Soil Quality Impact: Graduate student leads network of minority students experienced entrepreneur mentors students at alma matter sociologist studies community action in natural resources
In my house dirt is a four-letter word.

My husband is an ISU Extension field agronomist, and soil scientist by training. I learned early on "soil is only dirt if it’s on the kitchen floor." And even then, the word “dirt” invokes rolling eyes from my husband.

I agree with him that soil is our greatest resource, and quite literally the bedrock of our society. I’ve taken enough science and agronomy courses to understand we need healthy soil for a healthy world. But, I must admit it is hard for those of us not elbow deep in it to truly appreciate it, to understand the miniature ecosystem teeming within, to comprehend the capacity of this immense resource and all its ability. Thankfully we have world-class researchers and teachers at Iowa State like Bob Hutmek, Michael Thompson, Jon Sandor, Andrew Manu and others to explore and explain this great resource. In the impact section you’ll learn about soil’s role in the carbon cycle and how researchers continue to uncover new information about soil to help preserve and enrich this resource while sustainably producing crops.

Our alumni always show us great hospitality by inviting us into their lives and we’re thankful for it. And sometimes surprised. It was greeted by a roaring birthday serenade from my fellow Iowa Staters at Don Jordahl’s annual alumni get-together last summer. It still makes me blush. Warm welcomes are business as usual with our alumni, especially at Don’s.

Don’s hospitality, Roger Underwood’s investment in entrepreneurship and Roger Brune’s involvement in his Florida alumni club described in our alumni profiles are just a few ways alumni continue to serve the college. Others have set up memorial scholarships, bring kids for campus visits or talk about Iowa State with colleagues. Thank you! You are our greatest, most abundant resource for raising awareness about what we do in the college. If there’s something happening at Iowa State that is especially meaningful to you, please let us know. And, please consider sharing our stories with a potential student, a neighbor or anyone who may find them interesting, useful or enlightening.

Kind regards,
Mekela Neicks Licht

Lois Wright Morton tends to her bees on her acreage near Ames. The rural sociologist studies how communities work together to address water quality issues and otherwise better their quality of life.

**“WE MUST FIND INNOVATIVE WAYS TO MANAGE OUR AGRICULTURAL LANDS TO PROTECT AND ENHANCE OUR FRAGILE NATURAL RESOURCE BASE WHILE PRODUCING AGRICULTURAL FOODS, FEEDS, FIBERS AND FUELS.”**

Morton is currently writing a book titled *The Citizen Effect: Pathways for Getting to Better Water Quality Outcomes*, which looks at how citizens can work together within their watershed community to address non-point source agricultural land quality issues on working agricultural lands.

Morton stresses that much of her academic success is directly related to her colleagues and graduate students, who she appreciates for their fresh perspective and enthusiasm.

Morton’s future research will look at our natural resource base and the “co-production” of agricultural products and environmental services.

*Here in the Heartland, we must find innovative ways to manage our agricultural lands to protect and enhance our fragile natural resource base while producing agricultural foods, feeds, fibers and fuels,” she says.*

**“Here in the Heartland, we must find innovative ways to manage our agricultural lands to protect and enhance our fragile natural resource base while producing agricultural foods, feeds, fibers and fuels,” she says.”**

By Nick Van Berkum

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**THE more you know about Cyst Nematodes, the easier it is to characterize them. Villainous.**

The microscopic cyst nematodes are devastat- ing plant parasites that transform plant cells into elaborate feeding machines. They infect many cultivated plants. In Iowa, the soybean cyst nematode is the bane of the nation’s leading soybean producing state, with tens to hundreds of millions of dollars a year in yield losses.

Worldwide, plant-parasitic nematodes are blamed for an estimated $125 billion in annual yield losses to crops. Most harmful is how the parasite impacts people who depend on a healthy food system.

*“Plants have defenses, but the nematode’s tricky. It turns off the plant’s defenses. The plant tries to fight back, but the nematode whipsars sweet lies. It’s telling the plant, ‘Relax, nothing’s happening.’”*

Deceitful. "The cyst nematode is considered one of the highest evolved kinds of plant parasitism. It doesn’t kill the host plant. It needs living cells. It learns how to speak the plant’s language and, subsequently, leads it down the wrong path.”

The nematode can effectively counter most defensive moves the plant throws at it. Baum says the worm can alter signal transduction in the plant — the chemical language that communicates actions in plant development. The nematode makes these events faster, slower or turns them off — all to its advantage.

Nefarious. Baum and his colleagues are working on the next front — how to make plants more resistant to those sweet lies.

One technique they’re studying is RNA interference. RNA, present in all living things, is key in producing proteins and transmitting genetic information. In lab studies, they’ve found it’s possible to make nematodes ingest plant RNA that turns the tables on the parasite disarming a key nematode gene.

*“It’s not perfect, but our studies show this technology is promising in reducing infection,” Baum says. “It’s a good start for plant resistance.”*

The research, which has been supported by Iowa’s and the nation’s soybean growers, the National Science Foundation and the USDA, may translate into a very different kind of vocabulary to describe the nematode. Like: Ineffective.

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**“Here in the Heartland, we must find innovative ways to manage our agricultural lands to protect and enhance our fragile natural resource base while producing agricultural foods, feeds, fibers and fuels,” she says.”**

By Nick Van Berkum
Powell-Coffman, who grew up in California, received her bachelor’s degree in animal physiology from the University of California-Davis and a doctorate in biology from the University of California-San Diego in 1993. After joining the faculty at Iowa State University of Iowa, who is developing C. elegans as a system to understand how animals resist fungal pathogens.

Her love of teaching is integral to her research programs. Her research group made discoveries that inform and influence the efforts of other scientists working to understand development or the ways in which cells respond to stress. For example, Powell-Coffman is working with Scott Moye-Rosley, professor of molecular physiology and biophysics at the University of Iowa, who is developing C. elegans as a system to understand how animals resist fungal pathogens.

“ONE OF OUR MAJOR GOALS IS TO LEVERAGE THE POWER OF GENETICS TO... PROVIDE INSIGHTS TO TREATMENTS THAT WILL IMPROVE HUMAN AND ANIMAL HEALTH.”

Powell-Coffman says, “I think programs like ADVANCE help Iowa State compete for the best talent in a changing world, and that, in turn, allows us to better educate our students and serve the community.”

Jo Anne Powell-Coffman and her research group has developed a genetic model that allows for close study of how animals adapt to changes in oxygen levels.

“Developed a genetic model that allows for closer study of...”

Powell-Coffman, an associate professor of genetics, development and cell biology, “was much happier working to decipher molecules and pathways that govern human health and animal development, and that has been the focus of my research career.”

“One of our major goals is to leverage the power of genetics to... provide insights to treatments that will improve human and animal health.”

Powell-Coffman’s research group at Iowa State has funding for their research comes from the National Institute of General Medical Sciences. “One of our major goals is to leverage the power of genetics to learn how to manipulate oxygen-responsive molecules and pathways and to provide insights to treatments that will improve human and animal health,’ Powell-Coffman explains.

Her research group made discoveries that inform and influence the efforts of other scientists working to understand development or the ways in which cells respond to stress. For example, Powell-Coffman is working with Scott Moye-Rosley, professor of molecular physiology and biophysics at the University of Iowa, who is developing C. elegans as a system to understand how animals resist fungal pathogens.

Her love of teaching is integral to her research programs. Her research group usually consists of six to 10 people, and most of them are graduate students. They are each amazing and talented individuals. It is a real privilege to work with them and help them develop their independent career paths in science,” she says.

In addition to her research, for the past two years, Powell-Coffman has contributed to the National Science Foundation-funded ADVANCE program on campus, which aims to increase recruitment and retention of women in scientific and technological fields.

“I am acutely aware of the challenges and choices that women encounter as they balance their commitments to research science and university education with the day-to-day responsibilities and rewards of family life,” she says.

Powell-Coffman is married to Clark Coffman, an assistant professor in the Department of Genetics, Development and Cell Biology. They have two children.

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By Ann Marie Edwards
Mike Gaul understands the students who arrive at college unsure of what they want to do after graduation. He understands because he was one of them.

Gaul, director of agriculture and life sciences career services, grew up in a Chicago suburb. “My father had beehives on a nearby acreage and at one point he considered switching careers from personnel management to owning an orchard or dairy farm. I grew up a city kid, but I’ve always loved being outdoors,” he says.

