

IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences

STORIES

IN AGRICULTURE AND LIFE SCIENCES VOL.7 NO.1, 2013



THE SCIENCE AND PRACTICE OF FARMING

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multifaceted farmers

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driven odor models

STORIES

IN AGRICULTURE AND LIFE SCIENCES

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FOREWORD

"PROUD TO BE A FARMER'S DAUGHTER"

That saying was on my favorite sweatshirt as a kid. I was so attached to it my mom had to cut off the sleeves and neckband so I could squeeze into it a few more years. Eventually the screen-printing faded and flaked off, but I'll never forget how it made my dad smile when I wore it during our trips to the local co-op.

Sociology researchers at Iowa State asked those who farm what term they'd prefer to use to describe themselves. According to the 2011 Iowa Farm and Rural Life Poll, 60 percent of respondents chose "farmer." Roughly 18 percent chose "producer" and another 18 percent selected "farm operator."

"Proud to be a crop producer's daughter" just doesn't have the same ring to it.

Regardless of how you refer to it—producing, operating, ranching or farming—many of the stories have a common thread. Compelling tales of managing risk, evaluating new technologies, balancing stewardship and profit, multigenerational family businesses and more. There's something special underlying farming that draws in generation after generation that often can't quite be put into words. But we've tried our best in this issue to represent these special stories and illustrate the impact the college is having in educating future farmers, increasing profitability, sustaining the industry into the future and more.

Lastly, I must confess that I broke one of my rules in this issue by featuring my husband, Mark, on page 20. I couldn't help it. The story of his partnership with the Halbur family is emblematic of what ISU Extension and Outreach is all about: helping people evaluate and adopt new technology or practices that can improve their lives. The Halbur family, cardinal and gold to the core, is an excellent example of a family farm operating on the cutting edge. I hope you'll agree there are several in the pages that follow.

Kind regards,

Melea Reicks Licht



Photo: Bob Elbert

ON THE COVER

Allison Henry ('13 ag studies) and
Derek Rawson ('13 ag studies) get the
planter ready to roll at the Ag 450
Farm—ISU's student-run farm.

Rawson is an equipment manager
with Rathje Construction in Marion,
Iowa, and farms with his family. Henry
is an agronomy sales associate with
Farmers Cooperative.



Photo: Bob Elbert

This spring, at a ceremony honoring ISU's top seniors, the father of one of the students came up to greet me. He recognized me from my extension field specialist days. We'd known each other when he served on a county extension council in eastern Iowa.

My warm exchange with him reminded me how much I enjoyed those times working with farmers. It was life-changing for me. The photo on this page was taken around 1980 at a Louisa County field day. That's me, delivering my integrated pest management messages.

Many of the farmers remain friends who understand the value of determination and fortitude. Every day farmers deal with the complex biological system that is agriculture. Tiny, even unseen things—a pest, a virus, a temperature drop—have enormous ramifications. When a corn field

is damaged by an insect or a disease infestation, it's serious business.

For me, farmers are an important connection to real people doing real things. I never felt better, then or now, when I see the same recognition in their eyes—here's a real person, doing something real. That helps reinforce for me the university's role as a problem-solver, to put science into practice. And we can change lives with that connection.

