Resource

EXPLORE

CAREERS in Agricultural Technology and Systems Management

SPECIAL ISSUE!

Engineering & Technology for a Sustainable World

PUBLISHED BY ASABE - THE SOCIETY FOR ENGINEERING IN AGRICULTURAL, FOOD, AND BIOLOGICAL SYSTEMS
ASABE Conferences and International Meetings
To receive more information about ASABE conferences and meetings, contact ASABE at 800-371-2723 or mcknight@asabe.org. For the complete list, see www.asabe.org/resource/asabeevents.html.

2006
Feb. 12-14 **Agricultural Equipment Technology Conference (AETC)**. Seelbach Hilton, Louisville, Kentucky, USA.
April 8-12 **International Symposium on Hydrology and Management of Forested Wetlands**. New Bern Convention Center, New Bern, North Carolina, USA.
July 9-12 **ASABE Annual International Meeting**. Oregon Convention Center, Portland, Oregon, USA.
July 24-26 **2006 World Congress of Computers in Agriculture (WCCA)**. Grosvener Resort, Lake Buena Vista, Florida, USA.

2007
Feb. **Joint Agricultural Equipment Technology Conference and Third International Conference on Crop Harvesting and Processing**. Minneapolis, Minnesota, USA.
TBD **Agriculture, Food and Biological Engineering and Post Harvest Production Technology**.
TBD **Fourth Conference on Watershed Management to Meet Water Quality Standards and Emerging TMDL**.
TBD **Sensors and Nanotechnology Conference**.
TBD **Sixth International Dairy Housing Conference**.
Oct. **11th National Symposium on Individual and Small Community Sewage Systems**.

ASABE Section and Community Events
For more information, contact the person identified in each listing. For the complete list, see www.asabe.org/resource/community.html.

2005
Dec. 2 **Minnesota Section Meeting**. Tour of Phillips Eco-Enterprise Center. Minneapolis, Minnesota, USA. Contact Ron Leaf, 651-490-2000, rleaf@sehinc.com.

2006
July 31-Aug. 3 **NABEC Meeting**. McGill University, Macdonald Campus, Ste. Anne de Bellevue, Quebec, Canada. Contact Paul Heinemann, hzh@psu.edu.

ASABE Endorsed Events
For more information, contact the person identified in each listing. For the complete list, see www.asabe.org/resource/endorseevents.html.

2006
Nov. 9-11 **5th International Conference of the Asian Federation for Information Technology in Agriculture**. Bangalore, India. Sponsored by the Asian Federation for Information Technology in Agriculture. Contact afita2006@yahoo.com, www.insait.org.

Other Events
For more information, contact the person identified in each listing.

2006
Jan 24-25 **Facilitating Sustainable Agriculture: A Participatory National Conference on Post-Secondary Education**. Pacific Grove, California, USA. Sponsored by the UC Davis College of Agriculture and Environmental Sciences & Student Farm and the UC Santa Cruz Center for Agroecology and Sustainable Food Systems. Contact http://studentfarm.ucdavis.edu/ or http://zzyx.ucsc.edu/casfs/.


May 9-11 **Agritech 2006**. Tel-Aviv, Israel. Contact www.agritech.org.il.


June 6-9 **Fooma Japan 2006**. Tokyo, Japan. Sponsored by The Japan Food Machinery Manufacturers’ Association. Contact www.fooma.or.jp.

June 19-22 **11th International Conference on Ground Penetrating Radar**. Columbus, Ohio, USA. Sponsored by The Ohio State University, Government Agencies, and Equipment Manufacturers. Contact http://gpr.osu.edu.


Aug. 15-17 **National Conference on Sustainable Agriculture**. Oconomowoc, Wisconsin, USA. Contact www.sare.org/nacsare.


To have an event listed here, send information to Suzanne Howard, 2950 Niles Road, St. Joseph, MI 49085, USA; howard@asabe.org. Information must reach us at least two months before the event.
All photographs published in this issue were supplied by employers, universities, or people featured in the articles.

Finally, sincere thanks to all those who were willing to share their stories and to those who will be distributing this special issue and its message to the youth of the world.
The deadline for copy to be received at ASABE is the first day of the month preceding the month of publication (February 1 for the March 2006 issue). Each issue mails on the first day of the month.

Beginning with the January/February 2006 issue, advertisements are $125 per column (3.5-inch wide) inch, which includes free placement on ASABE’s new Career Center Web page at www.asabe.org/membership/careercenter.htm. The minimum ad size is two inches — approximately 100 words. Ads are posted on the Web site within three business days of final approval and remain there for 30 days. If the insertion order is for two months, the cost is $110 per column inch per insertion and includes a 60-day free Web listing.

For more details on this service, contact Pam Bakken, ASABE Personnel Service, 2950 Niles Road, St. Joseph, MI 49085-9659, USA; 269-428-6337, fax 269-429-3852, bakken@asabe.org, www.asabe.org/resource/persads.html.

**CAREER OPPORTUNITY**

**ASSISTANT/ASSOCIATE PROFESSOR**

**FOOD PROCESSING AND ENGINEERING**

**AGRICULTURAL RESEARCH STATION**

**SCHOOL OF AGRICULTURE**

**POSITION NUMBER:** F0600 (Twelve-Month Appointment)

**SALARY:** Commensurate with Education and Experience

**APPOINTMENT DATE:** Until Filled

**Duties and Responsibilities:** Develops basic and applied research programs in the areas of food processing and engineering leading to technology transfer, peer reviewed publications and extramural funding. Research areas include emerging processing techniques, packaging materials and methods, and physical properties of foods. Interfaces and collaborates with existing food science programs and related industries. Enhances the University's land-grant mission of teaching, research and extension by assisting in the development and implementation of a comprehensive food science program. Participates in state, regional, and national scientific meetings and professional societies. Participates in departmental, school and university services and outreach activities.

**Qualifications:** Ph.D. degree in engineering or closely related discipline. Must have research experience in current practices of processing techniques and the effects of processing parameters on product quality. Must have teaching experience in mass and energy balances for a given food process and the unit operations required to produce food products. Must have a desire to build effective collaborations with existing research and teaching programs. Highly effective written and oral communication, and computer skills are essential. Scholarly publications and grantsmanship are a must. Experience and knowledge in food transportation, preservation, sanitation, and waste management are desired.

Interested persons should submit a letter of interest, resume/vita, transcripts, a Commonwealth of Virginia Application for Employment (click on this link http://jobs.state.va.us/oeo-appl.htm), names, mailing addresses, telephone numbers, and e-mail addresses (if available) of three professional references to Virginia State University, Office of Human Resources, P.O. Box 9412, Room 101, Virginia Hall, Petersburg, Virginia 23806. Official transcripts, state application and three (3) references will be required prior to employment. Review of applications will begin immediately. Applications will be accepted until position is filled. **Faxed and e-mailed applications will not be accepted.** Selected candidate must successfully pass a criminal background check.

**VIRGINIA STATE UNIVERSITY IS AN EQUAL OPPORTUNITY EMPLOYER**

**AGRICULTURAL ENGINEER/CEO**

Industrial Engineer (Yale graduate) seeking partner to test and perfect a patent granted October 11, 2005, on Method for Irrigating Sloping Land. Must be visionary, imaginative, intelligent, determined, persistent, and able to work independently. This partnership is not a salaried position, however, an opportunity for the right person to establish a new company and become the CEO, sharing in a potential return in millions. For more information send resume to srideout@cfl.rr.com or fax: 407-644-7040.

The University of Florida Agricultural and Biological Engineering Department is seeking applications for a faculty position in Land and Water Resources Engineering with an emphasis on the built environment/urban landscape. This is a 12-month tenure-accruing position that will be 60% research and 40% extension. Areas of expertise will include one or more of the following area: water quantity and quality conservation and management; stormwater reduction and treatment; and BMP/TMDL development, modeling, and evaluation. The incumbent will join an active group of faculty working in the nursery and landscape irrigation area. A Ph.D. in agricultural, biological, civil, environmental, or closely related engineering field is required. The University of Florida is an equal opportunity, equal access, and affirmative action employer. Women and minorities are encouraged to apply. For full details of the job description and application instructions see the full posting at the following link, http://www.agen.ufl.edu/newsite/mainpages/Facultypositions_available.htm.

**ENGINEERING POSITION**

**FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES**

This is a full time agricultural, civil, or environmental engineering position, requiring knowledge in the areas of hydrology and hydraulics. For more details about the position and to apply, visit the following website: https://peoplefirst.myflorida.com/logon.htm

Position No. 42003369. Locations: Okeechobee County, Okeechobee; or St. Lucie County, Fort Pierce. Closing Date: December 16, 2005. Contact: Camilo Gaitán, P.E. Ph: (850) 488-8560. Add: gaitanc@doacs.state.fl.us

(Continued on page 3 at the back of the magazine, following the Explore special section.)
POSITION ANNOUNCEMENTS

Washington State University has four openings for tenure-track faculty positions as part of a multidisciplinary team conducting innovative research and teaching that addresses the interplay of physical, chemical, and biological factors determining environmental sustainability. The positions, with an effective start date of August 16, 2006, will be filled in three departments: Biological Systems Engineering (associated with the Agricultural Research Center), Chemical Engineering and BioEngineering, and Civil and Environmental Engineering. These departments, in addition to three others, work closely through the Center for Multiphase Environmental Research and this clustered hire will further promote interdisciplinary collaborations across the WSU campus.

Candidates are sought at all professorial ranks with expertise in the areas of groundwater hydrology, surface water quality, environmental microbiology, and water chemistry. Examples of areas of interest are provided below, although excellent candidates from any area of Environmental Science and Engineering and Water Resources will be considered: study of extremophiles for solving environmental problems, microbial transformation as related to biodegradation, pathogen fate and transport, surface water quality, ecosystem health, water and wastewater disinfection, water reclamation, contaminant fate and transport in the vadose zone, and watershed scale studies of contaminant transport. Successful candidates are expected to direct graduate research, develop research programs through external funding and teach undergraduate and graduate courses in their home department. An earned Ph.D. or equivalent degree in a relevant science or engineering field is required.

Founded in 1890, Washington State University is a comprehensive research, land-grant institution with a total student enrollment of approximately 20,000. WSU’s main campus is located in Pullman, Washington, about 75 miles south of Spokane, and is one of the largest residential universities in the West. One of WSU’s strategic missions is interdisciplinary environmental research and the participating departments already have substantial collaborative interactions in both teaching and research. Additional information for each department is available at http://www.ce.wsu.edu/ for Civil and Environmental Engineering, http://www.bsyse.wsu.edu/ and http://www.arc.wsu.edu for Biological Systems Engineering and http://www.che.wsu.edu/hone/ for Chemical Engineering and BioEngineering. Information for the Center for Multiphase Environmental Research can be found at http://www.cmer.wsu.edu/.