He earned a degree in biology at Luther College in Decorah. Not sure what to do next, he came to Iowa State University’s agricultural college in 1986. “Horticulture was becoming trendy,” Gaul says. Anticipating a need for more graduates with high-level horticulture skills, he majored in horticulture. Gaul talked with him about wanting to do something more.

“Mike was very open and Mike was hired as an assistant greenhouse manager,” Rogers says. “I knew that Mike was bright and he was going to do something great.” Gaul, his successor as career services director, for his work “tackled the role technology plays in a student’s job hunt. For the first time, we can recruit effectively at Iowa State.”

Recruiters say Gaul is a strong advocate for students. “Mike does a great job of understanding the type of candidates we need and makes sure we don’t miss a potential fit,” says Tim Heiller (’90 animal science), Eliana’s Animal Health sales representative. “He makes it easy for us to recruit effectively at Iowa State.”

The biggest change in Gaul’s time at the helm has been the role technology plays in a student’s job hunt. For the past four years, Gaul’s office has connected students and alumni with employers through the online Iowa State University Career Management System. About 12,000 companies are registered with the site.

The office’s Web site also includes features on young alums and student internships, and provides details on career days, on-campus interviews, job openings, salary data, writing resumes and more.

Chad Meyer (’93 ag business) is client relations/communications director for MaxYield Cooperative. “Mike’s office combines the best of both worlds in recruiting,” he says. “You can use their Internet-based system to post jobs, and you can call Mike to personally discuss openings and who might be a good fit.”

Meyer describes the effort Gaul and his team makes to prepare students for internships and career planning as “second to none. There is not another college we go to that has its students as prepared for internships and careers,” he says.

As director of career services for the college Mike Gaul oversees two annual career days including this fall event which drew more than 160 companies in 2008. Gaul's office has connected students and alumni a total of 25,000 in the past four years. 2008, Gaul added a spring career fair, with 100 companies participating. More than 160 companies and 1,200 students participated.

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increase the number of horticulture-related companies Gaul had worked with in his annual’s career fair. When Bruene retired in 1998, Gaul stepped in. “I wanted to continue the legacy Roger established, which was always putting students first,” Gaul says. “We have the best students on campus, and we work in a great industry.”

Recruiters say Gaul is a strong advocate for students. “Mike does a great job of understanding the type of candidates we need and makes sure we don’t miss a potential fit,” says Tim Heiller (’90 animal science), Eliana’s Animal Health sales representative. “He makes it easy for us to recruit effectively at Iowa State.”

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More than 160 companies and 1,200 participants attended the 2008 fall career fair. In the three days surrounding the fair, 650 on-campus interviews were conducted. In 2008, Gaul added a spring career fair, with 100 companies participating. More than 160 companies and 1,200 students participated.

Statistics show 98 percent of recent Iowa State College of Agriculture and Life Sciences graduates were employed, pursuing advanced degrees or serving in the military within six months of graduation. Nearly 70 percent stayed in Iowa for their first jobs.

STORIES ONLINE EXTRA: Visit the Agriculture and Life Sciences Career Services office online at: www.ag.iastate.edu/stories.
Announced Outstanding Beginning Scholar by the Association for Career and Technical Education Research, the award was presented for outstanding scholarship at the conference and 45th anniversary kickoff on Dec. 19. The award recognized Iowa State’s Department of Agriculture and Natural Resources with the association's first lifetime Achievement Award at its annual policy conference.

Community Award for Faculty and Staff. Iowa State’s MANS (Minorities in Agriculture, Natural Resources, and Related Sciences) chapter nominated de Baca for the award.

• Robert Arne, agricultural and biosystems engineering, has been named to the Science and Technology for Sustainability Subcommittees of the U.S. Department of Energy and the U.S. Department of Agriculture.

• Dermot Hayes has been named to the Biomass Research and Development Board of Scientific Counselors.

• John Lawrence, Iowa State University Extension livestock economist and economics professor, has been appointed to the Advisory Committee on Agriculture Statistics.

• The National Academies has appointed agronomy professor Michael Owen to the National Research Council Committee on the Impact of Biotechnology on Farm Economics and Sustainability.

• Dean Wendy Wintersteen has been named to the Board of Trustees of the Farm Foundation. The Farm Foundation works as a catalyst for innovative research on the effects of drought stress on major crops.

• Larry Johnson, professor of food science and human nutrition, has been named director of the BioCentury Research Farm, a biorenewables production and processing research facility under construction west of Ames. The BioCentury Research Farm, formerly called the New Century Farm in initial planning, is under development as part of ISU’s Agricultural Engineering and Agronomy Research Farm.

• Mark Westgate, professor of agronomy, has been named director of Iowa State’s Center for Sustainable Rural Livelihoods. Westgate is internationally recognized for his research on the effects of soil health on crop yields.

• Lomai Fakauve, professor and head of the Crop and Soil Science Department, has been named a Fellow of the American Society of Agronomy.

• Brittni Brown, a graduate student in agricultural and biosystems engineering researching commodity traceability, is doing a case study on the traceability of milk.

“arceability is a hot topic. When the food industry has problems with items like peanut butter and spinach, companies need to identify where the product has been distributed. Brittni Brown, a graduate student in agricultural and biosystems engineering researching commodity traceability, is doing a case study on the traceability of milk. “We are expanding the knowledge base on traceability, and it’s going to be very exciting to do this research in food systems.” Brown says. “With other industries you can take the parts and trace them back to where they were made, like a car. What we’re doing is very similar.”

Education is everything to Brittni Brown and it’s evident in how she articulates her goals and accomplishments.

Every summer since she graduated from high school Brown has interned at the U.S. Department of Agriculture Food Safety Inspection Service (FSIS). She’s evaluated and inspected everything from food markets to meatpackers.

“I have conducted audits on beef exports in the middle of July in a meatpacking plant in Amarillo,” Brown says. “It made me appreciate my education. It also makes me feel safer about the food I eat.”

The internships are a component of the USDA 1890 Scholars Program, a scholarship she received in high school. The USDA partners with 1890 land grant universities (historically black colleges and universities designated as land-grants in 1890) to provide the scholarships and internships.

After she graduates this summer she’ll move to Washington, D.C. to begin a permanent position with FSIS.

“The funny thing is that I started out wanting to be a doctor. Once I started interning with the USDA, I understood that you can do anything in agriculture,” Brown says. “There’s a huge misconception about agriculture. When I mentioned that I would be working for the USDA, my peers thought I would be working in a field in rural Arkansas.

While working on her thesis she served as the 2008-09 president of the Minorities in Agriculture Natural Resources and Related Sciences (MANRRS) at Iowa State. She credits MANRRS for introducing her to the College of Agriculture and Life Sciences and the opportunities it’s provided.

“MANRRS is great because it provides a network of mentors and friends,” Brown says. “We have about 40 students in our chapter and we do community service and campus activities. Our chapter has won National MANRRS Chapter of the Year three times in the past four years.”

Last Fall Brown went back to her hometown of Augusta, Ark. to share her experiences with a class of junior high students.

“I want students to know that regardless of their background, race or socioeconomic status, education is the one thing that no one can ever take away. I told the students they can do anything they want and go anywhere they want,” Brown says. “I did it, and I started in that same small town.”

Brown received her undergraduate degree from the University of Arkansas at Pine Bluff. She says she’d like to return to Arkansas someday to teach at the university.

Brittni Brown, a graduate student in agricultural and biosystems engineering, will finish her thesis in July. Her research is focused on commodity traceability – specifically the traceability of milk.
When Keaton Krueger went back to visit Kirkwood Community College, he was welcomed with open arms and questions about Iowa State.

Krueger graduated from Kirkwood and transferred to Iowa State in 2007. He went back to visit as part of the College of Agriculture and Life Sciences student ambassador recruitment team last fall.

“It was great having Keaton with us because the Kirkwood students knew him and the faculty wanted to know how he was doing,” says Andy Zehr, marketing director for the College of Agriculture and Life Sciences. “He’s been instrumental in recruiting students.”