Wendy Wintersteen

Wendy Wintersteen
Endowed Dean of Agriculture and Life Sciences



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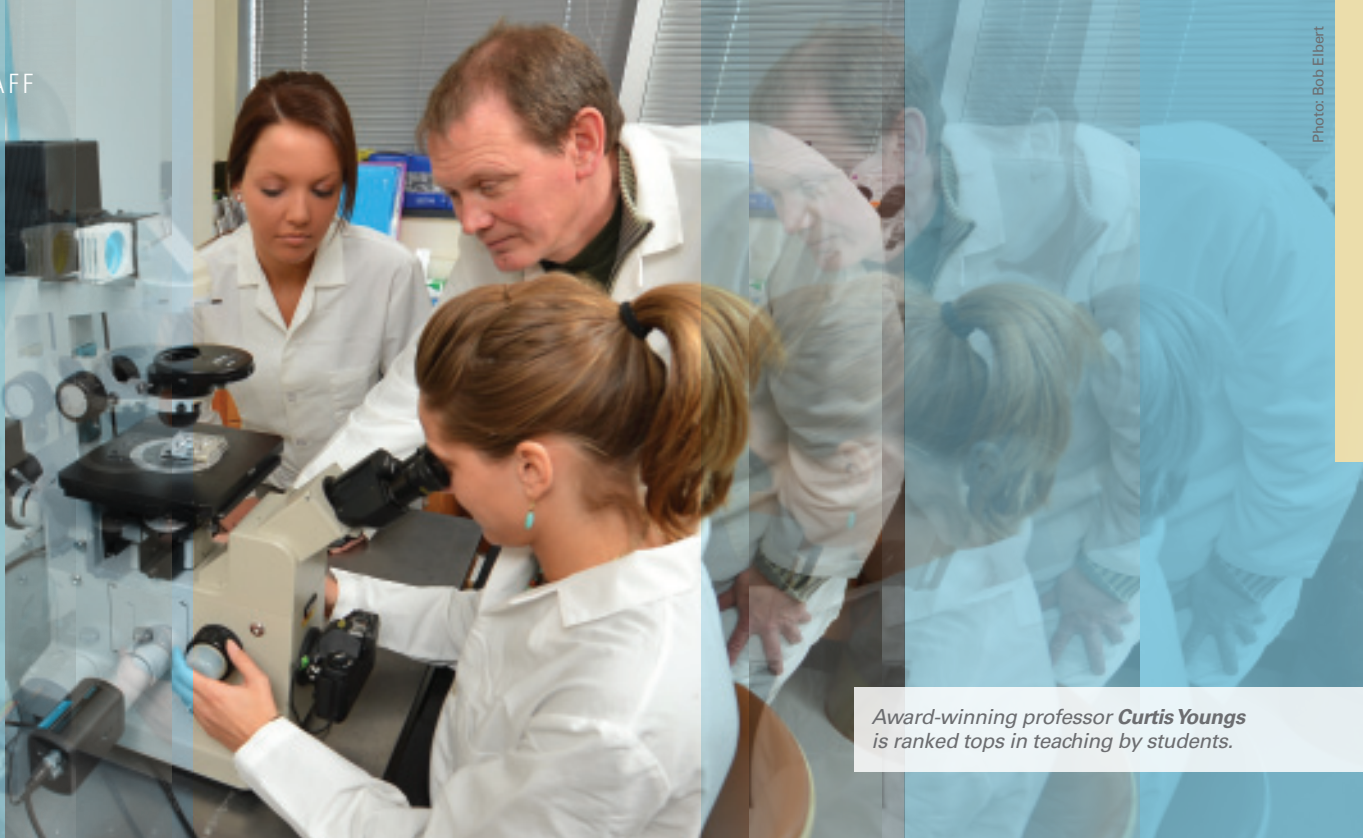


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Award-winning professor **Curtis Youngs** is ranked tops in teaching by students.

TUNING IN TO STUDENT NEEDS

URNS OUT STUDENT SUCCESS

By Lynn Laws

Curtis Youngs is an award-winning teacher. He's received 11 teaching and academic advising awards in just the last two years, and students rank him first or second among animal science faculty teaching required courses at Iowa State. His accolades illuminate the skills, commitment and authenticity he offers his students.

"He knows his students by name—makes you feel like you're connected to the class," says Brady Zuck, a junior in animal science and pre-veterinary medicine. "The way he shares information is very easy to understand and follow. He also knows how to use humor."

The professor of animal science employs a variety of classroom techniques, including "baaad jokes" in sheep science class and "neighborhood chats" in his domestic animal reproduction course.

As he lectures, he monitors student reactions. If he sees the "deer in the headlights look" he asks a thought-provoking question on the topic and gives students permission to talk with other students

about how to answer the question.

"Taking this little one-minute break, letting them become more active in their learning, enables them to come back and refocus for the rest of the lecture," says Youngs.

"We need to develop students as people, develop their thinking skills and develop their self-confidence. I want to give them the encouragement and support they need to get outside their comfort zone and try new things," says Youngs. "I tell students to be the best that they can be and to define success for themselves."