Screening of applications will begin January 20, 2006. Applicants are requested to send a cover letter indicating level of application (assistant, associate, or full), a statement of research and teaching interests, a detailed resume, and a list of five (5) potential references to:

Dr. David Yonge, Director
ATTN: Water/Environmental Engineering Search
Center for Multiphase Environmental Research
P.O. Box 642910
Washington State University
Pullman, WA 99164-2910

WSU employs only U.S. citizens and lawfully authorized non-U.S. Citizens. All new employees must show employment eligibility verification as required by the U.S. Immigration and Citizenship Services.

WASHINGTON STATE UNIVERSITY IS AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EDUCATOR AND EMPLOYER. Members of ethnic minorities, women, Vietnam era or disabled veterans, persons of disability and/or persons age 40 and over are encouraged to apply.

For further details contact the Center for Human Rights web site at http://chr.wsu.edu.

FACULTY POSITION IN AGRICULTURAL SYSTEMS MANAGEMENT

POSITION: Assistant or Associate Professor of Agricultural and Biological Engineering

RESPONSIBILITIES: The primary responsibility is to provide excellence and recognized leadership and scholarship in Agricultural Systems Management. A related responsibility is to develop a high-impact teaching program complemented by collaborative applied research and/or outreach programs that solve technical problems related to agricultural crop and livestock production, distribution, or processing systems. Results will be disseminated to a wide range of stakeholders and should have state, national, and potentially, international impact. The successful applicant will be expected to lead efforts in curriculum development, student recruitment, and academic counseling, with an opportunity to expand graduate studies in agricultural systems management. Emphasis is placed on demonstrated scholarship in all aspects of the position. Educational programs will focus initially on residential undergraduate and graduate audiences. Opportunities exist to develop distance learning products that will impact student and practitioner audiences at regional, national, and international levels.

QUALIFICATIONS: Requirements include a Ph.D. with at least one degree in Agricultural Systems Management, Agricultural Engineering, or a closely related field of agricultural technology. Desired qualifications include experience in teaching, applied research, outreach, and development of instructional material for varied audiences. The successful candidate is expected to develop strong industrial and interdepartmental cooperation in teaching and research. A strong record of securing extramural funding for support of teaching, educational material development, outreach and research is also highly desired.

CLOSING DATE: Review of applications will begin January 16, 2006. The position will remain open until filled.

APPLICATION MATERIALS: Letter of interest, resume, official academic transcripts, statement of teaching and research philosophy, and contact information for three references.

CONTACT: Address inquiries to:

Dr. Bernie Engel, Dept. Head
ASM Search Committee
Agricultural and Biological Engineering Department
Purdue University
225 South University Street
West Lafayette, IN 47907-2093
Email: agsysman@purdue.edu

For additional information see http://www.purdue.edu/ABE

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Applications from women and minority candidates are strongly encouraged.

National Engineers Week!
Feb. 19-25, 2006
POSTDOCTORAL POSITION AT UC DAVIS

The Dept of Civil and Environmental Engineering and Crocker Nuclear Lab at UC Davis invite applications for a postdoctoral researcher in atmospheric organic chemistry. Requirements include a Ph.D. in environmental engineering, environmental chemistry, atmospheric chemistry or a related field, and demonstrated success or potential for success in research.

The successful candidate will characterize complex VOC mixtures related to atmospheric chemistry of ozone and aerosol formation. Initial project emphasis will be on biogenic sources with future interest in agrochemicals. Skills using GC-MS and LC-MS are desirable, along with the ability to supervise students and write scientific reports and papers. Position duration will be 1 year, extendable to 2 years depending on funding.

Additional information is on the web under the 'job bulletin' link at the bottom of our department web page http://cee.engr.ucdavis.edu

Applicants should submit a CV, including statement of research interests, transcripts, list of experience and publications, and contact information for three references to:

Search Committee Chair (Dr. Peter Green)
Department of Civil and Environmental Engineering
University of California
One Shields Avenue
Davis, CA 95616-5294

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To view more items, visit the ASABE Web site at www.asabe.org.

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December 2005

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Your personal or company consultant business card could appear here. For information on rates, contact Pam Bakken, Advertising Sales Manager, Resource: Engineering & Technology for a Sustainable World, 2950 Niles Road, St. Joseph, MI 49085-9659 USA; 269-428-6337, fax 269-429-3852, bakken@asabe.org. An order form is available at www.asabe.org/resource/procards.pdf.

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Resource
Agricultural Equipment Technology Conference
February 12-14, 2006
Seelbach Hilton, Louisville, Kentucky

Celebrating 10 years
- Technical Sessions
- Technical Tours
- CPD - Fastener and Bolted Joints
- CPD - Design Powder Metallurgy Parts
- Networking

Check out AETC’s Technical Tours to JeffBoat and Woodford Reserves Distillery.

Woodford Reserves Distillery
This special “Woodford Reserve Corn to Cork Tour” is a special guided AETC Tour through the mechanical, chemical, technical, and “sensory” aspects of producing bourbon. This option is a great tour for bourbon connoisseurs or those wishing to learn more about the complexities of creating Woodford Reserve bourbon. It is more in-depth and covers more aspects of the bourbon making process. This cultural tour also explores the history and architectural evolution of the Woodford Reserve Distillery and its impact on Kentucky heritage.

JeffBoat
Take a behind-the-scenes look with JeffBoat’s chief engineer at the largest single-site inland shipbuilding and repair facility in the United States located on the Ohio River in Jeffersonville, IN. Hear and see first-hand how JeffBoat is building tanker and hopper barges. JeffBoat also constructs river towboats and specialty vessels for ACBL and third-party customers.

www.asabe.org/meetings/index.htm
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Welcome to Explore — Careers in Agricultural Technology and Systems Management.

You are entering a new chapter in your life – both exciting and overwhelming. You will soon be deciding your future path … choosing a school and a major, leaving home and making new friends. This magazine is designed to show you possible career opportunities in the agricultural technology and systems management field. If you aren’t familiar with an ag systems degree, please read on. We think you will be impressed with the diverse and interesting job opportunities awaiting ag systems graduates. Take your time reading through this magazine. You have a big decision to make, and we think you will like what this career has to offer.

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What is an agricultural systems degree?

An agricultural systems degree combines an understanding of the agricultural, biological, and physical sciences with economics, managerial, and technical skills. This understanding of science, systems management, and applications engineering can be applied to a career in the production and processing of food, fiber, feed and fuel, and the distribution of agricultural products and services.

Students focus on the application of engineering principles, the study of technology used in agriculture, and the integration of business management concepts in the agricultural and food industries.

This degree is ideal for those interested in technical sales or technical management for an agriculture-related business involved in production, processing, or manufacturing.

Why do the university programs have so many different names?

Prior to the early 1990s, most of the programs were simply called agricultural mechanization. Many universities have changed the scope of their programs to focus on emerging technologies as they apply to food and agricultural systems and to address society’s need to efficiently utilize natural resources and protect the environment.

The names reflect the philosophy of the school in responding to these issues. So, although they may have different names, these programs are really quite similar. Program names currently in use are:

- Agricultural and Environmental Technology
- Agricultural Engineering Technology
- Agricultural Operations Management
- Agricultural Systems Management
- Agricultural Systems Technology
- Agricultural Technology Management
- Agricultural Technology and Systems Management
- Bioresources Engineering Technology
- Engineering Technology Program
- Mechanized Systems Management
- Technical Systems Management

Consult the individual universities with questions regarding the direction and focus of their programs.

How does a degree in agricultural systems differ from one in agricultural engineering?

Today, engineers and agricultural systems graduates both work with the same types of buildings and equipment, the same crops and animals, and the global society, yet there is a distinct difference in the work they do. The engineer is trained to analyze and design a process, system, or mechanism, while the agricultural systems graduate is able to identify system problems, formulate possible solutions, analyze the impact of alternatives (including social and economic dimensions), and then implement the best solution. Agricultural systems graduates get a broad and basic background in agriculture and the physical sciences, along with courses in business, economics, and management.

When comparing agricultural systems to engineering, you will find that agricultural systems programs are less theoretical and more practical. Emphasis is on hands-on experiences with equipment, and many courses have laboratory sections.

What do I need to know to get into the program?

An aptitude for science is really necessary for this field. You should also have an interest in electronics, computing, and business management. In high school, prepare well in mathematics, physical and biological sciences, English, and agriculture. Take the most advanced high school courses available to you in these areas and, if possible, take courses such as CAD and information systems.

Do I need a background in agriculture for this major?

No. This curriculum has the flexibility to allow students from both rural and urban backgrounds to develop a program to meet their personal career objectives.

Is this a good option for women and minorities?

This field is a great option for women and minorities. The number of women and minorities entering the field continues to rise.

Are internships available?

Yes. This curriculum offers many opportunities for internship work experiences in several organizations. An internship may be paid or done on a volunteer basis.
How can I find out what schools offer programs in agricultural systems?
The schools currently offering agricultural systems programs are listed on pages 26 and 27. Be sure to check with the school in which you are interested regarding its particular program. Begin your search in the Agricultural and Biological Engineering Departments where these programs are typically administered.

How do I select the school that is a good fit for me?
The Internet is a great place to begin your search. Many of the universities provide detailed information about their programs – including course requirements – on their Web site. (See pages 26 and 27 for a list of universities and Web sites.) When you have narrowed your choices, visit the top schools on your list. The faculty and students will be happy to meet with you and show you their facilities. By visiting, you will get a sense of whether their program and setting is right for you.

What is the curriculum like in this program?
This program integrates a liberal education with expertise in the agricultural sciences, applied technology, and business management. Courses are relevant to all phases of the food, agricultural, natural resources, and environmental industries.

Students gain an in-depth technical knowledge for integrating and applying advanced agricultural technologies and equipment by completing courses in machine and power systems, computer applications, materials handling, food and materials processing, environmental resources management, electrical/electronic systems, and information/decision support technology. The curriculum balances hands-on knowledge of technology with instruction in agricultural sciences and agribusiness principles.

Supporting courses provide a foundation of mathematical, chemistry, computer, economic, and communication skills. Computers are used to collect and analyze data and then act on that information to control machines and processes. Other computer uses involve planning layouts of equipment and buildings, creating graphics for reports, etc.

Will I have time for extracurricular activities? How many hours a day will I need to study?
Let’s look at the second question first. How much time you devote to your studies depends upon you and your expectations. Obviously, it takes more time to earn an A than a C, and this major can be demanding. That said, students shouldn’t be expected to study at the expense of all outside activities. Employers are looking for well-rounded new hires. You will be able to build your leadership, communication, and organizational skills by becoming involved in clubs or sports. Most schools have an agricultural systems club. Be sure to check out the ASABE student branch on campus. (See page 28 for more information about ASABE.)