Krueger joined the college’s ambassador organization as soon as he arrived at Iowa State. The group has doubled in size since Krueger joined two years ago and now has about 50 students. The students visit high schools, host events on campus and sponsor Shadow Days, which brings junior and senior high school students to campus to experience life at Iowa State.

“As far as I’m concerned Iowa State has the best agriculture school in the nation,” Krueger says.

That’s the message Krueger shares with high school students across Iowa. In April 2008, he and two other student ambassadors also took that message to the California State FFA conference.

“I always tell students about the learning communities because they give new students an opportunity to work as a group and create a network of friends,” Krueger says. “I also tell them that our professors are great. They are willing to work with you and always remember your name.”

Last year, Krueger was nominated to attend the American Seed Trade Association (ASTA) Annual Meeting in Orlando through the ASTA Future Seed Executive-Campus Connection program. He says the event changed his life.

“I spent a week at the meeting networking with some of the most influential people in the seed industry and they all encouraged me to pursue a master’s degree as soon as I graduated,” Krueger says. “On the trip home, I had an eight hour layover with a few ASTA members and they shared their experiences as graduate students at Iowa State. That’s when I decided to get my master’s degree.”

He completed his bachelor’s in agronomy in May and will start his master’s program in crop production and physiology with an emphasis in seed science this fall. He worked on some preliminary research before graduating this spring.

“The more time I spend around the industry, the more I realize the people I admire in the industry are all graduates from Iowa State,” Krueger says. “Now, I’m starting the masters program and I’m working with some of the top professors in the world.”

Krueger is on track to succeed. He’s had three internships as a graduate student in agronomy and has interned for the College of Agriculture and Life Sciences Student Ambassador group.

Both Keaton Krueger (left), a graduate student in agronomy, and Nathan Uphol, a junior in animal science, are on the leadership team for the College of Agriculture and Life Sciences Student Ambassador group.

Josie Rudolph's eyes widen with enthusiasm when she describes her experiences in the College of Agriculture and Life Sciences. She’s taken three study abroad trips, served on the student council and was team captain of the nationally recognized National Agri-Marketing Association (NAMA) student club.

Rudolph, a May 2009 graduate in agricultural communications, says her experience with NAMA’s marketing team defined her career goals. The experience helped her understand what it takes to market a product from beginning to end.

“Every year we write a marketing plan for a new agricultural product a company has recently developed. We research every aspect of it, define the target market, consider product weaknesses and strengths and put together a creative promotional campaign,” Rudolph says.

In 2008, the team promoted pork Crazy Wings, a snack item similar to a drumstick. The team placed in the top six and received the National Creative Club Award. The group was named the top NAMA chapter in the country in 2008 and 2009. The students also brought home a $3,000 John Deere Signature Award in 2008, which was based on the chapter program and placement in the marketing competition.

This year the team marketed ImmunoAtta, a supplemental booster for calves. They advanced to the semifinals in Atlanta in April where they competed against 35 other teams from Canada and the United States.

Along with practicing presentations twice a week to prepare for Atlanta, the team also raised $10,000 for travel costs. Stacey Nue, program coordinator for the college’s Agricultural Entrepreneurship Initiative and team adviser, says the students worked concessions in Hilton Coliseum, received sponsorships and did survey work for the USDA to raise the money.

Along with her NAMA experiences, Rudolph says her study abroad trips have increased her understanding of the world. She’s gained insight into other cultures on trips to

FROM CRAZY WINGS TO CALF FOOD STUDENT GAINS MARKETING EXPERIENCE IN PANAMA

Josie Rudolph was captain of ISU’s number-one-in-the-nation National Agri-Marketing Association chapter.

Australia and Panama, but she says her last study abroad trip to Ghana was the most amazing. The group studied the soils of the country with Andrew Manu, an Iowa State agronomy professor who grew up in Ghana (read more about Manu on page 20).

“It was incredible,” Rudolph says. “I’ve traveled quite a bit, but Africa was by far the most eye-opening and memorable trip.”

Both scholarships and grants make studying abroad affordable, Rudolph says, and it’s an opportunity she would recommend for every student.

“It’s one of the greatest things the college offers. Iowa State has connections everywhere and you get to see areas that tourists don’t see,” Rudolph says. “The tough part is trying to decide where to go because there are so many cool places to study.”

Rudolph plans to pursue a career in extension education and reach out to help producers understand new technologies and help consumers understand agriculture.

“People care about where their food comes from, but there is a disconnect between people and agriculture,” Rudolph says. “So I want to help consumers understand agriculture.”

Rudolph plans to attend graduate school at Iowa State in agricultural education and studies this fall. This summer she’s working as a public affairs intern for Monsanto in Idaho.

By Barbara McBreen
MASTERYING LIFE AND A MASTER’S DEGREE THROUGH DISTANCE EDUCATION

By Barbara McBreen

Mark Bogner isn’t a typical graduate student in the College of Agriculture and Life Sciences. He has a full-time job, lives in Walnut, Ill., where he and his wife have two children under the age of two, and he’s a student in ISU’s Master of Science in Agronomy Distance Education Program.

He does a lot of juggling, but the college’s distance education program provides the flexibility he needs to pursue a master’s degree in agronomy. He’s also a runner and a morning person, which he says helps him stay on track with his graduate work.

“Someone thinking about this program needs to anticipate the time commitment,” Bogner says. “You have to schedule your time so you’re not taking too much time away from any one thing. The coursework is demanding and it’s a challenge to balance the course material with your daily life.”

After graduating from Illinois State University with a degree in agriculture, he wanted to work on his master’s degree at the same institution. But he was sidetracked and moved to Hawaii to work for Pioneer Hi-Bred International. Bogner still wanted to pursue a master’s degree, so he and his coworkers suggested his master’s of agronomy program at Iowa State.

“The M.S. in Agronomy program fits with what I do in the workplace and it’s bolstered my knowledge in my job,” says Bogner who is a soybean research associate at Pioneer Hi-Bred International. Bogner still wanted to pursue a master’s degree, so his coworkers suggested the master’s of agronomy program at Iowa State.

“The M.S. in Agronomy program fits with what I do in the workplace and it’s bolstered my knowledge in my job,” says Bogner who is a soybean research associate at Pioneer Hi-Bred International. Bogner still wanted to pursue a master’s degree, so his coworkers suggested the master’s of agronomy program at Iowa State.

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“Mark Bogner, right, came to campus last summer to take an agronomy 594 class. Bogner, who lives in Walnut, Ill., is identifying soils based on texture. The students in the class are enrolled in the Master of Science in Agronomy Distance Education Program.”

Currently 110 students are enrolled in the Master of Science in Agronomy Program. Courses for the program are delivered via the Internet and CDs. Students use a variety of ways to communicate with professors, from emails to phone calls to the latest social networking and software options.

The technology allows students to access the program from anywhere in the world. Bogner was able to begin the program while working in Hawaii and continue his degree when he moved back to Illinois.

Last summer Bogner came to Ames to take one of the required on-campus classes. He says seeing the campus and meeting professors helped him put names with faces and places.

“My professors also have done some live interactions on the Web and that’s been neat. It allowed us to communicate and get to know some of the people in the class,” Bogner says. The pursuit of a master’s degree has already allowed Bogner to advance professionally within Pioneer. He expects the experience will continue to be beneficial after he graduates in December.

“I worked as a student research assistant at the dairy farm last summer doing everything from collecting blood samples to helping with surgeries,” Walker says. “I’d never worked on a farm and I had never worked with large animals. It was a good experience.”

“The Master of Science in Agronomy Program, admin-istered through the agronomy department, is one of the six graduate degrees offered by the college to stu- dents at a distance. The Iowa State University Brenton Center for Agricultural Instruction and Technology Transfer coordinates the college’s distance education offerings for both credit and noncredit courses. Currently 75 online graduate courses are available allow- ing professionals to pursue advanced degrees without disrupting their professional careers. The Brenton Center has an enrollment of 1,670 students from both on- and off-campus. For more information go to www. ag.iastate.edu/stories or contact Lori Youngberg at youngberg@iastate.edu or (515) 294-7656.

DISTANCE EDUCATION OPPORTUNITIES IN THE COLLEGE OF AGRICULTURE AND LIFE SCIENCES

She spent her first year learning the terminology associated with livestock. Her goal is to go on to veterinary school and work with or do research on the animals native to Africa.