Youngs says he was drawn to teaching by students' inquisitive nature and interest in science—traits he shares. He was ushered into his career at Iowa State, in 1989, by his research. His areas of research include factors influencing embryo development and survival in domestic farm animals and applied reproductive technologies such as artificial insemination and embryo transfer.

A desire to "make a difference" led him to create novel courses at Iowa State, including a bioethics honors seminar and

the only embryo transfer lecture and lab courses available to undergraduate students in the United States.

He also teaches career preparation in animal science, advises 65 undergraduate students and has served terms as faculty adviser for the Block & Bridle and Dairy Science Clubs. He is working with students to establish a new organization called the Alliance of Multicultural Pre-Veterinary Students.

His research, teaching and advising doesn't end at the borders of Iowa State. Since 2007, through the USDA Borlaug Fellowship program, Youngs has helped young scientists in Peru, Kosovo and Ethiopia. He does this work using the developmental approach that has served him well with students at Iowa State.

"When working in an international agricultural setting you have to shed your views of your own world and ask, 'What is important to these people?' and help identify opportunities to cultivate new markets" Youngs says. ■

PREPARING THE NEXT GENERATION

By Darcy Maulsby

“When planning for a year, plant corn,” says a Chinese proverb. “When planning for a decade, plant trees. When planning for life, train and educate people.”

Preparing the next generation of farmers and ag professionals is a passion for Mary Wiedenhoef, a professor of agronomy. “I want to help others understand the importance of agriculture and sustainability,” says Wiedenhoef, who chairs Iowa State University’s graduate program in sustainable agriculture and researches alternative cropping systems.

Wiedenhoef was the first female at her high school to take agriculture classes, and she went on to earn her bachelor’s in agronomy at Iowa State in 1980. After completing her doctorate in crop physiology at Washington State University, her career took her across the country to the University of Maine. When she had the opportunity to return to Iowa State in 1999 as an associate professor of agronomy, she didn’t hesitate.

“During my time away from Iowa, I’d gained a deeper appreciation for how well regarded Iowa State University is worldwide,” says Wiedenhoef, who values Iowa State’s willingness to invest in technology and resources to benefit students.

This includes the agronomy learning community Wiedenhoef coordinates to help new students make a smooth transition to college life, which improves their academic success and satisfaction. One of the highlights of the program is the two-day field trip to visit agribusinesses and farms.



Photo: Bob Elbert

Hands-on experience is the cornerstone of Professor Mary Wiedenhoef’s teaching program. These participants in the World Food Prize Youth Institute learned about alternative cropping systems during a tour of ISU farms.

Students meet practicing agronomists and alumni and observe Iowa agriculture.

This real-world perspective is enhanced through Wiedenhoef’s systems analysis management course connecting students with Iowa farmers to make recommendations for fertilizer applications, insect control, manure nutrient management and more.

“I love working with people and try to prepare students for the transition from college to their career,” says Wiedenhoef.

She also leads the week-long agroecosystems field course, which takes students to farms in Iowa, South Dakota, Minnesota and Nebraska. She’s taken students abroad for a closer look at agriculture in New Zealand and Cuba. And she studied the interface between agriculture and environmental issues related to nitrogen leaching in pastoral systems in New Zealand in 2006 during faculty improvement leave.

For students who work closely with Wiedenhoef, these experiences can be transformational. “Mary has made a huge influence on my life,” says Stefan Gailans, a doctoral candidate from Wisconsin who is studying cropping systems diversity and agroecology at Iowa State. “She’s quick to encourage others, she goes out of her way to help students succeed and her enthusiasm and passion for teaching have inspired me to become a college instructor.”

Wiedenhoef’s research program focuses on agronomic and economic potential of fall-seed crops and cover crops to reduce erosion, increase efficient use of sunlight and diversify cropping systems.

“Financial advisers warn us against the disastrous consequences of not diversifying our economic portfolio. I think the same is true with Iowa agriculture; we desperately need to diversify our cropping system portfolio,” she says. ■

ONLINE EXTRAS: www.cals.iastate.edu/stories

Mary Wiedenhoef and her students were recently featured by *Country Calendar*, New Zealand’s longest-running television series, during their recent visit. Watch the video online.