Can I afford the education?
Typically, the cost of an agricultural systems education is comparable to most other college programs. These costs will vary depending on the school you choose.

Don’t let the cost of higher education prevent you from attending the college of your choice. Most students today need some kind of financial assistance. Numerous types of financial aid are available such as grants and scholarships, loans, work-study programs, and part-time employment. They are available from many sources including the federal government, state agencies, professional agencies (such as ASABE), and universities. When visiting a school, be sure to stop by the financial aid office to find out what programs the school has to offer.

For more information on all types of financial aid, contact the U.S. Department of Education at 800-433-3243 and ask for a free copy of The Student Guide or visit their Web site at http://www.ed.gov.

What is the career outlook? What types of companies will I work for?
Agricultural systems graduates are in great demand. The starting salaries are highly competitive and are among the highest of college agriculture majors. Employers and career opportunities are vast and varied. You could be working for major equipment manufacturers such as Caterpillar or AGCO, government agencies such as the Natural Resource Conservation Service, the Environmental Protection Agency, or the Peace Corps, or companies like Frito-Lay, Toro, or ConAgra. The opportunities are endless. (See page 13 for more information on job opportunities.)
Internships are an important aspect of the college experience. They provide students the opportunity to develop skills and gain experience in areas not easily learned in a classroom. An internship can also open doors to a potential job once a student graduates. Follow the stories of these individuals whose internships guided them into their current careers.

Discovering what to go into

Jay Rauk, who graduated with a degree in ag systems technology from Iowa State, says an internship helps you know where you want to go career wise.

With a farm background, Rauk says he always wanted to be in the machinery/technology side of agriculture. His six-month paid internship at Ag Leader Technology helped him realize where he wanted to focus after college.

Ag Leader, a recognized technology innovator of precision agriculture hardware and software, markets and manufactures industry-leading precision farming technology. Rauk worked in their product support group taking orders from customers with the majority of his time spent troubleshooting.

“Ag Leader was really good to work for,” says Rauk.

“I started out with six weeks of training and learned about the products and their uses. I enjoyed learning about precision agriculture and the technologies used,” Rauk adds. “I learned a lot of communication skills such as how to talk more effectively on the phone and in person.”

Rauk also got out of the office. He attended farm shows and put on harvest training sessions for dealers and customers.

He feels the ag systems technology program at Iowa State has prepared him for anything he might run into in agriculture (with the exception of the animal side of things, an area he didn’t branch into).

“The degree gives you a really good general knowledge of agricultural practices,” says Rauk.

Obtaining an internship is something Rauk would encourage students to do. “It is a really good experience to get out and actually work in a field related to your major,” says Rauk. “It’s definitely the best experience I had at Iowa State,” adds Rauk.

Through his internship, Rauk discovered what he wanted to go into after graduation. “I would like to stay with Ag Leader and focus on precision agriculture,” says Rauk.

Experience for the future

Aaron Bartholomay says internships definitely help in real life, providing real-world experience and situations.

“It’s a good way to understand a company and use some of the skills you learned in school, plus get a wage at the same time,” says Bartholomay.

“It provides experience you can use in the future.”

Growing up on a farm, Bartholomay loved the technology aspect of being involved with agriculture. With that in mind, he enrolled in a two-year John Deere Agricultural Technology program. Upon finishing that program, he became a John Deere service technician. A few years later, he decided to pursue a systems management degree from North Dakota State University (NDSU), from which he graduated in May 2005.

“I went back to school for more opportunities and the potential for growth,” says Bartholomay. “It provided me the knowledge needed to pursue different opportunities. I have an interest in the management aspect, being able to oversee different things and help people out.”

Bartholomay obtained a summer internship with John Deere before his last year of college. He found it through the campus career center and called them for an interview, which turned into a paid internship. His internship involving training dealership technicians in the use of the service advisor program to diagnose problems on John Deere equipment.

“It is similar to taking a car to a service center and hooking it up to a computer,” says Bartholomay.
“I personally knew of the service advisor program a bit beforehand, because I had worked for a John Deere dealership as a service technician before going to NDSU,” says Bartholomay. “I could relate to it a lot easier and was able to connect personally with the technicians. I knew more about what they were having problems with.”

Because of his previous experience as a service technician, part of his internship included providing feedback to John Deere on how to improve their service adviser program.

“It was an excellent program and an excellent internship,” says Bartholomay. “I gained a lot of different skills, and got a better understanding of how the company works, and what they expect of an individual. I could take what I leaned in the classroom and apply it.

“John Deere gave me a lot of freedom to make some of my own choices in how I wanted to do my training. But they also gave me enough guidance to accomplish what they wanted me to do. The people there were a lot of fun to work with, straight forward, very enjoyable.”

A highlight of the summer internship for Bartholomay was the John Deere one-week internship orientation program held during the middle of the internship stint.

“All interns from John Deere got together and met one another. Interns from engineering, marketing, accounting, and other areas were there. It was fun to talk to other people, get their perspectives on their internships and what they got to do. We were able to learn more about the company culture, what the company had to offer, and prospects for future employment,” says Bartholomay.

“I would absolutely recommend an internship,” he says. “I felt more prepared and ready to go back to school. I had a better idea of what I wanted to accomplish and the ability to achieve it,” he adds.

Due to his rewarding internship, Bartholomay has accepted a position with Deere & Co. as a marketing representative. It consists of a two-year training program, which includes marketing and supporting John Deere equipment and their products. An internship helped pave the way for Bartholomay’s career with John Deere.

A greater understanding of things

An interest in automation and design led Jeremy Dose to pursue degrees in ag systems technology from Southern Illinois University.

“I had an interest in electronics and technology and wanted to incorporate it into agriculture,” says Dose.

Always trying to better himself, Dose continued on in college to pursue a master’s degree. He says there is a huge difference between obtaining a bachelor’s degree and a master’s degree.

“The master’s degree program was more self-independent; it was up to me to meet timelines. I had to organize myself to meet my goals in a timely fashion,” says Dose. “I had grown as a person, I was more dedicated, organized, and had a far better writing technique.

“Now when I see a problem, I can see it from a lot of different views and angles. I look at how I can use technology to solve the problem. It enhanced my education 100 percent.”

Part of that education consisted of a paid internship with Archer Daniels Midland (ADM) Co., an agricultural processor of soybeans, corn, wheat, and cocoa.

“I had the opportunity to work as a grain terminal operating manager trainee,” says Dose. “The internship entailed office work, measuring and weighing grain, loading and unloading trucks, plant maintenance, and learning how the system all works.”

“It was a great experience, and the workers were all very nice,” adds Dose. “I got to experience the flow of the system. It was a great opportunity to determine what I wanted to do later in life. Internships are so important.”

“Every year you are in college you should try and get an internship,” advises Dose. “Internships are very, very vital. They help you decide what you want to do in the future.”

Dose utilized his internship experience when he returned to the classroom. “It’s an amazing thing,” says Dose. “I took the problems I saw in industry back to school and could apply them in my mind. You understand things a lot better.”

His successful internship experience at ADM led to a job offer from ADM. He turned it down to get his master’s degree, but they said they would wait for him. And they did. He now is an employee of the company.
A genuine love of dairy has turned into a full-time career for Melinda Martin. A 2003 graduate of Penn State with a degree in agricultural systems management and a minor in agricultural business management, Martin grew up on a dairy farm in south central Pennsylvania.

“Majoring in ag systems management was something I always wanted to do,” says Martin. “I learned about the degree on a high school Future Farmers of America trip to a Penn State conference.”

While in college, she took advantage of summer internships. Her first internship was with TriState Farm Automation creating a database of customer’s equipment.

Attendance at an ag career fair on campus provided her with an internship for her next two summers.

“I met with AgChoice Farm Credit employees, and they offered me an internship,” says Martin. During her summer internships there, she spent most of her time doing appraisal work.

“T'd work with appraisers gathering sales data and doing credit analysis,” says Martin. “I really enjoyed it.”

She was not aware of a career as a credit analyst before attending the ag career fair. But after her internships at AgChoice, she knew what she wanted to do with her degree. These internships led into a full-time position as a credit analyst for the agricultural credit association.

In her position, Martin analyzes customer’s financial and background information for loan approvals. Most of her customers are dairy farmers living in Pennsylvania, with a few in Ohio and Indiana. A farmer’s herd usually consist of 100 to 2,000 cattle. She also analyzes agricultural business applications as well as potential buyers of rural homes and small part-time farms.

Martin says the main thing in analyzing loans is credit.

“Credit scores and credit reports from credit bureaus. Some people don’t have credit at all, while others have blemishes. Credit scores are one of the limiting criteria in approving credit,” says Martin.

Personal property appraisals are also another aspect of Martin’s job. She says she actually counts the number of cows the loan applicant has and takes down serial numbers on equipment for liens on loans.

Business has remained steady, notes Martin, especially with low interest rates over the past few years. She adds that there have not been many defaults on loans.

“AgChoice has held a high growth spurt since 2000,” says Martin. “They actually doubled their business.”

That growth spurt has added some problems of its own for Martin.

“I’m frustrated that I don’t have enough time in a day to get everything done and everything to everybody when they need it,” says Martin.

What she does find rewarding is helping the farmer succeed in their business. “We have follow-up servicing that is done on a fairly regular basis, especially on larger more complex loans,” Martin says.

Martin feels her career as a credit analyst offers her a good living. She wishes that more students knew that an ag systems degree is available and the kind of work it offers to graduates. “Ag systems management needs to be more publicized,” says Martin.

She advises high school students thinking of a career in ag systems to take math courses, especially some form of beginning calculus, chemistry, and physics. “By taking the basics in high school, you’ll have an easier time in those areas in college.”

Martin hasn’t strayed too far from the dairy farm she grew up on. One of her hobbies is showing dairy cattle. “I own 10 cows that are located on the family farm. I have names for all my cows,” she adds.

From growing up on a dairy farm to helping dairy farmers with their business, Martin has combined her love for cattle into a life-long career and in the process has become a valued partner that farmers can count on.

Photo: Melinda Martin shows dairy cattle as a hobby. She is pictured here with her calf, Tempest, at the Franklin County Fair Holstein Show.
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Why study for a degree in ag tech management (ATM)? Ask those currently in or recently graduated from the Kansas State University program, and you’ll receive a variety of responses — from the need for people well-educated in soil sciences to foster sustainability in today’s world to the sheer fascination with hi-tech agricultural machinery. Responses run a broad a-to-z gamut, reflecting an avid interest in agronomy to a zeal for zephyrs and wind power. But a common thread that ties these students together is the desire for a hands-on approach, and a class in robotics featuring sensors, controls, and the all-important LEGO kit fits the bill.