“I have always cared about animals and I wanted to go to veterinary school, but Puerto Rico doesn’t have that type of school,” Walker says. “And Iowa State is one of the best in the nation.”

After almost two years in Ames, Walker says she enjoys the changing seasons, the campus and the community.

“I worked as a student research assistant at the dairy farm last summer doing everything from collecting blood samples to helping with surgeries,” Walker says. “I’d never worked on a farm and I had never worked with large animals. It was a good experience.”
S T U D E N T A C H I E V E M E N T S

BLOCK AND BRIDLE CLUB WINS NATIONAL AWARDS

The Block and Bridle Club received top awards at the organization’s national convention held in San Antonio in February. The ISU club placed second for its yearbook and took fifth place for its Web site. Michael Slattery, animal science, placed fifth for outstanding junior. Nikki Fenwerta, animal science lecturer is the club’s advisor. Pictured are the 2008 officer team of (front) Zane Gray, Slattery, animal science, Josh Zuck and Danny Jenkins. The team is coached by animal science lecturer Melissa Reed, Bridget Driscoll, (back) Matt Mensing and Kyle Kabella.

TWO COLLEGE SENIORS RECEIVE ALUMNI ASSOCIATION’S TOP AWARDS

Two of the five winners of ISU’s Wallace E. Barron All University Senior Award are College of Agriculture and Life Sciences students. Daniel Fischer and Clark Richmond, both agricultural business majors, were recognized as outstanding seniors by the Alumni Association. The honor is the university’s top award for students recognizing outstanding character achievement and promise.

ROBERTS DELIVERS TOP PASTRY, FEED PRESENTATION

Stacey Roberts won the students’ competition of technical presentations at the International Scientific Forum during the International Poultry and Feed Expo. She is a doctoral candidate in agricultural and biosystems engineering.

FARM OP CLUB FIRST IN NATIONAL CONTEST

The Farm Op Club’s team was first in the National Post-Secondary Agriculture Students convention in March in Hershey, Pa. The team is advised by Tom Paulsen, lecturer in agricultural education and Extension. Other team awards included a second place for the Beef Livestock Specialist Award and third place for the Soil Science Specialist Award. Team members pictured with awards are Brandon Berg, Rock Rapids, animal science; Alex Gerig, Ira; Nick Griffith, Eric Dial, Aliciа Wolf (back) Laura Johnk, Kara Moeller, Brian Anderson, Cole Burbach and Corey Hilleboe. Award winners not pictured are Betty Jennen, Will Comellitz, Janie Irving and Tasha Kopf.

ISU SOILS JUDGING TEAM WINS REGIONAL COMPETITION

The student soils judging team brought home a first place finish from a regional competition in Minnesota. The overall win was powered by a first place finish in the team judging portion of the event and a second place finish by junior Nathan Anderson, in the individual competition. The win in the American Society of Agronomy Region 5 Soil Judging Contest qualifies the Iowa State Agriculture and Life Sciences seniors to compete at the 2009 national competition in Springfield, Missouri. The Iowa State team beat out seven other Midwest schools for the top prize. The ISU team members are Nathan Anderson, Sara Linn, Jenny Richter, Leah Ruff, Eric Schultiz, Matthew Streeter and Brad Hudson. Jon Sando, professor of agronomy, and graduate student Jolissa Wemhre, coach the team. (Read more about Sando on page 18.)

HOOGENDORN NAMED CHAMPION SHEEP SHEARER

Dairy science senior Mark Hoogendorn of Rock Rapids was named the intermediate champion shearer in the National Western Stock Show Sheep Shearing Contest. Contestants are judged on time, condition of fleece, absence of second cuts in fleece, sheep handling, absence of cuts on sheep and appearance of shorn sheep. The event was held in January in Denver.

AGRONOMY STUDENTS HONORED AT NATIONAL MEETINGS

Three agronomy students received awards during the national Students of Agronomy, Soils and Environmental Sciences meetings. Jamie Seeman won the National Research Symposium Contest; Rachel Cox was awarded the Herb Handrich Future Leadership Scholarship; and Nathan Anderson was elected national SASES president and named a Golden Opportunity Scholar.

CORTUM RECEIVES PRESIDENT’S LEADERSHIP AWARD

Nicole Cortum, senior in public service and administration in agriculture, was recently honored with Iowa State’s David W. and Ellen J. Raisbeck Leadership Award. It is one of the President’s Leadership Initiative Awards.

2009 LIVESTOCK JUDGING TEAM DOES WELL AT SPRING CONTESTS

The livestock judging team finished eighth out of 23 teams at the National Western Livestock Judging Contest in January. The team also hosted and competed at the Iowa Beef Expo Judging Contest in February, finishing groups that finished second and sixth out of 12 teams. Over spring break the team traveled to the livestock show and finished fifth out of 19 teams. Team members included Cosy Schminke, Kenny Benson, Emily Weber, Charlie Will, Isaiah Sparks, Kelly Sheets, Joe Brady, Melissa Reed, Josh Zuck and Danery Jenkins. The team is coached by animal science instructor Jeff Thayme and assisted by Morgan Core, a senior in animal science.

IOWA SHOULD MAKE SOIL QUALITY A PRIORITY

By Kendall Lamkey

It does not mean, however, that we need to sacrifice production of crops and the livestock and poultry that depend on them for feed, or even ethanol and biodiesel. We mean we will have to increase corn and soybean production on the remaining 90 percent of the acres through better agronomic practices – genetics, fertilizer management, pest control and here factors interact with our weather. It means we will have to better integrate our crop, livestock and poultry systems. It means we never leave our soils bare through the winter.

I believe Iowa should lead the way in making soil health our number one priority. We can start by adopting zero tolerance for soil particulates in our streams, rivers and lakes. Soil is the number one water pollutant in our state according to the Iowa Department of Natural Resources. The Natural Resource Conservation Service’s 2003 Annual National Resource Inventory shows Iowa has 129 million tons per year of water erosion, making Iowa number one in the nation for soil erosion by water. By making significant changes in our production systems Iowa can lead the nation in crop and livestock production and lead the nation in clean water.

Let’s make this our top priority and reward those who take the initiative. The future of Iowa depends on it. More importantly, the future of agriculture depends on it. Because Iowa is agriculture.
Carbon is the building block of life and found in every living thing. It’s also found in solids, gases, oceans, the atmosphere and the soil.

It’s an element in carbon dioxide, which is one of the greenhouse gases in the atmosphere and the soil.

Carbon is found in solids, gases, oceans, the atmosphere and the soil. It’s an element in carbon dioxide, which is one of the greenhouse gases in the atmosphere and the soil.

Photosynthesis - plants pull carbon dioxide out of the atmosphere

Burning Fossil Fuels - releases carbon

Respiration - all living organisms release carbon

Tillage Releases Carbon - tillage activates microbes that release carbon

Ocean loss

Diffusion - oceans release and take up carbon

Ocean uptake

Aquatic biomass stores carbon

Soil Organic Matter - decaying plant material releases carbon into the atmosphere and into the soil

Carbon 101

CAPTURING CARBON – SUSTAINING SOILS

By Barbara McBreen

Carbon buried in the soils of the Midwest has made the 25 million acre region the site of the richest soil in the world.

“Plants pull carbon out of the atmosphere and return it to the soil,” says Dick Schultz, ISU’s associate professor of soil and environmental management.

Since the soil was first broken over 150 years ago, the soil in the Midwest has lost more than 50 percent of its organic matter according to Al-Kaisi.

“Every time you disturb the soil and change the soil temperature it starts oxidizing the organic matter. The microbes go into a frenzy when the soil is tilled and that’s how organic matter is lost,” Al-Kaisi says.

Plants pull carbon out of the atmosphere and return it to the soil to increase organic matter. Al-Kaisi is researching how soil management, tillage practices and cropping systems can improve and increase organic matter.

The Midwest’s soil is conducive to carbon sequestration – the amount of biomass produced and the amount of carbon remaining after harvest.

“As a landscape ecologist, I work at the macro scale. I’m really interested in how whole landscapes perform in terms of agricultural productivity, carbon storage and other benefits,” Schulte Moore says.

The researchers are experimenting with biomass cropping systems using several landscapes, from floodplain to hills, and comparing them to conventional cropping systems. The purpose is to find a system that is productive, profitable and environmentally sustainable.