SHARING THE ECONOMICS OF HOPE

By Kristin Senty

LEGENDARY CAREER SPANS FARM CRISIS TO HISTORIC LAND VALUE HIGHS

The world's most productive land rests in Iowa, and extension economist Mike Duffy is known as the voice of expertise who relates its worth.

Through his trademark annual Land Value Survey, Duffy shares results and analysis with media ranging from the New York Times to readers of Wallace's Farmer. After 25 years, Duffy's thoughtful delivery is so intertwined with the information itself it's hard to imagine one without the other.

Duffy says not a day passes when there isn't an email or a phone call to answer. But the delivery of anything he shares, he says, is much more than just reporting results.

"I know and understand the information that I work with and try to answer people's questions—all over the board,"

says Duffy. "I try to be moderate and work hard to give people as much information as I can so they can form their own opinions."

But it's not just the Land Value Survey he's responsible for compiling and communicating to the general public, there are also surveys on land ownership, cost of production and land sales data.

And as the former associate director of the Leopold Center, the chair of the sustainable agriculture program, the former director of the Beginning Farmers Center, or in his current work on soil conservation, there's a distinct message around conservation and sustainable agricultural practices that he's well known for.

As he contemplates retirement, Duffy reflects on the fact that he is so closely connected to the information he shares.

"Probably the biggest thing in my whole career has been to learn how to balance societal perspective with individual perspective."

Economics of hope

Duffy honed his balancing skills in his first position with Iowa State University as an extension farm management field specialist in Cedar Rapids, counseling

farmers on their financial options during the farm crisis in the 1980s.

"For seven days a week I was dealing with people in crisis. There were suicides and even some murders because of the stress. It was a traumatic time, and my role was to deal with people, offer information and to help them to have hope, he says. "Those years had a strong influence on me."

Duffy arrived at ISU's Department of Economics in 1985, starting as an assistant professor and receiving full tenure by 1992. His research interests have focused on conservation, sustainability, small scale farm practices and an appeal to a more cautionary approach in the use of technology in agriculture.

In an era where technology-driven ag production practices are the predominant approach, he admits some of his views have had a "built-in potential for conflict."



Photo: Daniel Ossian

Economist Mike Duffy has shared results and analysis from his Land Value Survey for more than 25 years. With historic high land values for several years running, his annual press conference is much anticipated by local and national media.

ONLINE EXTRAS: www.cals.iastate.edu/stories

Check out Mike Duffy's land valuation study, including a video press conference on the latest results.



Mike Duffy has worked with Iowa farmers for decades offering farm management advice through boom and bust years.

Photo: Bob Elbert

Yet rather than “draw lines in the sand,” Duffy is more interested in finding ways to help people meet in the middle.

Seeing both sides of the fence

He expresses concern about the polarization of views in agriculture today—a polarization he sees as preventing problem solving on critical issues that affect the future of farming, no matter what side of the fence.

He points to the ongoing problem of topsoil erosion and the imminent need to improve conservation. “Farmers are only trying to make a living, whether or not they’re using good soil conservation practices. No one goes out and says, ‘how much soil can I destroy today?’” he says. Yet he knows valuable topsoil will be lost forever without active conservation.

Duffy and a team through the Iowa Learning Farm recently were able to show that erosion results in a loss of revenue for the farmer. He hopes the presentation of information that relates to everyone’s bottom line can help farmers find middle ground.

“You certainly don’t move forward by being a Luddite,” he says. “But you

also don’t move forward without examining things carefully.

“I try to empower people to see other points of view rather than just harden into one position—I think the future of conservation depends on our willingness to walk a mile in each other’s moccasins.”

Paul Lasley, chair of the Department of Sociology at Iowa State University, agrees Duffy is “really more interested in building bridges” than towing a hard line. The two have worked with each other closely off and on since the mid-1980s on issues around farm policy, rural development and natural resources, and share a similar background in the use of surveys to convey information to the public.