David Guetterman, who graduated in May 2004, found it difficult to leave an environment where, beyond good courses like his robotics class, his peers were his greatest inspiration. “Everyone was fired up, feeding off a keen desire to learn about where technology is taking agriculture. Every semester at Kansas State I met more people I liked — and people who liked what interested me,” says Guetterman. “One course in particular — ATM 450/Sensors and Controls — opened my eyes to how intelligent and motivated ATM majors are — students who are set on developing and improving agricultural equipment and have the imaginations to do it.”

Guetterman took Dr. Naiqian Zhang’s ATM 450/Sensors and Controls where the main focus and final assignment is to program a computer to run a robot. Zhang enthusiastically says he takes “zero-programming backgrounders to Java programmers then on to robotic programmers.”

“Big companies produce amazingly advanced global positioning system- (GPS-) guided tractors,” explains Guetterman. “My project group of ‘robot-builders’ simulated GPS parallel tracking with a 14-inch long tractor, only 7-8 inches wide. A computer module sits on the top of the LEGO kit, which we purchased at a John Deere equipment/supply shop, and two motors on its rear power the outfit. It only weighs a pound or two, but it simulates a 3-point 8-row planter, making precise 90-degree turns, raising and lowering an implement.”

Guetterman is now a business co-owner with his older brother in Bucyrus, Kan., engaged in residential and commercial projects. Guetterman Outdoor Services handles any size turf or excavation endeavor — from building ponds and pads to water erosion problems and terracing. Raising good sod is integral to satisfied customers who want a well-manicured yard or even a football field. Good equipment is the key.

“Dr. Zhang’s class gave me confidence in my ability to build equipment — from start to finish — and to work smart, to be as efficient as possible. Good high-tech machinery is what you need in any area of ag.”

John Hildebrand entered ATM 450 with a “pre-conceived notion.” He had recently read an article in a farm magazine about a driverless swather, which runs on steels tracks embedded in a hay field. His project group members quickly latched on to his vision for the robotic programming involved. “Although our robotic LEGO machine would need a driver if it were built to human scale, it was programmed to follow irrigation circles. What added to the complexity was our futuristic approach. We envisioned a header with light sensors — two on the inside and two on the outside — discerning and picking up cut hay, which is darker in color. The electronics involved are awesome. The header of the swather was made to resemble a disc mower. I know that our swather, following a line through an alfalfa field, is not practical. But using light sensors is...
not out of the question. Four would be needed; two on the ends of the header that detect cut stalks, and two in the middle which follow the darker area created by existing alfalfa plants. This scenario, though more practical, could not be constructed because of limited sensor input ports on the RCXs given.”

A young man interested in all things farm-oriented, Hildebrand understands from his rural upbringing how farmers hate electrical problems. Diagnosing them is more than slightly aggravating and time consuming. “Being able to learn more about a hands-on approach to troubleshooting those electrical glitches, employ GPS principles, and seeing our robot actually do what it was programmed to do was great.”

When students, registered for Zhang’s course, arrived on the first day of a new semester, Wyatt Kerl was one of the reluctant ones. For some, it was a leap into the unknown of higher-level classes, and rumor had it that Dr. Zhang was determined to make programmers out of everyone enrolled — whether they liked it or not.

“I wasn’t looking forward to that class,” laughs Kerl in retrospect. Now a junior at Kansas State University, Kerl remembers his wariness with a laugh. “Dr. Zhang asked everyone, ‘On a scale of one to ten — with ten being the most enthusiastic, where does everyone rate himself in anticipating this course?’ I didn’t want to raise my hand; I was somewhere below the number one. In fact, as Dr. Zhang worked his way down from ten soliciting comments on levels of interest, I was the only one left when he reached three! And when he asked my name, instead of saying ‘Wyatt Kerl,’ I hemmed and hawed and groped for escape. ‘Bob,’ I said, hoping I could drop the course and he’d never see me again!”

Kerl says the Manhattan, Kan., school is renown for its faculty and courses in ag tech. “Friendly for a big school, it’s the place to work hard but feel at home if you’re interested in ag. The ATM Club is a big plus, too. I like everything about Kansas State. I’m not sure why I was dreading that robotic class; I imagined it would be more theoretical than hands-on, but it was a good mix of both.

“The LEGO robot kit comes with mechanical parts, and students take it a step further — ‘computerizing’ it, so to speak. My group’s robot follows a field’s fences and borders and senses how far it is from a corner or edge. Our idea was to create a spraying application for grasshoppers — practical, hands-on stuff.”

Kerl sees his future after graduation in a corporate ag career. His ATM degree won’t take him back to the family farm in Hiawatha, Kan., though he worked his way through school by doing work there and on other fields. “I’d like to work for one of the big ones – Deere, Case, Caterpillar – and relocate. I think an ATM degree is a good foot in the door. My minors in ag business and agronomy, I hope, will push the foot a little further, too.”

Also a junior, Jon Propheter from St. Joseph, Mo., has worked, like Kerl, on local farms since boyhood. Corn, soybeans, row crops, wheat, forage … he knows them well. “It was a big learning curve when I came to K State. But through bio and ag classes and ATM group meetings, I knew after my first semester that I wanted an ATM degree. Dr. Zhang’s class gave me a basic knowledge and overview of electrical components and their workings on agricultural machinery. I see it now as a great course for my career path — farming full time. Precision technology is very big in ag these days, and even a limited experience with programming and sensors gives me a head start. I rent and farm some land of my own and hope to continue adding more in the future. I’ve recently become familiar with using GPS equipment for spraying application and hope to incorporate it eventually into harvesting for yield mapping and variable rate planting and fertilizer application.

Left: With his ATM 450 class and a panel of judges watching, John Hildebrand demonstrates his project-group’s finished robotic project, a swather made to resemble a disc mower. Futuristically, it is “envisioned” with sensors: two on the ends of the header that detect cut stalks and two in the middle, which follow the darker area created by existing alfalfa plants.
“Dr. Zhang drew parallels with GPS, and of course, via Lego kits with robots, different motors, and sensors. Our group’s robot used two distance sensors, which were able to tell how far away an object is. Signals bounce between them, and on the control box display screen we could get an RCX reading. Basically, the robot’s wheel speed was programmed by numbers input; those came from the distance sensors.”

Jarred Kneisel, Adam Soeken, and Brad Birzer, all 2004 May or December grads, hail from the Hiawatha/Ellenwood areas. Collectively they made up one of Dr. Zhang’s project groups, and all think the robotic programming course added something special and unusual to the end of their Kansas State University careers.

Kneisel has already begun his career in soil conservation working for the USDA-National Resources Conservation Services following in his big brother’s footsteps, who graduated in ATM from Kansas State a few years earlier and is a soil conservationist as well. Soeken has taken up farming full time and is encouraging his younger brother to pursue his ag dreams through study of horticulture with an ATM degree.

Brad Birzer, will soon join Soeken amidst the ranks of those who fill up America’s breadbaskets, planting and harvest golden fields of Kansas wheat.

Ag business, marketing, and finances interested Soeken; he admits he wasn’t the least bit interested in writing robotic programs, but figured he’d take the class. Now he sees great value in it. “I will definitely use what I learned,” he says.

“Our project was to create a robotic LEGO machine that would use sensors and programming to automatically ‘harvest’ a crop, much like John Hildebrand’s group. We based the project around our knowledge of GPS and its uses in agriculture. We observed that while a producer is planting his crop, he could simultaneously be plotting his track with GPS. This track could be saved until it is time to harvest, when our ‘harvester’ could then follow the same path, ensuring a safe and full harvest as long as the field had not changed since planting. We simulated this GPS track with a black track made of construction paper on our ‘field.’ The machine we designed took on the form of a combine — complete with a functioning header and tracks for superior mobility. The only sensor that we implemented for this project was a light sensor, which we mounted in the center of the header. The purpose of this sensor was to follow a line in order to collect the entire crop in that particular field.

When the sensor lost sight of the line, our program told the combine to stop, search to the left for a set time period, then pivot and search back to the right until it found the line again, and could continue on the path. After several trials and letdowns, we finally worked out a working program. The print-out of our Java program is a masterpiece,” he chuckles.

“The future of ag is in high tech/precision efficiency. Programming is the key — to avoid waste in irrigation and with input chemicals, to keep accurate records. Farms are getting bigger and bigger, and it’s tough for one family farmer to keep up. Precision ag is programming, and it will help a farmer keep pace,” says Soeken.

“A robotic programming class is just one small part of an ATM major,” adds Kneisel. “There are a wide spectrum of classes in technology, chemicals, and management. My brother set me in the right direction; he knew that ATM has a well-rounded direction in coursework with exposure to a wide variety opportunities and good internship possibilities — which sometimes turn into full time positions.”
Pack your suitcase with an ag degree

Employed by AGCO Corp., Neal Generose has been going places, literally and figuratively, at a stellar speed covering a lot of ground and miles since he graduated with an ag systems management degree from Penn State in 2000. Tractor sales have been the means by which he gears up, travels, and sees the world.

Generose grew up in Levittown, Penn., a suburb of Philadelphia. As a big-city dweller he was an unlikely candidate to fall in love with tractors, but he seized every available opportunity to visit a family-friend’s dairy farm in upstate Pennsylvania. “We hunted deer, groundhogs, anything that moved!” he reminisced. “It was a wonderful getaway for a kid with senioritis, and there I discovered machinery. I had worked around machinery doing landscaping jobs and construction as a young man and had aspirations to be an engineer ... but calculus and I didn’t get along very well. At Penn State I looked for a major that didn’t have much physics and the dreaded calc —and Ag Systems Management fit perfectly.”

College life in University Park, State College presented four years of broadening experiences for Generose, with travel being a part of almost every year. “I had three different internships, the first at ConAgra’s flour milling division in Martin’s Creek, Penn., clear across state near the New Jersey boarder. I didn’t know how valuable it was until after the fact. I was a miller’s intern, and when the miller took a week’s vacation at the end of my stint, he turned the plant completely over to me. I was 19 at the time, graded on that week, and learned a lot about major responsibility.

“My second internship was with Tyson Foods in New Holland, in the southeastern part of the state, near Lancaster. It was valuable in a different way. I learned I wanted nothing to do with the livestock industry — especially the processing division of ag work — and still leaned toward machinery.

“Last and best, I worked as an intern for New Holland Tractor Co. During this internship’s parts-and-service position, I could see myself doing the work after graduation and long after. I did updating of reference guides for dealers, but got to travel to ports of entry and evaluate tractors damaged in shipment. I packed my bags and flew from Houston to Baltimore.”