“We’re hoping we can grow more biomass and subtract carbon from the atmospheric carbon pool,” Schulte Moore says. “If it works, producers implementing these systems could sell the carbon captured to two markets – the energy market and the carbon market.”

As researchers begin to understand how to measure carbon as a commodity, results show storing carbon in Iowa’s soils may not only provide future markets for farmers, but will improve soil and water quality as well.

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ANCIENT SOILS GIVE CLUES TO OUR IMPACT ON TOMORROW’S SOIL
By Melea Reicks Licht

Jon Sandor is in long-term research. Some of his field sites are more than 1,000 years old.

“When I think of sustainable land use, I think in terms of many generations. We’ve been monitoring agricultural soils for as long as 100 to 150 years in a few places, but ancient fields contain information about soil change and condition over millennia,” says the agronomy professor. “They’re just remarkable.”

An anthropologist turned soil scientist, Sandor is an expert in ancient agricultural soils and indigenous knowledge of soil management – a unique interdisciplinary field known as ethnopedology. He has conducted his research in and regions of Peru, Mexico and the southwest United States. He collaborated on much of his work with his late wife, Deb Muenchrat, who as an assistant professor of agronomy, investigated the prehistory of native maize varieties.

Sandor examines ancient fields that have been cultivated and compares them to neighboring native soils. He looks at soil profiles and horizons, as well as color, structure, organic and compares them to neighboring native soils. He looks at soil management – a unique interdisciplinary field known as ethnopedology. He has conducted his research in and regions of Peru, Mexico and the southwest United States. He collaborated on much of his work with his late wife, Deb Muenchrat, who as an assistant professor of agronomy, investigated the prehistory of native maize varieties.

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“Some prehistoric fields are even still farmed today,” he says. He combines his findings with information from anthropologists, archeologists, geologists and other agronomists to create a more complete picture of indigenous farming and its impacts. His projects often include Native American tribes and collaborators from other universities.

“We know terracing, crop rotations and organic matter maintenance are good for soil. But, these studies show that over 1,000 years these practices still show benefits,” he says. “They also show the harm we do to our soils can have lasting impacts for many centuries. The soil can’t always repair itself.”

Sandor also has collaborated with ISU colleagues and students to investigate how recent farming affects soil in Iowa. And he studies how traditional practices for conserving moisture and growing crops in arid soils can be used today. He is currently examining prehistoric fields in Mexico, New Mexico and Arizona.

HEALTHY SOILS IMPORTANT FOR URBAN LANDSCAPES
By Barbara McNamara

Trees have people's breath. That's a fact. Jan Thompson wants her students to learn and landscapers to understand.

Thompson, a professor of natural resource ecology and management (’84 MS agronomy, ’91 PhD forestry), has roots in soil science and understands the needs of trees. Her focus is in urban natural resources and she says urban soils are often so compacted that it's difficult for oxygen to pass through the soil and into the root zone.

“Land development usually involves scraping off topsoil and compacting the next layer to support structures and get the soil to a certain depth and time. It's placed directly in soil and can be used in diverse landscapes.

The tool may help scientists study thermal properties of soil and calculate evaporation at different depths, from the surface down into those precious top inches. Horton plans to field test the probe this year in Iowa and, with his collaborators, in North Carolina and China.

Why is it so important? “It's the area the action is,” Horton says. “It's where you plant seeds. It’s where tremendous microbial communities live. It's where much of carbon gets stored. It determines how quickly the earth heats up. It's important for Iowa, where our soils are the one oue that makes our agricultural production unique and critically important to the world.”

Data from Horton’s studies will inform big-picture issues on climate, environment and agriculture’s growing role in energy. In another project, funded by ConocoPhillips, Horton is studying how growing biomass crops may affect water quality beneath soil, carbon content of soil and carbon dioxide emissions.

“Soils are vital, complex, fragile and threatened. They're the base of the food chain that supports over 6 billion people. Fundamental knowledge and practical management skills are required to sustain them,” Horton says.

SOIL SURVEYS ESSENTIAL TO DECISION MAKING FOR MORE THAN 100 YEARS
By Brian Meyer

It’s hard to imagine life without soil surveys. Appraisers and assessors use them to determine fair and equitable land valuations. Sanitarians use them to help decide appropriate sites for septic tank filter fields, landfills and wastewater lagoons. Planners of all kinds rely on them to make land-use decisions. Farmers use them to understand the land’s capacity to produce crops, to more precisely manage fields and to help determine conservation practices.

Since 1902, Iowa State and partners have been developing and disseminating soil surveys. The current partnership, the Iowa Cooperative Soil Survey, was formalized in 1966. It involves ISU Extension, Experiment Station research in the College of Agriculture and Life Sciences, Iowa Department of Agriculture and Land Stewardship, USDA Natural Resources Conservation Service and Iowa’s counties.

Headquartered in the Department of Agronomy, the ISU partners coordinate the collection, compilation, interpretation, publication and dissemination of soil surveys. Updates are constant. Currently, soil scientists are revising and updating four counties.

“We need updates much the same way Iowa needs current land valuations,” says Lee Bue, the professor of agronomy who represents ISU on the National Cooperative Soil Survey. “Soils, like weather, aren’t static. We need to know changes to successfully continue to predict best uses and productivity.

That’s why soil surveys continue to go high-tech. One of the most promising tools is LIDAR (light detection and ranging) — using lasers to make incredibly precise topographic maps.”

Tom Fenton, a retired agronomy professor who worked with soil surveys since the 1960s says soil surveys have been excellent examples of federal, state and local cooperation. “The transfer of information is incredibly valuable. For all involved, the information is neutral, a scientific basis for making decisions and has an impact that’s huge.”

Tom Fenton (left) and Lee Bue are leading soil survey efforts in the Department of Agronomy.
WORLDLY PROFESSOR GIVES STUDENTS
SOLID FOUNDATION IN SOILS

By Ed Adcock

It’s hard to imagine a better place to learn about soils than amidst some of the most productive soils on earth. And agronomy associate professor Andrew Manu can’t think of a better place to teach an introductory soils course than at Iowa State.

“T’ve never been as comfortable anywhere as I do in Iowa. Students here are very motivated. They want to do something. And they don’t take their studies lightly at all. And that’s what gets me going,” he says.

Manu (’79 MS agronomy, ’84 PhD) brings a wealth of global experience to his teaching and research. He grew up in Ghana, where he earned his bachelor’s degree, and worked for Texas A&M University, Ahmadu Bello University and the U.S. Agency for International Development in Niger.

Manu has been coordinating Introduction to Soil Science, one of the college’s core Introduction to Soil Science courses. Here he talks with teaching assistant Nathan Anderson about the hands-on activities available to students in the soils teaching lab.

Manu was appointed as Iowa State University’s first George Washington Carver Chair in April. This is in recognition of his dedication to student instruction and leadership in the development and promotion of a friendly environment for students from under-represented ethnic groups to succeed at Iowa State University, especially in the field of agriculture. He plans to use the position to continue his desire for excellence in teaching and to engage in research to assess the impact of urbanization on soils. He says, “Most importantly, I will use the position to attract, train and nurture brilliant students of all social status, class, position or race at Iowa State University.”

THESE RESEARCHERS TAKE
“THE SKY’S THE LIMIT” TO HEART

OR decades, Iowa State University researchers have studied the cycling of water through soil, vegetation and the atmosphere that is vital to production agriculture.

Now a team of Iowa State and University of Iowa researchers is working to perfect the use of remote sensing technology to monitor the water cycle. The team has received a $3.1 million, five-year grant from NASA.

The research is taking place on 200 acres of Iowa State farmland south of campus, referred to as the Iowa Validation Site. At the site equipment automatically measures soil moisture, precipitation, radiation and evapotranspiration. Manu’s department students also take part.

Remote sensing equipment is mounted on a boom lift, airplanes and eventually will be on satellites to observe the field periodically, so data from the on-site monitoring and the remote monitoring can be compared.

Brian Hornbuckle, assistant professor in agronomy, is the project’s principal investigator. “We know the landscape in which we live changes on many scales over space and time,” Hornbuckle says. “Remote sensing is the only tool available that can capture all these changes.”