“Over the years Mike has fostered what I would call a participatory approach,” says Lasley. “He’s come to realize that when you hold your own views too strongly, people don’t talk. So he offers information in ways that help people solve problems.”

“No matter what side of an issue you’re on, ultimately, people not only hear him, but respect him for his wisdom, knowledge and the years of service he’s given to the public,” Lasley says. 📖

Mike Duffy is recognized as a champion for Iowa agriculture. Here’s a few of his many honors:

- 1984** Administrator’s Special Merit Award of Outstanding Research, USDA
- 1991** Environmental Achievement Award, National Environmental Awards Council
- 1991** Outstanding Applied Research/Extension Award, Iowa State University
- 1996** Sustainable Agriculture Achievement Award, Practical Farmers of Iowa
- 2004** ISU College of Agriculture and Life Sciences Outstanding Achievement in Extension
- 2009** Top 25 Iowans of Influence, Iowa Farmer Today
- 2012** Research and Extension Partnership Team award, Iowa State University Extension
- 2012** Distinguished Service in Agriculture Award, American Society of Farm Managers and Rural Appraisers
- 2013** ISU College of Agriculture and Life Sciences Dean’s Citation for Extraordinary Contributions
- 2013** Distinguished Service in Agriculture Award, American Agricultural Editors Association

PRESERVING PLANT DIVERSITY, ONE SEED AT A TIME

By Susan Thompson

Candice Gardner leads the U. S. Department of Agriculture's North Central Regional Plant Introduction Station. The station keeps more than 1,700 plant species and 53,000 different plant populations secure.

Growing up on an Iowa farm, Candice Gardner planned a career in human or animal health. But once a student at Iowa State University, a summer job took her down a different path.

"Working with a plant pathology researcher got me hooked on the idea of improving crop production through improving plant host resistance to diseases, insects, stress, plus variety development," Gardner says.

After wrapping up a bachelor's degree in bacteriology, she earned a master's in plant pathology and a doctorate in maize breeding and genetics at the University of Missouri.

Gardner spent 17 years in private industry, first as a maize researcher with Pioneer Hi-Bred International, followed by two years at a biotechnology company. In 1999, she returned to Iowa State to lead the U. S. Department of Agriculture's North Central Regional Plant Introduction Station (NCRPIS).

"The station provided my previous research program with germplasm, and I was amazed at the wealth of plant

genetic resources available," Gardner says. "My goal coming here was not only to ensure conservation of these resources, but to work to understand their inherent value and help researchers use them more effectively to support food security."

The NCRPIS, established in Ames in 1948, is one of four plant introduction stations in the United States—key components of the National Plant Germplasm System. The facility stores more than 1,700 plant species and 53,000 different plant populations in climate-controlled refrigerators and freezers, including many important field, vegetable and ornamental crops.

Researchers around the world can obtain plant materials at no cost. "Last year we provided more than 40,000 items to fulfill research needs," Gardner says. "Unlike a library, the seeds are not checked back in."


That's why when the seed inventory of any variety or its germination runs low, staff grow the plants at the station to replenish seed stocks.

The NCRPIS is a joint venture of the USDA-ARS, the ISU Agricultural Experiment Station, the ISU Department of Agronomy

and the agricultural experiment stations of the 12 North Central Region states.

Gardner oversees the activities of nine full-time ISU employees, 21 full-time USDA-ARS employees, a host of part-time students and two graduate students.

The agronomy department is home to both the ISU and federal employees. "The interactions with faculty and staff provide opportunities for research collaborations, student training and sharing of infrastructure and equipment to our mutual benefit," Gardner says. "These interactions help us maintain and increase our relevance to the research community."

Kendall Lamkey, chair of the agronomy department, praises Gardner's efforts to collect, maintain and provide germplasm on request, despite the challenges. "Everyone thinks germplasm is important and should be preserved for the future, but funding has not kept pace with the need," he says. "Candy frequently has to set priorities, because everything that needs to be done, cannot be done. From my perspective, she has done a great job." 

MOTORCYCLE MAN ON A MISSION

By Susan Thompson

John Lawrence is a man on a mission. He has spent the past two decades traveling across Iowa, making thousands of presentations representing Iowa State University Extension and Outreach.