With suitcase never idle for long, upon graduation Generose discovered through a friend that AGCO/Fendt was hiring and sending recent grads to Germany. “My friend turned in my resume, and a few days after graduation, I boarded a jet bound for Europe. There I learned the Fendt tractor inside and out. I returned to the States a few months later to introduce the product to the American farmer. My job was to demo the equipment and show why Fendt features are exceptional. It’s a high-end machine and singular in its price and capabilities.”

Generose is still working with AGCO, which owns Fendt. He has been in territory management in upstate New York and, now, in southeastern Pennsylvania closer to home and family. He is responsible for maintaining dealer inventories and assisting in retail calls if necessary. He has started new dealerships, closed many interesting deals by phone and in person, will begin work on an MBA, and down the line perhaps pursue a college professorship. He is a natural teacher, still loves slick machinery and, as you might guess, packing his bags.

“Traveling around the country and especially to Germany through AGCO opened up a whole new world for me,” says Generose. “I go back to Penn State once a year to teach a class in power machinery and take every opportunity to talk to students about AGCO and travel possibilities. My one regret from college years is that I didn’t take advantage of traveling abroad. The College of Agricultural Sciences has a spring semester program, and students can choose programs in Russia, the Ukraine, or Costa Rica. But, with all the possible programs, you can go just about anywhere in the world — there are more than 90 possible destinations.

“The Penn State Web site lists ten reasons to study abroad (www.cas.psu.edu/docs/international/Undergradmain.html). It’s a cool experience: you earn academic credit, experience exciting classes, develop cultural awareness, gain language skills and independence, strengthen your resume, make new friends, see new places, and have fun. My advice? Get a passport!”

Photo: Fendt’s Neal Generose relishes being a part of an upward trend with tractor production and sales figures rising to new records — the highest in over a decade.
Joe Beavers jumped at the chance to do biodiesel research as an undergraduate at the University of Idaho (UI), where he is studying agricultural systems management.

It was a mutual excitement for UI biodiesel researchers because Beavers’ training answered all of their needs for a laboratory assistant. His course and lab work in ag systems management (ASM) supplemented and reinforced his on-farm training and proved to be effective preparation for departmental research project support. The beauty for Beavers was that work could be scheduled around his classes.

For his first biodiesel research experience, Beavers was assigned to the Albertson’s Waste Vegetable Oil (WVO) to fuel project. The research specs called for direct burning of a 10 percent blend of WVO and No. 2 diesel in an Isuzu diesel engine. The engine was used to power the refrigeration unit on an Albertson’s trailer. His daily task was to maintain the engine and keep it supplied with blended fuel. When the project ended, he removed the engine from the trailer’s refrigeration unit, dismantling and documenting the condition of engine components after 2,000 hours of operation on the 10 percent WVO fuel. A research report was developed with the findings. Following the evaluation, Beavers put the engine back together and set it up as a trainer for future students.

With his engine experience, and aided by his courses in agricultural machinery systems and agricultural tractor and power units, Beavers was recruited to perform maintenance on the departmental motor pool vehicles, which includes the 2002 VW BioBug and a 1999 Dodge Truck, both running on 100 percent biodiesel. He also maintains a Ford tractor and the department’s forklift.

While performing all of these tasks, Beaver’s fabrication skills were noticed by Jan Boll, an environmental and water professor and researcher in the department. Boll hired Beaver to fabricate tipping buckets for watershed runoff measurements on a federal research project. He went on to add a cooling system to a John Deere combustion simulator used by graduate student Paul Wang to observe the combustion of different fuels in an engine. Beaver also fabricated gas tank holders and filter holders for the installation of the department’s new gas chromatograph.

The list of duties expanded to become multi-faceted for this undergraduate serving an internship in his field of study. Beavers feels he will be leaving the University of Idaho with two degrees – one in ag systems management and one in real life experience, and both equally as valuable. He plans to return to the family farm but also knows that he has the skills and training to enter the agricultural workforce at a governmental or private business level.

Photo left: The biodiesel fuel supply for the fleet of vehicles running on the alternative fuel is maintained by Joe Beavers. Here he is extracting oil by crushing rape seed in the first step for producing biodiesel fuel.

Photo above: Beavers determines the viscosity of a biodiesel sample using a Koehler constant temperature oil bath with a Cannon viscometer.
Depending on qualifications and experience, starting salaries typically range from $35,000-$50,000 annually. Ag Systems graduates are in high demand. Check with individual schools regarding their placement records.

Possible Career Opportunities

Grain Elevator Manager
Farm Equipment Dealer
Plant Production Supervisor
Irrigation Salesperson
Soil Conservationist
Precision Agricultural Specialist
Reclamation Inspector
International Ag Development
Ag Structures Manager
Vo-Ag Teacher (with certification)
Irrigation Management
Territory Service Manager
Crop Specialist
Farm Appraiser
Energy Advisor
Petroleum Sales
Water Quality Specialist
Control Systems Manager
Farm Facilities Manager
Safety Specialist
Product Testing
Marketing Supervisor
Veterinary Technician
Loan Appraiser
Farm Manager/Operator
Engineering Technician
Food Processing Plant Manager
Parts Operations Supervisor
Service Representative
Ventilation System Designer
Waste Management Technician
Golf Course Manager
Environmental Consultant
Application Specialist
Training Manager
Research Technician
Integration Manager
Construction Supervisor
Facilities Manager
CAD Programmer
County Extension Director
Agricultural Imports Inspector
Grove Management Quality Control Manager
Cooperative Extension Specialist
Design Technician
Bank Field Representative
Experimental Mechanic
Dairy Equipment Specialist
Network Engineer
Operations Manager
Program Technician
Structures Specialist
Professor
Soil Scientist
Water Management Specialist

Prospective Employers

(After this list is intended to provide examples of companies who employ ag systems graduates. It is by no means complete.)

- Aerotech
- AGCO
- Ag-Chem Equipment Co.
- Archer Daniels Midland
- Blue Bell Creameries, Inc.
- Bobcat
- Cargill
- Case-New Holland
- Caterpillar
- ConAgra
- Cummins Engine
- Dairyland Seeds
- Deere & Company
- DeKalb-Pfizer Genetics
- Detroit Diesel
- Dole Fresh Vegetables
- Eaton Corp.
- Eli Lilly
- EPA
- FMS
- Farm Credit Service
- Farmland Ind.
- FieldStar
- Frito-Lay
- Gehl
- General Electric
- General Mills, Inc.
- Gilard’s Frozen Foods
- Government agencies
- Growmark, Inc.
- Hershey Foods
- Hog Slat, Inc.
- Hormel Foods Corp.
- IBM
- Ingersoll Rand
- Kinze Mfg. Co.
- Koehler
- Kraft Foods
- Kubota Tractor Corp.
- Monsanto
- Morton Buildings
- Mustang Tractor
- National Instruments
- Parker Hannifin
- Peace Corps
- Pella Corp.
- Pillsbury
- Pinnacle Food Group
- Pioneer Hi-Bred
- Polaris
- Purina
- Quaker Oats
- Rain Bird
- Raven Industries
- Spreckles Sugar Co., Inc.
- Soil Conservation Service
- Spraying Systems, Inc.
- Sukup Mfg. Co.
- Techmark
- The Dial Corp.
- Toro
- Tyson Foods, Inc.
- USDA
- Valmont Industries
- Vermeer
Not everyone gets to follow their first love into a career, but Neal Schlautman has. His path to that career didn’t take a direct route, but it did add to more choices and opportunities along the way.

Schlautman grew up on a farm in Nebraska. At an early age, he spent a lot of time with his dad fixing things and figuring out how they worked. From those early beginnings, a career in mechanized agriculture was implanted in his mind long before he really even knew that it had a name.

When Schlautman began the process of choosing where he wanted to go to college, he noticed that the University of Nebraska offered a degree in mechanized agriculture. “It piqued my interest. The courses sounded exactly like what I wanted to study and it was hands-on,” says Schlautman. “I hadn’t heard of that program before but decided it was for me.”

“Mechanization was my first love. I thought after college I would work for an ag equipment company,” he states. “But in the early ‘80s, the ag economy wasn’t doing well and I didn’t know how long it would take to revitalize the industry. So I pursued a dual major in mechanized agriculture and education. I decided to work on the education major just in case the ag equipment jobs weren’t available when I graduated,” he adds.

“The mechanized agriculture major was an excellent program. The classes all had a lab component to them,” Schlautman says. “We’d study the theory in lecture, then apply that theory in lab. We could connect the experiences from the theory to a real-world hands-on setting.”

Schlautman graduated in 1983 with a degree in mechanized agriculture (now called mechanized systems management) and ag education. His first love, however, was put on the back burner for a while.

“I had always wanted to work for an ag machinery/ag equipment company,” Schlautman says. “But the ag economy was still slow, so I decided to pursue the ag education route.”

That route took him to teaching ag education on the high school level. While teaching, he decided to pursue a master’s degree in agricultural education.

When an opportunity came from Iowa State to teach in their ag engineering program and work on a Ph.D., he went for it. An adjunct faculty member in the Biosystems Engineering Department from 1990-1993, Schlautman taught courses related to electric power while pursuing a doctorate in ag education with a minor in ag systems technology.

Along the way, Schlautman felt that he was lacking a background in electronic technology, so he decided to take a few courses in electronics and control. “It was something I was very interested in and a big growth area in agriculture,” he says.

With that background and the ability to apply it, Schlautman developed a new course in ag electronics. “It is still being taught and offers ag systems technology students things they need to know in the area of ag electronics,” he adds.

By the time he received his doctorate, the ag economy was picking up. “I had put mechanization in the back of my mind. I enjoyed teaching, but my first love was to be employed in the ag equipment industry working with electronics, mechanization, and hydraulics,” says Schlautman.

He left Iowa State when a position as an engineering technician/product engineer opened at T-L Irrigation Company in Hastings, Neb. T-L is an OEM manufacturer and worldwide distributor of hydrostatically propelled irrigation equipment.

Schlautman works in the engineering department, specifically on development and support of new and existing products. His day-to-day activities relate to hydraulic power and electronic control systems on T-L’s center pivot, corner, and linear move products. He also writes technical manuals regarding the installation and operation of these
machines and provides technical training to dealers on products.

“The technical classes offered in the ag technology programs at the University of Nebraska-Lincoln and Iowa State were a perfect fit for the position I am in,” says Schlautman. “The classes related to electrical power, electronics, hydraulics, engines, metals, computer applications, and irrigation systems were very helpful,” he adds.

Schlautman has spent time in Australia and New Zealand teaching dealers how to sell, install, and service T-L's products. He says that Australia is the company’s largest overseas market.