Hornbuckle says remote sensing instruments work like cameras to record the “brightness” of the earth’s surface. But instead of detecting visible light like normal cameras, the remote sensing instrument “sees” microwaves. Wet soils appear dark and dry soils appear bright.

In the next few years, both the European Space Agency and NASA will launch satellites to measure soil moisture. Each mission will produce global maps of soil moisture at about the scale of a typical Iowa county.

“This information could be used by meteorologists to improve forecasts of weather and climate,” Hornbuckle says. “Our team is focused on determining if the satellite data is accurate enough to be useful.”

Last September, an airplane carrying a remote sensing instrument from NASA’s Jet Propulsion Laboratory made passes over the site on three-consecutive days. The collected data was analyzed to determine the accuracy and value of remotely sensed measurements of soil moisture.

The team also collaborates with researchers at the United States Department of Agriculture – Agriculture Resource Service National Soil Tillage Laboratory on the Iowa State campus, and shares data with other interested researchers.

Amy Kaleita, assistant professor in agricultural and biosystems engineering, is a co-investigator. “We know a key driver of crop yield is climate. Drought predictions can show up in soil moisture patterns,” Kaleita says. “Anything we can do to support monitoring and projections of field conditions helps producers make better management decisions.”

For Hornbuckle, Kaleita and the rest of their research team, the old saying ‘the sky’s the limit’ has a more personal meaning.

“The use of remote sensing to monitor the water cycle is a big idea but we’re starting small in this one field,” Hornbuckle says. “Eventually we expect the technology to be expanded and used on a larger scale, such as river basins, states and regions.”

Andrew Manu (right) teaches more than 400 students annually in the college’s core Introduction to Soil Science course. Here he talks with teaching assistant Nathan Anderson about the hands-on activities available to students in the soils teaching lab.

A remote sensing instrument called a microwave radiometer is being used at an Iowa State University research field as part of a new project to perfect the use of remote sensing technology to monitor the water cycle. Amy Kaleita and Brian Hornbuckle are the Iowa State researchers involved. A fork lift moves the radiometer throughout the field and holds it about 40 feet above the ground.

Manu gets a thrill at the moment when students grasp a concept they have been struggling with. “I love it. It’s the best thing I have done in my life,” he says.
ALUM USES EXPERIENCE TO COLOR FUTURE OF EMERGING ENTREPRENEURS

By Ed Adcock

A s an Iowa State student, Roger Underwood knew he wanted to be his own boss. He wasn't sure how or in what business, but felt he would recognize when opportunity knocked. That opportunity came after graduation when Underwood (’80 agricultural business) was working in Minnesota for an agrichemical distributor. He encountered farmers who were starting to use Roundup in their operations. The herbicide was expensive and many producers wondered how they could use it more efficiently with spot applications.

“In hearing some growers talk about how they couldn’t see where they sprayed Roundup, it just kind of hit me: Well, why not develop a colorant that you could put in the Roundup where they sprayed it, so you can see where you sprayed it,” Underwood says.

“I MADE A COMMITMENT TO MYSELF AND IOWA STATE TO MAKE IT THE NUMBER ONE AG ENTREPRENEURSHIP PROGRAM IN THE COUNTRY.”

He called up Jeff Becker, a friend since preschool, and told him he had an idea and if they moved fast they could develop a product and market it. In its first year in business (1983), Becker-Underwood registered sales of $43,560.

Underwood provided the founding gift for the Agricultural Entrepreneurship Initiative in the College of Agriculture and Life Sciences because he says he wants to nurture the spirit of entrepreneurship in rural America and pass it on to another generation. He continues to advise the initiative and speak to classes.

“I made a commitment to myself and Iowa State to make it the number one ag entrepreneurship program in the country,” Underwood says.

Underwood also serves as chairman of Campaign Iowa State: With Pride and Purpose – the Iowa State University Foundation’s $800 million fundraising endeavor. “I really enjoy meeting the alumni, donors and friends of Iowa State, especially when we’re helping them craft gifts that can help to take Iowa State to a new height,” he says.

He thinks so much of Iowa State that he is entrusting it with the education of his son, Andrew, a sophomore studying management information systems, and William, a high school senior who plans to enroll in agricultural business.

“I came to Iowa State as this wide-eyed, small-town boy who thought I wanted to be in agriculture the rest of my life. Not only did I learn on campus, but I also learned in my fraternity, my clubs and other activities. I feel I owe Iowa State some of the leadership that I was afforded by so many people and I want to be a part of the group giving back to students,” he says.

READ MORE: More about Underwood and his friendship with former career services director Roger Bruner is featured on page 7.


Underwood had this 1926 International fire engine restored to use for tailgating at Iowa State. The license plate — ISU TKE — shows his fraternity affiliation.

MOST PEOPLE CHANGE THEIR MIND SEVERAL TIMES before settling on a career. Not Jodie Pettit. As a 5-year-old, she decided to become a veterinarian. Pettit (’96 animal science, ’01 DVM) grew up on a diversified crop and livestock farm near Creston.

“We had pigs, cattle, horses, dogs and cats. I dearly loved the animals,” she says. “One of my earliest memories is giving our barn cats ‘dental cleanings’ using pieces of their dry food. I knew then I wanted to be a veterinarian.”

Another event helped seal the deal. “We had an outbreak of pseudorabies in our swine herd that also killed some cattle. I found the dead cows in the same pasture as my beloved horses,” Pettit says. “I was terrified the horses might die, too. I tagged along with the veterinarians while they performed the disease investigation and was fascinated by everything they did.”

John Thomson, now dean of Iowa State’s College of Veterinary Medicine, was one of those veterinarians. “He was so thorough and compassionate in the face of a devastating situation. I knew I wanted to be just like him someday,” she says.

When it was time to choose a university, Iowa State came out on top. “I looked at several schools but none could beat Iowa State’s atmosphere or reputation. It had the best animal science curriculum in the nation and was unmatched in large animal veterinary education,” Pettit says.

Iowa State also provided the perfect outlet for Pettit’s love of horses. “The Rodeo Club was a huge part of my undergraduate experience,” she says. “It gave me a chance to get closer to the sport without having to invest in a fancy horse, training and equipment. Club members became my dearest, closest friends.”

Pettit also was involved in Sports Club Council and Block and Bridle. In the vet college, she participated in species clubs, the Student Chapter of the American Veterinary Medical Association, the Wildlife Care Clinic, emergency medicine and the foal ICU.

Pettit has been at the Audubon-Manning Veterinary Clinic in the Audubon-Manning Veterinary Clinic since graduation. “Each of the AMVC veterinarians has the opportunity to focus on one species,” she says. “Mine is equine, but I also do a fair amount of bovine and swine work. A perfect day for me includes some of each species.”

Pettit serves on an advisory board for Iowa State’s Veterinary Diagnostic and Production Animal Medicine Department, plus two Iowa Veterinary Medical Association committees.

She also serves on the Timmer Creek Charities board of directors. Timmer Creek Therapies near Guthrie Center is an outpatient facility where people with disabilities receive therapy, often while on horseback. Pettit was introduced to Timmer Creek Therapies as the veterinarian for the horses, then asked to serve on the charities board, which funds services for those without adequate insurance.

Pettit’s husband Rick works for McAninch Corporation in Des Moines. “Luckily for me, he enjoys riding on vet calls and is a great help. That’s where we spend quite a bit of time together,” she says. The couple also enjoys riding horses, hunting and cheering for the Cyclones.

STORIES ONLINE EXTRA: Pettit’s veterinary practice is home to several other ISU alumni and student interns. “Students are wonderful for us,” Pettit says. “They bring new insight and youthful exuberance to our daily routines.” Visit AMVC online at: www.ag.iastate.edu/stories.
Alum Hosts Cy's Annual Country Barbecue

By Melea Reicks Licht

A good story begins with good quotes. In the case of Kimberly Erusha, it was obvious right away this would be a good story.

She started her horticulture career at an early age. “My mom often bought me a Punch ‘N Grow kit in the spring,” Erusha says. “You put the planting mix in the plastic tray, plant the seeds, put on the clear plastic lid and watch the plants grow.”

Erusha (’96 horticulture) grew up in Waldford, Iowa, and says she never considered going to college anywhere else. “Five of my six brothers and sisters went to Iowa State, and many of my cousins. When you see a good thing, you go with it,” she says.