The travel continues, but sometimes his mode of transportation is a motorcycle.

"I read a story about a man who visited every town in Iowa on a motorcycle," Lawrence says. "My wife Kathy and I decided to start small, and county extension offices seemed like a unique quest."

The couple began last July and found their way to 34 county extension offices. They stopped for 2012 after an October trip to northeast Iowa, where they visited 10 offices in three days.

"We do most of our riding on weekends so the offices are closed," Lawrence says. "But on that trip, we did stop in some offices to explain why two people dressed in leather were taking pictures in front of their building."

Lawrence grew up on a crop-livestock farm in southwest Iowa. He and Kathy married in 1976 and took over the operation. "We sold out in the early '80s before the farm crisis," Lawrence says. "I came to Iowa State as a 24-year-old freshman and have been in college ever since."

After earning a bachelor's in animal science and a master's in economics, Lawrence picked up a doctorate in agricultural economics at the University of Missouri.

His first extension job was at the University of Minnesota as an extension economist. He returned to Iowa State in 1991 as an extension livestock economist, where he began those thousands of Iowa miles and meetings.


In 1998, Lawrence added director of the Iowa Beef Center, the extension program for beef producers, to his responsibilities. Since February 2010, he has been the College of Agriculture and Life Sciences associate dean of extension and outreach, plus the director of Agriculture and Natural Resources Extension.

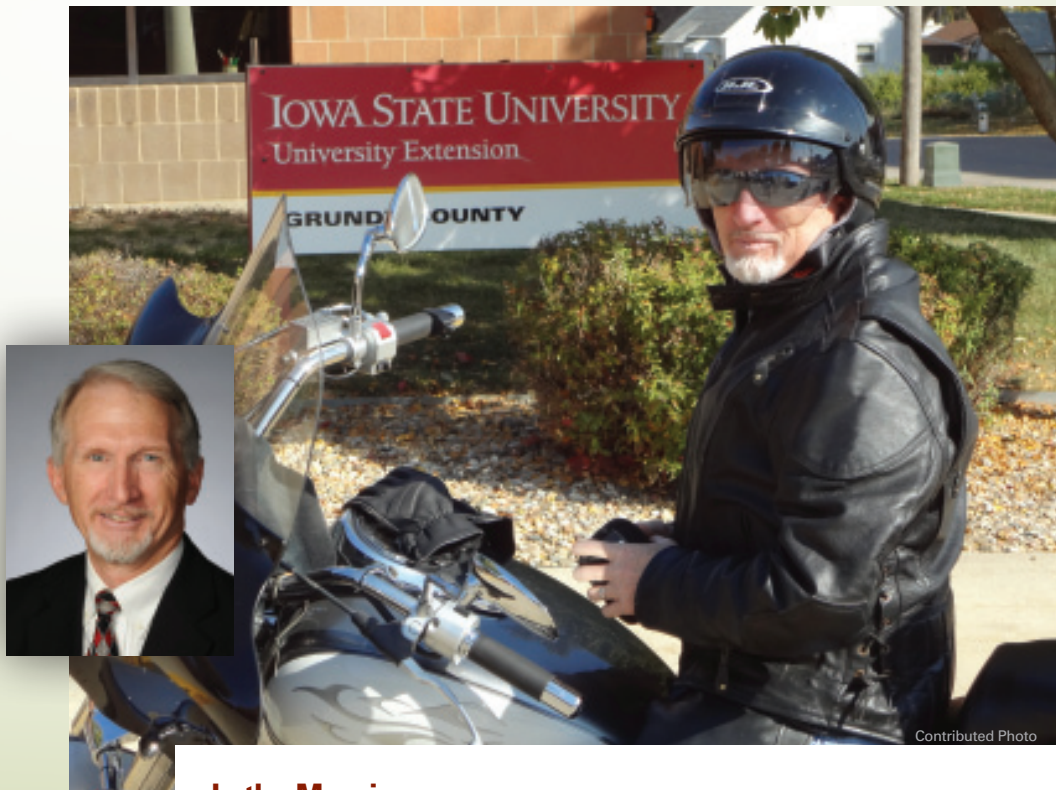
Lawrence says extension is in his blood, which makes the county office visits a perfect fit.