“Farmers are farmers worldwide,” adds Schlautman. “No matter where they live, they are interested in the bottom dollar and getting the best use of their dollars spent on irrigation equipment.”

Part of that irrigation equipment is T-L's Point and Precision Point Control System, a system that Schlautman developed.

“It was revolutionary because it enabled the operator to control his T-L pivot from the pivot point or a remote location. It involves electronics and electrohydraulic controls from the end tower. You can control the speed and direction of the end tower without having to actually see the tower,” notes Schlautman.

His interest in seeing how things worked as a kid is still very much a part of him. “It’s something different every day,” he says. “I look forward to new challenges, new projects, solving problems, and coming up with new solutions.”

From a dual college major to rewarding careers in both education and industry, Schlautman’s first love of mechanization has come full circle. Patience, hard work, and the ability to be flexible in his career has led him to where he has always dreamed of working.

“I love my job,” says Schlautman.

Photo top: Schlautman is shown demonstrating the use of T-L’s Precision Point Control panel. He was instrumental in the development of all three panels shown. The control panel is located at the pivot point, and the signals are sent to the end tower control.

Photo bottom: Schlautman has his hand on the electrohydraulic end tower control for T-L’s center pivots that he developed. The control utilizes 24VDC solenoid valves to control the speed and direction of the pivot as commanded by the control panel at the pivot point.
Ask Rob Meade, employment specialist with GROWMARK, if he loves his job, and you’ll receive a resounding “Yes!” Meade, an Iowa State grad with an agronomy major, travels college and university campuses every fall searching for “good fits.” Connecting with students over pizza and analyzing interests and skills are only a couple of Meade’s very evident talents as a recruiter for GROWMARK’s thriving internship program.

Recruiting is the highlight of his career, as he will emphatically tell you, “I know the importance of an internship. It can make or break a career choice and define a student’s future. At GROWMARK we can hire someone full time for 12 weeks and, at three months’ end, a student will intuitively know whether or not the field is a fit … and we will, too! I try to ascertain who will be a most likely fit and where, tailoring by student desire and placement availability.”

GROWMARK, headquartered in Bloomington, Ill., is a federated, regional agricultural cooperative that provides products and services to member cooperatives throughout the U.S. Midwest and the Canadian province of Ontario. Local member cooperatives, in turn, provide farmers and others with crop inputs, energy products, feed and animal health products, grain handling systems, lawn care products, grain marketing services, and more. If a student is looking for a summer experience to test his skills and level of interest, there’s most likely a hands-on internship opportunity in one of GROWMARK’s agri-business areas that will inspire.

“The summer internship program is a great place to learn — not only about the company and its philosophy, but about you — your interests and goals,” says Steve German, a personnel specialist and Meade’s peer leader. “GROWMARK’s program started in 1959, conceived and introduced by faculty at Southern Illinois University who desired a work program for students. I think GROWMARK has the oldest running program in the Midwest. Over 500 have gone through it, all hand-selected by a recruiter like Rob, who really knows how to interview and discern the best for the student and the company. Most students get college credit, but all get a good, competitive wage. GROWMARK stays away from ‘12 weeks of taking soil samples.’ Each student makes a minimum of six sales calls, learns the computer systems, and explores as many different opportunities as possible from mid-May to mid-August.”

“Internships clarify career goals,” says Meade. “Some students say at the end of the summer, ‘This isn’t what I thought it would be.’ Most say, ‘How soon can I come back?’ ”

“Over 50 percent in the internship program are hired for a post-graduation job,” adds German. “It’s a good investment for the company. We get to view a person in the workplace for 12 weeks and see their performance potential. In return, new blood always revitalizes a company, and the program feeds on itself. Satisfied interns return to their campuses, promoting the experience, and we enjoy the luxury of many applicants!”
Both Meade and German agree that internships provide an edge. Students in the GROWMARK program are required to do special projects — from customer satisfaction surveys and consolidation studies to territory analyses and equipment testing. Not only do students become savvy with in-depth interview processes, they get acquainted with power point presentations for CEO staff and the company board of directors. From Cobleskill/ SUNY to Iowa State, students who intern with GROWMARK can say they’ve worked for a class-act company. It’s like a gold seal on a resume, and many serve as campus ambassadors — old interns returning and introducing internships with GROWMARK at campus career fairs.”

Scott Rohrbach, who recruits interns, and Beth Hinchee, who oversees their rotation and the entire program for Caterpillar®, are equally enthusiastic about internships. Student intern opportunities are available with the global company giant, the world’s largest manufacturer of earthmoving equipment and diesel engines, at any point during an academic year — spring, summer, or fall, and the possibilities can be gleaned at www.catcareers.com/online. “If a student posts for one position, they will be considered for all positions for which they qualify,” says Rohrbach. “In addition, Caterpillar® offers a Student Trainee Program which provides exciting and challenging opportunities for high school and community college students attending school in the Peoria, Ill. area where we are headquartered. Students can work and learn in a high-tech business environment,” adds Hinchee.

Rohrbach seeks out the students who sign on for a Caterpillar® interview at campus career events. Recently returned from visiting with prospective candidates at The Ohio State University, he generally looks for individuals who have an interest and have demonstrated leadership in campus activities. “A good fit for Caterpillar® is someone who has a 2.8 or higher GPA and interests or experiences that align with the company. If the student wants to solidify what they want to do in life, an internship is the place to start.”

Hinchee says internship benefits are immediate and long lasting. “We offer a competitive pay package, help find housing, and if possible, place several interns together where, during the course of their internship they can socialize but also compare their experiences. Each intern is placed with a coach or mentor and does ‘real work.’”

Caterpillar® relishes the opportunity to see what students are learning in school, how their educations align with the needs of the company and thereby evaluate and make better hiring decisions. The benefits for students and the company are seen as equal.

Rohrbach confirms that interns have an advantage in post-graduation hiring. “Those students have prior experience with the company and insider knowledge. The big plus is knowing people within the ranks who can give assessment of abilities and skills. In general, a successful intern would have a high likelihood of being hired when they finish with their college education.”

Caterpillar Inc. has a worldwide dealer network and is a leading manufacturer of construction and mining equipment, diesel and natural gas engines, and industrial gas turbines. A global strategic player, products and components are manufactured in 49 U.S. facilities and in 59 other locations in 22 countries around the globe. “I tell students, ‘Who knows where an internship with Caterpillar® could take you?’” says Rohrbach. “Like our Web site says, Caterpillar® is a symbol of strength, respect, and integrity all over the world, a global company with opportunities to travel and work at locations across America and abroad. We have manufacturing facilities in 21 countries, marketing headquarters in 11 countries, and distribution centers in 19. Caterpillar® isn’t just big yellow machines. It is people — thousands of people all over the world working together to make progress possible. And many of them began as student interns.”

… an internship … can make or break a career choice and define a student’s future. … we can hire someone full time for 12 weeks and, at the three months’ end, a student will intuitively know whether or not the field is a fit … and we will, too!
Exploring New Paths

by Suzanne Howard

Making a difference

farm safety is a passion for this ag systems graduate

A common piece of rescue equipment for folks involved with operating grain handling systems is a project that ASABE member Douglas Kingman feels passionate about. The device, which he developed and named the Liberty Tube™, is used to extricate a victim engulfed in flowing grain in farm and commercial grain storage structures.

“I knew an ag teacher who was killed on a ranch. It probably provided a motivation for me to work in the safety area,” Kingman says. “Working in an ag environment involves dangerous equipment and people who may not speak English. Any way I can affect the design of equipment to improve safety, particularly in grain bins, is a passion of mine.”

Kingman is an assistant professor of agricultural engineering technology at Illinois State University and also an independent agricultural and industrial safety consultant.

Becoming a college professor wasn’t part of Kingman’s original career plans. Kingman decided to go into agricultural systems management because, “I wanted to study the application of engineering principles instead of just the study of engineering without application. He attended Texas A&M University and graduated in 1991 with a bachelor’s degree in agricultural systems management. After graduation, he worked as an irrigation equipment salesman, a USDA-ARS research technician, and a ranch maintenance manager.

“Working at Camp Cooley Ranch (Franklin, Texas) was a dream job,” says Kingman. “It was fantastic being around cattle and horses, driving trucks with big stickers, charge accounts everywhere. We worked 18 hours a day, six to seven days a week. All that “ranch glamour” wears off though after about 2½ years,” he adds.

While working at the ranch, Kingman became a mentor to some of the high school students who helped out during the summer. Finding that role meaningful, he began to think about a career in ag education.

He returned to Texas A&M and earned a master’s degree in education in 1998. It was there that several ag engineering professors told him he should consider teaching at the university level. The same year he graduated, he got an opportunity to work in ag safety at Purdue University. There he obtained a second master’s degree in agricultural systems management in 1999 and a doctoral degree in agricultural systems management in 2002.

“The potential for promotion with an ag systems degree is wide open,” Kingman says. “My dad was an engineer, but usually ended up working for business managers whose perspective was very broad and global. An engineer solves problems in a particular area. An ag technology graduate solves problems in an entire system.”

“Photo: Douglas Kingman developed the Liberty Tube™, a device used to extricate a victim engulfed in flowing grain in grain storage structures. A patent is pending.”
One good Cargill experience leads to another ... and another ...

Greg Deim is proof that internships during undergraduate years help map the future. Deim graduated in ‘03 with AST – Agricultural Systems Technology – on his sheepskin from Iowa State University, Ames. “I was scared of going to a school of over 26,000, but Iowa State has a small-campus feel and great ag faculty. I found work in the Career Service Office, and best of all, saw all the internship possibilities. Cargill must have liked me, because I was hired twice.”

Thriving in the interactions with growers and sales reps, Deim’s second internship experience led to a fascination with marketing and sales. “I developed a marketing/business plan from my first internship’s agronomy project. After I fine-tuned it, other sales reps were hired, giving the business plan feet to sell the project. When my second summer with Cargill came to an end, I agreed to stay on part-time as a consultant – to maintain the plan, follow the goals, and work a few hours a week. In November of my senior year, Cargill offered me a position to begin right after graduation.”

Although an Swea City, Iowa, farm boy, the Minnesota Twin Cities hold much allure. Deim enjoys the varied civic activities and events of the Minneapolis/St. Paul area. His perspective on big-city life has changed along with his job.

Deim continues to thrive, now with Mosaic, a powerful combination of two leaders in the fertilizer industry, IMC Global and Cargill Crop Nutrition. “Our business is improving crop yields and livestock nutrition. We’re the largest processed phosphate producer with interests in markets from China to Brazil. The product line is diverse and customized by providing the right tools for fertilizer application and market forecasting. From field mapping and soil testing to agronomic consulting and fertilizer blending, our services are incredible. I started as a sales/technical rep in charge of a territory, traveling from Nebraska to the thumb of Michigan. I then moved into product development and customer support, based in Minneapolis.”