Erusha’s description of the horticulture department at Iowa State makes her sound like a college recruiter’s best friend. “I liked the broad scope of the horticulture major,” Erusha says. “It provided great exposure within many facets of the major. I was just as likely to take a class in turfgrass management as I was home horticulture, greenhouse plants and woody ornamentals. The professors were accessible and enthusiastic.”

After graduation, Erusha worked for a Des Moines lawn care company before moving to the University of Nebraska as an extension associate in the Turfgrass Integrated Pest Management program. While there, she earned master’s and doctorate degrees in horticulture, specializing in turfgrass management.

“We work directly with golf course superintendents and course officials to help them provide the best playing conditions possible within the budget they have available.”

In 1990, Erusha joined the United States Golf Association (USGA) as manager of technical communications, and was promoted to director of education in 1994. The USGA, based in Far Hills, N.J., is the national governing body of golf.

Erusha directs the USGA Green Section’s education programs. “The Green Section funds turfgrass and environmental research and provides on-course consultations,” she says.

Erusha also coordinates the USGA environmental efforts, and travels across the country to speak with environmental groups, regulatory agencies and golf course officials.

“I worked one summer at the Horticulture Farm for Dr. Christians,” Erusha says, “I still get to interact with him when we have the USGA awards research grants to Iowa State, and when an ISU turfgrass student participates in our internship program.”

It’s easy to see Erusha is proud of her Iowa roots. What does she miss about her home state? “Driving Highway 30 to a football game, stopping at the Big T Maid-Rite in Toledo and seeing people dressed in their Iowa State team colors,” Erusha says. “Small towns, Hilton Magic, the best pork tenderloin sandwiches, the Iowa State band, the helpfulness of Midwest people, hearing the Iowa State campanile bells.”

Great answer. Sometimes, a good story almost writes itself.
Beal led sociology to adopt tradition of applied research

By Melea Reicks Licht

Beal arrived at Iowa State fresh from a small Oregon farm shortly before Pearl Harbor. There he met his wife Evelyn who earned a degree in home economics education. Beal was able to finish his bachelor's in 1943 before serving in the Army and earning a Purple Heart. Beal returned to Iowa State in 1946. He and Bohlen are credited for recruiting and mentoring a group of students, mainly volunteers, to achieve projects and community action.

“Finding a wide range of clients interested in the many facets of our work proved that applied sociology has utility,” he says.

Spring 2009
Curtiss Hall turns a hundred years old in 2009. First known as Agriculture Hall, then named in 1947 for Charles Curtiss, dean of the college from 1982 to 1992, the building is one of the most familiar and distinctive landmarks on Iowa State’s central campus. Each semester, thousands of students stream into Curtiss Hall to attend classes in the 400-seat auditorium and smaller classrooms. Besides serving the administrative needs for the College of Agriculture and Life Sciences, it also houses the Iowa Agriculture and Home Economics Experiment Station and Extension to Agriculture and Natural Resources, plus several other departments, centers and programs.

As the building enters its second century, a campaign is underway to ensure its use for future generations. The auditorium has already undergone complete renovation and the front steps have been replaced. Plans are underway to create a more student-centered building with modern, energy efficient, high quality features including a student commons, meeting rooms for group work and interviews and architectural ornamentation.

The Monsanto Company pledged $1 million last August to enhance the offices and programs serving students in the college. The programs include student services, career services, study-abroad, entrepreneurship and marketing and recruitment. The college plans to name the student services wing of the building for the company.

Curtiss Hall was renovated to improve the overall safety, visual appeal and function of the building while preserving its traditional architectural elements. The Monsanto Company gift is part of Campaign Iowa State: With Pride and Purpose, the university’s $800 million fundraising effort that was publicly launched October 2007. For information about giving to the Curtiss Hall renovation effort contact Ray Klein, senior director of development, at (515) 294-7677 or rklein@iastate.edu.

Although a timeline for the project has not yet been determined, initial work could begin in 2009 or 2010. The project team, consisting of university administrators and architects and the Smith Metzger architectural firm of Des Moines, is devoted to improving the overall safety, visual appeal and function of the building while preserving its traditional architectural elements.

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The cost of the Curtiss Hall renovation currently is estimated at $11.5 million, which will be provided through private fundraising and university resources. Although a timeline for the project has not yet been determined, initial work could begin in 2009 or 2010. The project team, consisting of university administrators and architects and the Smith Metzger architectural firm of Des Moines, is devoted to improving the overall safety, visual appeal and function of the building while preserving its traditional architectural elements.

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Building a Culture of Conservation is a lofty goal, but the people involved with the Iowa Learning Farm are seeing solid progress.

The Iowa Learning Farm project, initiated in 2005 and headquartered at Iowa State, uses a grassroots approach to generate public awareness of the importance of protecting and enhancing Iowa’s natural resources. Members of the Iowa Learning Farm (ILF) partner with farmers in Iowa conducting on-field demonstrations of conservation practices including reduced tillage and cover crops. The ILF team studies the agronomic, economic, environmental and social aspects of increasing conservation. A second tier of involvement includes “ILF Conservationists,” who serve as local spokespersons for the project. They are conservationists, leaders in their communities and among their peers.

ISU’s Jacqueline Comito, ILF associate project manager, realizes that to enact change on Iowa’s fields, there are many factors at play.

“It’s not just a technical issue. Emotions and personal choices have as much of an impact on how a farmer treats the land,” says Comito. “Most farmers know the facts supporting conservation practices, but it often still takes more to convince both themselves and others to change. We are trying to reach this audience and strike a chord.”

Comito serves ILF with ISU sociology professors Paul Lasley and Lois Wright Morton. In addition, Iowa State faculty from the agronomy, economics and agricultural and biosystems engineering departments and staff from conservation organizations and state government agencies contribute to the project.

Rick Juchems, an ILF farmer-cooperator from Plainfield, Iowa, received a strong reminder about the importance of conservation during last summer’s floods. After the flood waters receded from his fields, he could see what practices worked. He says if the land isn’t taken care of today, it may not be there for his children.

“His daughter, Liz, a sophomore in agricultural business at Iowa State, wants to return to the family farm. It is important for my generation to acknowledge that management choices made today play a significant role in the sustainability of agriculture,” says Liz.

Liz spent last summer working for ILF, demonstrating the rainfall simulator at venues across the state.

“Because of this project and my father’s involvement with conservation, I have found a passion for conservation. Being an advocate for soil and water quality plays a large role in my life now and will continue,” says Liz.

Education is a key to ILF goals. Recently Comito produced a series of videos, “A Culture of Conservation,” the ILFs uses to begin dialogue about preserving Iowa’s soil and water. They have been distributed through partner organizations and to Iowa agricultural educators.

ILF evaluations are showing that farmers realize the status quo needs to change. The project is truly making gains towards its goal of building a culture of conservation — farmer to farmer, Iowan to Iowan.

Iowa Learning Farm Partner Organizations:

- Iowa Department of Agriculture and Land Stewardship
- Iowa Department of Natural Resources
- Natural Resources Conservation Service
- Conservation Districts of Iowa
- Iowa State University Extension
- Iowa Farm Bureau
- Leopold Center for Sustainable Agriculture

STORIES ONLINE EXTRA:
To view the new video series “A Culture of Conservation” or to request a DVD visit: www.ag.iastate.edu/stories.

Collaborators Pool Resources & Knowledge to Advance Soil Research

On paper, an institution’s organizational chart may look like a web of disconnected colleges, departments, labs, centers and a host of other entities. But, on the Iowa State campus, the way things get done is through collaborations crisscrossing organizational boundaries.

Two professors on campus illustrate this collaboration. Since the late 1980s, soil scientists Michael Thompson and David Laird have worked closely together. Thompson is the Pioneer Hi-Bred Professor of Agronomy in the Department of Agronomy. Laird is a lead scientist at the United States Department of Agriculture - Agricultural Research Service National Soil Tilth Laboratory (NSTL) and a collaborative professor of agronomy.

Proximity has played a part in their collaborative efforts — the buildings they work in are separated by only a few hundred feet — but the major factor is their common research interests in clay surface chemistry and the role of soil in capturing carbon to mitigate global climate change.