Each building and sign is photographed with the couple's Suzuki 800cc Cruiser,

which Lawrence calls a "poor-man's Harley." Sometimes Kathy or John poses with the bike. The photos, in alphabetical order by county, are posted on their Facebook pages.

The photo album title is "Sons of Extension Motorcycle Club." Lawrence jokes he and Kathy may create their own tattoo and incorporate the 4-H clover.

Of the 100 county extension offices in Iowa—Pottawattamie has two—the Lawrences have 66 yet to visit. Their mission is to do so by the end of 2014. 



Contributed Photo

In the Margins

This recurring feature offers a glimpse of how CALS faculty or staff spend their time outside office hours. Suggest an *In the Margins* profile by e-mailing stories@iastate.edu.

HEARTY HELLOS

Jianming Yu, Pioneer Distinguished Chair in Maize Breeding, agronomy

Gretchen Mosher (PhD '11 industrial and agricultural technology), researcher in food safety and grain quality and director of undergraduate services, agricultural and biosystems engineering

Daniel Andersen (MS '08 agricultural engineering, PhD '12), assistant professor, manure management and water quality matters, agricultural and biosystems engineering

Patrick Gunn, assistant professor, cow-calf specialist, animal science

FOND FAREWELLS

Dan Otto, professor of economics and ISU Extension economist, retired in October

Dennis Shannon ('69 agronomy), ISU Research and Demonstration Farms, retired in December

Phil Spike (PhD '75 animal science), professor of animal science, retired in January

Jean Tilley, food science and human nutrition, retired in February

CALS WELCOMES NEW ASSISTANT DEAN FOR DIVERSITY

An agricultural educator from Tennessee has been named the new CALS assistant dean for diversity. **Theresa Cooper**, former director of Academic Success Programs and Outreach Initiatives at the University of Tennessee, Knoxville, began Feb. 1. She will coordinate, manage and implement the college's existing diversity programs, such as the George Washington Carver Summer Internship program and Graduate Assistant Research Match program. She also will lead efforts to identify new opportunities to enhance diversity and connect with

minority serving institutions nationwide. To learn more about Cooper and her position visit www.stories.cals.iastate.edu.



WENDEL MAPS COTTON GENOME, HONORED FOR RESEARCH EXCELLENCE

An international consortium of scientists that includes **Jonathan Wendel**, distinguished



professor and chair of the Department of Ecology, Evolution and Organismal Biology, has mapped the genome sequence for cotton in a paper published in the journal "Nature." The sequencing of the genome will have sweeping ramifications

for cotton growers, plant biologists and producers who grow other cash crops. Wendel received the 2012 International Cotton Genome Initiative Award for Outstanding Contributions to Cotton Research at the initiative's conference in October. For details about Wendel's research visit www.stories.cals.iastate.edu.

RETALLICK RECEIVES NATIONAL TEACHING AWARD

Michael Retallick (PhD '05 agricultural and life sciences education), agricultural education and studies, received the New Teacher Award at the Food and Agricultural Sciences Excellence in College and University Awards Program at the Association of Public and Land-grant Universities annual meeting in Denver in November. The award honors college and university instructors who demonstrate a commitment to a career in teaching and exhibit meritorious teaching with seven or less years of experience in higher education.



STUDENT CLUBS WIN NATIONAL COMPETITIONS

Agricultural Business Club: 2012 National Outstanding Chapter, Agricultural and Applied Economics Association (seventh consecutive title); first place 2012 Academic Quiz Bowl

Block and Bridle Club: hosted the 93rd National Block and Bridle Conference in April attended by 500 students; first place yearbook, webpage and first-place outstanding senior

Crops Team: first place crops contest and Ag Knowledge Bowl

Dairy Products Evaluation Team: fourth place 91st National Collegiate Dairy Products Evaluation Contest and third place at the Regional Collegiate Dairy Products Evaluation Contest

Food Product Development: third place AACCI Product Development Competition in Hollywood, Fla.