Deim’s position has taken him to France to work with French colleagues on the FieldInSite program, now a Web-based system (www.fieldinsite.com).

“Thanks to terrific internships, my world view and love for the company has steadily grown. With Cargill, an intern meets and lives with other interns from all over the country and the world, and you learn three very important things. First, you get a feel for what your career might look like and a grasp of the company’s vision. Second, you find out what you like to do and what you don’t like to do. I learned that I didn’t like to be out in the field doing research; I really enjoy the marketing side, interacting with people. Third, you learn to grade other companies when looking for full-time positions. The internships became my benchmarks. Someone who hasn’t experienced an internship may not have a working view of corporate life.” According to Deim, a typical college student changes his or her career choices at least seven times, and internships can eliminate the waffling.

Deim wanted to be an architect in his high school years, but before graduation precision ag came to the Deim family farm. “We got our first yield monitor, and that got me really interested in the possibilities of a career in agriculture. My Dad said, ‘Why don’t you go to school and learn how to run this thing??’ ”

“There are more jobs in agriculture than you’d ever dream, and the big ag companies want people as close to the end-user as possible — especially those who can work well with family farmers. The farmer’s son or daughter knows the family farm. Sometimes technical people on a team have never even been on a farm. If you’ve got the background and the interest, it’s a matter of getting to the career service office and using the information from your university or college placement office. Students determined to find a great position should go in and get to know the people that talk to companies like Mosaic.”

The corporate future for Deim is bright, though he acknowledges he is often envious of his two older brothers and would enjoy being closer to the family farm. “It’s still a dream to work along side them,” says the outstanding young Iowa State alum.

Photo: Greg Deim takes pride in his position with Mosaic, where employee innovations are empowered and the environments in which it operates are safeguarded.
Ever wonder what type of student a professor looks for to pursue the ag systems management/technology programs? Ever doubt if maybe this is where you should be focused? Concerned that you’ve taken the right classes in high school to be able to succeed? Hope to have jobs available when you graduate?

These are all normal questions students may ask when pursuing college careers. Three professors, who teach in these programs, comment on what they are looking for and what the future holds for ag systems management graduates.

✔ Management skills

Aaron Yoder is an agricultural systems management (ASM) instructor at Penn State and an ASABE member. He earned a bachelor’s degree in ASM from Penn State and a Ph.D. in ASM from Purdue University and teaches courses in turfgrass and agricultural equipment and agricultural safety and health. Yoder says he would like to see more students take business classes in high school — courses such as business management and accounting and then perhaps pursuing a business minor in college.

“Management skills are good for everyone,” Yoder states. “You’re always using management skills when you are interacting with people in different areas.”

Yoder says many ag systems management graduates are in charge of engineers because they are the managers.

Safety is another area Yoder feels is important. He teaches an ASM class to third- and fourth-year students on hazard identification and control in production agriculture and related businesses. In addition, he has conducted research in the area of safety and health. He has studied injury statistics, youth tractor safety programs, and worked on revitalizing a national safe tractor and machinery operations program.

“If you are going to be a manager in charge of people, then safety is very important,” Yoder says. “I see more safety considerations being adopted by students when they are working.”

Yoder encourages students to join their ag mechanization clubs at the universities. A former ASM club advisor, Yoder says the clubs offer social activities and provide guest speakers in different careers to give students an opportunity to see where graduates have gone and what they have done with their careers.

“It’s challenging to keep students motivated to do club activities as classes come first,” Yoder says. “Overall though it is a good experience.”

Misconceptions about the ASM program do exist. “The ag systems management program is a broad curriculum,” says Yoder. “There is a misconception that it is just machinery. It can range from production agriculture to the environmental area to feed sales and food processing.”

So what kinds of students apply to the program? “ASM programs tend to attract students who are mechanically inclined and people persons,” Yoder notes. “They like to manage or work with other people. They would rather look at the bigger picture than a specific task,” he states.

✔ Relating to others

Neal Schlautman has the advantage of having been both a professor in the mechanized systems management program and having the opportunity to be presently employed in industry. He obtained an undergraduate degree in mechanized agriculture from the University of Nebraska-Lincoln and a Ph.D. in ag education with a minor in ag systems technology from Iowa State University. An adjunct faculty member at Iowa State from 1990-1993, he taught courses related to electrical power and ag electronics. He is currently employed as an engineering technician/product engineer for T-L Irrigation Company in Nebraska.

“The mechanized systems management program offers a wide range of courses,” says Schlautman. “Most of them have a lab component to them. You study
the theory in lecture and then apply it in lab. By connecting experiences from theory to a real world, hands-on setting, you begin to see things, and then it starts to click and you understand how it all works.”

A big growth opportunity in the agricultural area is electronics, Schlautman says. An interest in controls and electronics led Schlautman to develop an ag electronics course for ag systems technology students.

Classes that Schlautman says are important to take in high school are anything related to math and science. He also says to become involved in an ag program if your school offers one. In addition, Schlautman feels it is good to become involved in extra curricular activities. “It gives you a leadership component,” he says.

Schlautman, who is a member of ASABE, says being involved on the Society’s section level while in college helped him in his career.

“I was a Nebraska section officer. I touched base with other people in my area. We talked about different things we enjoyed, problems we had, and shared ideas,” says Schlautman.

He also advises students to attend the ASABE Annual International Meeting. “It was very rewarding.”

One area that Schlautman feels everyone should be skilled in, no matter what jobs they hold, is communications.

“You have to be able to relate with other people, your boss, coworkers, and the end user,” he says.

“Verbal/oral communication is important. You need to be able to express yourself and be articulate. You need to learn how to be tactful when talking to customers, peers, dealers, and others. Written communication becomes very important if you need to write reports,” he adds.

✔ People, money, machinery

Douglas Kingman, also an ASABE member, is an assistant professor of agricultural engineering technology at Illinois State University. He received his bachelor’s degree from Texas A&M and a master’s degree and doctorate from Purdue University, all in agricultural systems management. Kingman says an ag systems background is centered around the management of people, money, and machinery. He suggests high school students take courses that have to do with those areas such as accounting, science, physics, chemistry, and math.

Kingman also advises students to learn by doing things hands-on. He also encourages students to join Future Farmers of America (FFA). He is active in the FFA Career Development Event.

“The vision for this event is to reflect actual circumstances that a high school students would find in the job force, and solving problems – real world problems. FFA programs are teaching applied science and mechanics,” he says.

Kingman says ag systems management is a systems ways of thinking – a global perspective of some situation or problem environment. It is the application of engineering principles instead of just the study of engineering without application.

“Consider a farm. What comes on the farm affects the farm in some way. It is the same way a new person will affect every other person in the office,” says Kingman. “That is a systems way of looking at management of people.”

That introduction of an item, a thing, or a person affects the entire system. Understanding how it affects that system is called systems thinking.

“Theory will carry the day. What will separate you from other managers is the ability to comprehend the natural phenomenon in mechanics and having the ability to solve programs,” notes Kingman.

As for the future of ag systems management programs, Kingman would like to point them in the direction of innovative, agricultural enterprises, niche markets, and non-traditional areas.

“Consider a farm. What comes on the farm affects the farm in some way. It is the same way a new person will affect every other person in the office,” says Kingman. “That is a systems way of looking at management of people.”

There is nothing wrong with traditional perspectives, but there is a lot of technology in ag production areas that isn’t traditional, and students ought to be ready to get those jobs,” Kingman states.

Average starting salaries are comparable and sometimes even exceed the starting salaries of engineers, Kingman says. “An engineer solves particular problems in a particular area,” notes Kingman. “Ag systems people manage systems and solve problems affecting that system. A hot job market exists for ag systems management graduates,” adds Kingman.
Exploring New Paths

A Texas A&M grad of ’97, Colin Woodall hails from Big Spring, Tex., in the western part of the Bluebonnet state. “Cotton is the biggest crop,” says the AGSM degree holder, “and the second biggest is oil. It’s a great small town, the Howard County seat where Friday night football rules, and folks are committed to relationships with neighbors and friends.”

Once a very active member of the ASABE chapter at Texas’ first institution of higher education, Woodall has nothing but praise for his alma mater. “My four years at Texas A&M were a fabulous experience … it’s the place to go for agriculture studies in Texas. Growing up, I attended annual 4-H competitions there every year and knew some faculty and extension members before I enrolled as a freshman. My younger sister is a student there now.”

Woodall smiles as he acknowledges that he might have the rich soil of Texas flowing through his veins. “It seems to be hereditary. My dad rodeoed in high school and college and found his lifework as a vocational ag teacher. My younger brother works for C-Board Farms, managing pig barns in Oklahoma, and my mom’s side of the family were all in the cattle business. Agriculture has always been a part of our life. As a young kid I remember hauling hay and asking myself, ‘What could I do to be educated and never have to haul hay?’ Today, sometimes when I’m working at my desk, I think: ‘I’d rather be hauling hay!’ ”

After graduation, Woodall went to work for Cargill, Inc. at the company’s granary operation in WaKenny, Kansas. He learned the basics of the grain elevator and commodity business: “ … everything from buying to selling in a management program tailored to the individual person.”

The short training program complete, Cargill moved Woodall into management and a few more miles from home, to Hugoton, where his main task was working with farmers around the countryside: buying, marketing, and apprizing farmers of the current market conditions. He managed a solid granary team, keeping his staff up-to-date in safety training, taking good care of the elevator and grain, and in about a year, Woodall was promoted to regional merchandising manager where he worked in grain sales throughout southwestern Kansas, and the panhandles of Oklahoma and his home state, Texas.

Having caught a case of what he calls “the Potomac bug,” Woodall decided to try his hand in politics and moved to Washington, D.C. With President Bush in office, past governor of Texas, Woodall was fortunate enough to know a few people “from home” who knew of opportunities in the nation’s capital. He signed on for two years with Texas’s Senator John Cornyn adeptly engaging in water and water management issues and agricultural and energy appropriations.

“Washington, D.C. is a cyclical town. It offers up scores of job possibilities, and on the Hill, there’s a different take on work. There isn’t the perception that you have to stay in one slot for a long time. Folks change jobs often … some work for the President for a while, some lobby for a while … so, like most, I moved on, too.”

Woodall found a cowboy-boot-comfortable fit as manager of legislative affairs for the National Cattleman’s Beef Association. “My days consist of burning a lot of leather on Capital Hill, meeting with senators, congressmen, and their staffs, to make sure they are aware of the most recent food safety, international trade, and agricultural issues. There are 435 members in Congress, 100 senators, many staffs and committees, lots of people to get to know. My job is to make sure that they know what the National Cattleman’s Beef Association is all about, to follow legislation that has been introduced and to lobby accordingly, to enhance the business climate for American cattle producers by doing my best to influence legislation and the regulatory process, getting the cattleman’s point of view across.”