“The ability to walk across the parking lot and start bouncing an idea off another person is invaluable,” says Laird. “It is important for my generation to acknowledge that the buildings they work in are separated by only a few hundred feet — but the major factor is their common research interests in clay surface chemistry and the role of soil in capturing carbon to mitigate global climate change.”

Laird and Thompson’s efforts have focused on microscopic interactions, their current research takes that small-scale knowledge and applies it to a larger scale as they explore the ability of soils to sequester carbon at the landscape level.

“The National Soil Tilth Lab has provided steady support and funding, but the major factor is our common research interests in clay surface chemistry and the role of soil in capturing carbon to mitigate global climate change,” says Laird.

Both scientists have worked on a project to simultaneously analyze clays with X-ray diffraction and electron microscopy. Ten years later, they are still working together and still using X-ray diffraction and electron microscopy techniques to learn how clay and organic material influence soils and the environment.

“These are ongoing projects that we are still working on,” says Thompson. “I think it’s really exciting. It really illustrates what is and is not happening at an extremely basic level in the soil.”

The working relationship started while Laird (’87 PhD agronomy) was a student at Iowa State and Thompson was a member of his graduate committee. The two first collaborated on a project to simultaneously analyze clays with X-ray diffraction and electron microscopy. Twenty years later, they are still working together and still using X-ray diffraction and electron microscopy techniques to learn how clay and organic material influence soils and the environment.

“This is an extremely basic level of research,” says Thompson. “But for us, being able to see individual particles of clay and organic matter is very exciting. It really illustrates what is and is not happening at an extremely basic level in the soil.”

While much of Thompson’s and Laird’s efforts have focused on microscopic interactions, their current research takes that small-scale knowledge and applies it to a larger scale as they explore the ability of soils to sequester carbon at the landscape level.

The collaboration is one of not only shared ideas, but also shared resources. Thompson and his students are able to interact with the personnel and use the equipment at NSTL, and Laird and his colleagues are able to use equipment located in Agronomy Hall, preventing the need for duplication of expensive, specialized equipment. They say the national focus of NSTL and the regional and state focus of the university complement each other as well.

“The National Soil Tilth Lab has provided steady support for research with people, equipment and funding,” says Thompson. “As a result, our collaborative research has been able to move forward irrespective of outside grants. With collaboration, there is a base level of support that allows our research funds to accomplish more.”

Activity at the molecular level provides insight into how clay in soils, like those found in Iowa, absorb organic chemicals and sequester carbon as well as how soil properties change with the addition of “biochar,” a co-product of biomass production.

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By Tyler Teske

Photos: Bob Elbert

Collaborators pool resources & knowledge to advance soil research

By Tyler Teske
DISCOVERY NETWORK
PROGRAM FEATURES
COLLEGE FACULTY
Corn and the efforts of Iowa State
university to improve it were featured on
a Discovery Network program, “How Stuff Works.” Kendall
Lamkey, agronomy professor and
chair, and Larry Johnson, director of
the Center for Crop Utilization
Research, were among those
highlighted in the program. View
clips from the show at www.
ag.iastate.edu/stories.

NEW COLLEGE ART AT DAIRY FARM, SEED SCIENCE BUILDING
An etched glass mural titled “River of Milk” has been in-
stalled at the Iowa State Univer-
sity Dairy Farm’s visitor’s center.
Part of the design replicates
Christian Petersen’s sculpture
known as “History of Dairying,”
located in the Food Sciences
Building. In the mural, a river of
milk flows from Petersen’s his-
torical dairy images and past the
dairy breeds — Holstein, Guern-
ssey, Brown Swiss, Ayrshire and
Milking Shorthorn. Engraved into
a marble border below the mural
is the word “milk” written in 27
different languages.

A life-sized sculpture of
George Washington Carver, an
iconic figure at Iowa State
University, is now located outside
Iowa State’s Seed Science Center.
The sculpture, the only life-sized
 likeness of the famous scientist
anywhere in the world, is cast
from the maquette sculpted by
Christian Petersen in 1969. The
sculpture stands at the entrance
to the center, which recently
opened a new 5,000-square-foot
addition. The Committee for Ag-

cultural Development provided
funding for the piece.
The pieces join more than 600
works of public art in the Iowa
State University Art on Campus
Collection. Learn more about
these and other pieces of campus
art at www.ag.iastate/stories.

FRESHMAN ISN’T CLOWNING AROUND AS BULLFIGHTER
When Lucas Moore talks about nimble footwork and all the right
moves, he’s not talking tango. He’s talking bull. Moore is a bull-
fighter — a type of rodeo clown that protects bull riders who
dismost or are bucked off. He

distracts the bull before it hooks
or tramples the cowboy. Moore
recently was approved to receive
The Professional Rodeo Cowboy
Association card and plans to
earn cash for college working
in rodeos around the Midwest
this summer. But he isn’t in it for
the money. The freshman in animal science is pursuing his childhood
dream. Read more about Moore at www.ag.iastate.edu/stories.

COLLEGE STUDENTS MEMORIALIZED ON MU’S GOLD STAR HALL
Twenty-one Iowa Staters who died in the line of duty were added
to the Gold Star Hall in the Memorial Union during a ceremony
on Veterans Day. Five of the veterans were students majoring in
agricultural fields. William Franklin Hedges, the only veteran from
World War II to be honored, was a Chicago native who majored
in animal husbandry in 1943 and 1943 and served in the Army Air
Force as a technical sergeant in the South Pacific. The remaining
four were Vietnamese veterans: Dennis Lynn Ahrendsen of Oxford
junction, animal science in 1966 to 1967, Army specialist fourth
class; David Glenn Lavett of Bedford, agriculture special in 1966 to
1967, Army specialist fourth class; Roger Eugene Carroll of Avoca,
agriculture special in 1968, Army specialist fourth class; and Donald
Ralph Leolie of Des Moines, agricultural business in 1966 to 1967,
Army corporal. Read more about each veteran at www.ag.iastate.
.edu/stories.

ALUM SPEAKS ABOUT ANIMAL WELFARE ON OPPRAH
Jude Becker (’99 agricultural
studies) made an appearance on
the Oprah show in October. The
episode, “How We Treat the Ani-
imals We Eat,” included footage
from large- and small-scale pork
operations including Becker’s or-
ganic farm near Dyersville, Iowa.
For a link to the episode or to learn
more about Becker’s operation
visit www.ag.iastate.edu/stories.

SHARE ISU AG VIGNETY PLATES ONLINE
STORIES editor Melea Reicks
Licht received these telling li-
cense plates as a gift this winter.
Those of you with ag-related
ISU vanity plates are invited
to share them with your fellow
Iowa Staters. A few alumni with
their plates, including “AGRWMST” Paul Kassel (’81 horticulture
and agronomy, ’81 MS crop production and physiology) and “CYWARMER”
John Lundvall (’90 agronomy, ’93 MS crop production and physi-
ology), are already featured online at www.ag.iastate.edu/stories.

Please submit a photo of you with your plates to stories@iastate.edu to
extend the mileage on this feature. Those submitting photos will
be placed into a drawing for college merchandise. The entomology
department also is hosting a “bug-related” competition for vanity
plates — either existing plates or catchy phrases that would make
good plates. Send such entries to Bryony Bonning at bbonning@
ag.iastate.edu. Winners will receive the department’s 2010 calendar.

THE NEXT ISSUE OF STORIES WILL FEATURE “GREEN” RESEARCH IN MANY FACETS AND SHOW HOW THE COLLEGE IS CONTRIBUTING TO IOWA STATE UNIVERSITY’S CURRENT “LIVE GREEN” INITIATIVE LEARN ABOUT ENERGY CONSERVATION EFFORTS IN COLLEGE FACILITIES, DISCOVER GREEN ENDEAVORS OF AGRICULTURE AND LIFE SCIENCES STUDENTS AND FACULTY INVOLVED IN GREEN RESEARCH.

FOOTNOTES

FOOTNOTES
The first Science Fair Sam went to really opened her eyes.

Now she’s working to save the sight of others. As a sophomore in Genetics, Sam is part of a research team that’s studying stem cells to find cures for degenerative eye diseases like glaucoma. At the College of Agriculture and Life Sciences, we combine classroom work with hands-on experience in the lab. We feel this inspires a passion for learning, and helps students discover their life’s calling.

IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences
515-294-2766 | www.agstudent.iastate.edu