994. This was the position she held until her retirement.

Nancy enjoyed a retirement reception in the ABE department before packing her bags and heading to Phoenix, Arizona to be closer to family and friends.

We wish Nancy the best of luck in retirement and she promises to keep in touch via email.



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