Woodall has been manager for four years, living in Maryland with his wife, an architect, just across the D.C. line. His hometown tendencies — amicability and relationship building — have served him well. He is on first-name, familiar terms with members of Congress, particularly those from agricultural states, always striving to
influence the legislative process in way that help the beef industry. “Coming from a town of 1,500, I experienced culture shock when I arrived — getting used to traffic, the big-city way of life, riding the subway. It was a steep learning curve, but I got into the groove navigating new territory, and I found my groove as well. People involved in agriculture in D.C. are a close community, and it’s easy to make friends at work and outside of work. That eased the transition. There’s so much to do here: live theatre, the arts, symphonies … and it’s all happening only a few miles from where I live. My wife and I have stepped up our knowledge of the nation’s history, too, visiting civil and revolutionary war battlefields.”

A long way from hauling hay in the hot Texas sun, Woodall had to buy eveningwear – an all-purpose tuxedo. He often finds himself at various embassies for formal receptions and parties, especially with countries he deals with in international trade. And, not long ago, all of his Texas clan came to attend an elegant inaugural ball with the D.C. Woodalls. Most day-to-day meetings, however, take place in House or Senate office buildings on either side of the capital. “Security makes it tough to roam the capital like lobbyists used to do many years ago,” says Woodall.

“I have always followed the political process though never worked on campaigns or got heavily involved. But I’m hooked now and want to be here for quite a while. This is a neat opportunity to see the American political process at work, to stay abreast of our amazing system, and realize first-hand how lobbyists affect it. I am thankful every day for my job. The National Cattlemen’s Beef Association is the marketing organization and trade association for America’s one million cattle farmers and ranchers. It is a consumer-focused, producer-directed organization representing the largest segment of the nation’s food and fiber industry. As family farmers and ranchers, cattlemen have a vested interest in protecting the environment. They raise livestock in more states than any other commodity, helping to sustain a way of life in thousands of rural communities.”

His advice, given in longhorn twang, is to “find the technical side of things you’re interested in as an ag systems student. Take classes in commodities, or whatever you particularly like, that give you an advantage. I think that’s better than having a degree in political science. It provides a real-world background for analysis of the political process.”

Photo: Colin Woodall fills big boots and wears Texas leather well lobbying for the National Cattlemens Beef Association on Capital Hill.
Exploring New Paths

by Suzanne Howard

Computers in ag technology doesn’t stop for anyone

Agriculture and computers are crucial to each other in guidance precision systems. Just ask Jay Hogfoss, one of the youngest people to work for Trimble Navigations, a leading innovator of Global Positioning System technology.

Hogfoss graduated from the University of Minnesota in Crookston (UMC) in 2003 with a degree in ag systems management and an emphasis in precision agriculture. He minored in information technology management.

“Most of my classes from the computer side adapted over to the agricultural side. It’s using technology in a different sense,” states Hogfoss.

That technology has led Hogfoss from his first post-college position at Titan Machinery, one of the largest Case-IH dealership networks in the United States, to Trimble Navigations.

He didn’t veer too far from Case-IH though. His work for Trimble has him based at the main Case-IH plant in Racine, Wis. He and another Trimble employee currently provide support there for all the Case auto-guidance systems.

“It’s the best of both worlds,” says Hogfoss. “I love it because I get to work with Case-IH auto-guidance systems plus I get to see all the new toys about a year in advance,” he adds.

On a typical day, Hogfoss answers questions from dealerships on the auto-guidance systems. In addition, he goes to farm shows and talks about the products. He also helps set up photo shoots on the systems.

Hogfoss says he was initially surprised at how much dealerships use computers. “It was a lot more than I anticipated,” he says. “It’s a neat thing.”

Hogfoss feels his degree from UMC helped prepare him for the real world. “It was a smaller school, and I was able to get a lot of personal one-on-one time with instructors,” says Hogfoss. “They were willing to spend extra time if I had questions or wanted field experience. One of the instructors was a farmer, so we were able to go out to his field and experience GPS equipment hands on.

That hands-on experience served him well. Case looks for potential employees who know how to use GPS equipment. “Coming from Crookston (UMC), I was able to say that I had worked with the equipment,” says Hogfoss. “If you have some knowledge, it’s a lot easier to get a job.”

Hogfoss admits technology doesn’t stop for anybody. “Agriculture and computers are going to work together,” he says. “The most difficult part is trying to keep up with the new technology. Something new is always coming out!”

Photo: Jay Hogfoss, an employee of Trimble Navigations, provides support for Case-IH auto-guidance systems.
One draws on the other

graduate combines ag technology with ag engineering

Graduating from a small high school, ASABE member Joshua Bacon knew he wanted to continue at a smaller college. The University of Wisconsin-River Falls seemed an ideal fit where he enrolled in the ag engineering technology program. Upon graduating in 2000, he took a position as a technical service analyst for New Holland.

A desire to conduct research led Bacon to continue his education at the University of Wisconsin-Madison in agricultural engineering. He had to backtrack a bit to pick up 18 credits in undergraduate work in engineering, but he obtained his master’s degree in agricultural engineering in 2003.

While in college, Bacon had the opportunity to spend a semester abroad in Scotland in the “Wisconsin in Scotland” program. While there, he conducted research on willow harvesting as an intern at the Scottish Agricultural College.

“What they are doing in Scotland is so different than what we are doing here,” says Bacon. “They are interested in biomass and alternative energy. They are always looking for more renewable resources. You see less of that here in the United States but this focus is probably going to grow here,” adds Bacon.

In addition, Bacon got to experience a different culture. “Pubs were very much a part of society, and driving on the left-hand side of the road and tasting Scottish food were all new to me,” says Bacon. “I had to beg my parents to send me Mountain Dew over the ocean,” laughs Bacon.

A graduate school project developing an alternative crop processor for forage harvesters and funded by Deere & Co., helped him develop a relationship with the company. When a position opened for a product specialist for forage harvesters, Bacon applied.

Currently a test engineer for John Deere in California, Bacon maintains day-to-day operations of test machines and the test program for self-propelled forage harvesters. The testing consists of hitting objectives for hours and usage, reporting of failures, working with engineers for ways to fix the machines, and solving overall issues.

Bacon feels his dual degrees in ag technology and ag engineering serve him well. “A test engineer draws on both sides,” he says. “If I was just an engineer, I might not be as prepared to handle field work. If I only had the ag systems person background, it would be more difficult to analyze what is going on when I assess failures,” he adds.

Bacon feels there will always be positions in ag systems technology. “No machine in any market is perfect that I know of,” says Bacon. “There is always room for improvement … always things that need to be done and we need qualified people doing these tasks. We are always going to need agriculture,” he adds.

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“Pubs were very much a part of society, and driving on the left-hand side of the road and tasting Scottish food were all new to me,” says Bacon. “I had to beg my parents to send me Mountain Dew over the ocean,” laughs Bacon.

A graduate school project developing an alternative crop processor for forage harvesters and funded by Deere & Co., helped him develop a relationship with the company. When a position opened for a product specialist for forage harvesters, Bacon applied.

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Photo: Joshua Bacon is a John Deere test engineer specializing in large forage harvesters.
Where to begin …  
Start your search today!

The schools listed below and on the next page list programs in agricultural systems and technology. Contact them directly for more information about their individual programs. They will be happy to tell you more and even arrange for you to visit their campuses. Many of these programs are administered by the Agricultural and Biological Engineering Departments.

California Polytech. State Univ.  
Agr. Sys. Mgmt. Program  
San Luis Obispo, CA 93407  
Phone: 805-756-2378  
www.brae.calpoly.edu

California State Univ. - Fresno  
Plant Science Dept.  
Mail Stop AS-72  
College of Ag Science & Tech.  
Fresno, CA 93740  
Phone: 559-278-2861  
www.csufresno.edu

Clemson Univ.  
Agr. Mech. & Business Program  
221 McKadams Hall  
Clemson, SC 29634-0312  
Phone: 864-656-4077  
http://virtual.clemson.edu/groups/abmgioeng/

Cornell Univ.  
Biological & Environ. Eng. Tech. Program  
Riley Robb Hall  
Ithaca, NY 14853-5701  
Phone: 607-255-2173  
www.engr.cornell.edu/

Fort Valley State Univ.  
Agr. Eng. Tech. Program  
Ellison Bldg.  
Fort Valley, GA 31030-4313  
Phone: 478-825-8275  
www.fvsu.edu

Iowa State Univ.  
Agr. Sys. Tech. Program  
102 Davidson Hall  
Ames, IA 50011-3080  
Phone: 515-294-1434  
www.abe.iastate.edu

Kansas State Univ.  
Agr. Tech. Mgmt. Program  
129 Seaton Hall  
Manhattan, KS 66506-2906  
Phone: 785-532-5580  
www.bae.ksu.edu/

Michigan State Univ.  
Tech. Sys. Mgmt. Program  
215 Farrell Hall  
East Lansing, MI 48824  
Phone: 517-353-7268  
www.egr.msu.edu/age/

Mississippi State Univ.  
P O Box 9632  
Mississippi State, MS 39762  
Phone: 601-325-3280  
www.abe.msstate.edu/

Montana State Univ.  
Construction Eng. Tech. Program  
Bozeman, MT 59717  
Phone: 406-994-6121  
www.coe.montana.edu/ce/

North Carolina State Univ.  
Agr. & Environ. Tech. Program  
P O Box 7625  
Raleigh, NC 27695-7625  
Phone: 919-515-2694  
www.bae.ncsu.edu/bae

North Dakota State Univ.  
Agr. Sys. Mgmt. Program  
P O Box 5626  
Fargo, ND 58105-5626  
Phone: 701-231-7261  
www.ageng.ndsu.nodak.edu

Nova Scotia Agr College  
Bio-Environ. Sys. Mgmt. Program  
P O Box 550  
Truro NS B2N 5E3, Canada  
Phone: 902-893-6710  
www.nsac.ca/bioenvironmental

Ohio State Univ.  
Agr. & Const. Sys. Mgmt. Program  
580 Woody Hayes Drive  
Columbus, OH 43210-1057  
Phone: 614-292-6131  
www.fabe.osu.edu
Round Out Your Future with ASABE

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Most of the universities listed on pages 26 and 27 have ASABE student branches. These clubs provide an excellent opportunity to meet, work, and have fun with other like-minded students. The branches organize technical tours to local industries, develop their own fund-raising events, host cookouts and receptions for alumni and faculty, form athletic teams, take trips, compete as a team in ASABE international competitions, and get together to have fun.

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