Livestock Judging Team: first place Sioux Empire Farm Show Livestock Judging Contest; first place Iowa Beef Expo; High Team Overall honors at the Aksarben Stock Show and Rodeo

Meats Judging Team: first place Southeastern Intercollegiate Meat Judging Contest

National Agri-Marketing Association: first in 2012 John Deere Signature Award Competition at the NAMA Agri-Marketing Competition

Soil Judging Team: second place overall at the 2013 National Collegiate Soil Contest hosted by the University of Wisconsin, Platteville

Turf Club: first place 2012 Collegiate Turf Bowl Competition at the Golf Course Superintendents Association of America Education Conference (12th win out of the past 14 years)

ROTHSCHILD RECEIVES USAID MERITORIOUS HONOR AWARD

Max Rothschild, animal science, and fellow research team members at the U.S. Agency for International Development Bureau for Food Security received a Meritorious Honor Group Award for its outstanding vision, teamwork and dedication in designing and implementing USAID's programs in support of the Feed the Future Research Strategy, building strong linkages that span USAID's Missions, Bureaus and partners, especially U.S. universities, CGIAR Centers and the private sector.



ADVOCATING FOR AGRICULTURE

By Barbara McBreen

Kristin Liska believes everyone involved in agriculture needs to understand the policy discussions at the local, state and national level.

Liska, a junior in animal science, believes in proactively telling the story of agriculture. That's the message she shared in an animal science class preparing to tour Midwest farms and agricultural industries this summer.

"It's important for producers to understand the discussion behind the issues and provide input because it can affect their operation," Liska says.

Being selected for the Young Cattlemen's Leadership Program was an important achievement for Liska, who says she couldn't wait to participate. In March, the group met at the Iowa Statehouse in Des Moines

to learn how to approach Iowa's policy leaders. The group holds informational meetings throughout the year.

This summer Liska has an internship with a company that fits into her advocacy goal. She's working for CMA—a public relations company in Kansas City that reviews agricultural topics, gathers expert opinions and publishes stories.

"The groups that produce negative articles about agriculture are not talking to farmers, they are talking to consumers," Liska says. "That's what we need to do. We need to share our story and show consumers that we care about animals, we care about water quality and we care about the land."

As she enters her senior year, Liska plans to continue her ambitious schedule. Last semester she helped organize the 93rd National Block and Bridle convention—the first time the event has been held in Ames. This fall she's co-chairing the first annual BaconFest event, which will be held on campus in October.

"The BaconFest is challenging because we normally have a final report from the previous year to help plan an event, but this is a first time event," Liska says. "We just have to grab it by the horns and go."

The toughest choice Liska's made is changing her career focus. She grew up thinking she would be a veterinarian, but figured out

that she was more interested in communications and advocating for agriculture.

Curtis Youngs, an animal science faculty adviser, says Liska is an energized leader who exudes enthusiasm. During his 23 years of academic advising, Youngs consistently shares a message with his students—be passionate about what you do.

"That's what I preach to students," Youngs says. "They will spend most of their lives at work, so it's important to find a career which they can passionately pursue. Kristin has found that in agricultural advocacy."

Liska received a Legacy Scholarship as both of her parents graduated from Iowa State. Her parents, Bob ('87 agronomy) and Stephanie ('87 public service and administration in agriculture), live in Wayne, Nebraska. 📍



Photo: Barbara McBreen

*From BaconFest to Block and Bridle to the Iowa Statehouse, **Kristin Liska**, a junior in animal science, is known as an "energized leader." She met with Iowa legislators as part of the Iowa Cattlemen's Association Young Cattlemen's Leadership Program.*

A FIRST FOR IOWA STATE — 93rd B&B CONFERENCE HELD IN AMES

The 93rd National Block and Bridle Convention, the first one ever to take place at Iowa State University, was held in April. The Iowa State Block and Bridle Club hosted the event. More than 500 students attended and participated in industry tours throughout Iowa. John Lawrence, associate dean of the College of Agriculture and Life Sciences, and Maynard Hogberg, professor and chair of the animal science department, spoke at the awards banquet. Iowa State placed first in the yearbook competition, fourth in chapter activities and Adair Boysen ('12 agriculture and life sciences education) was named Outstanding Senior. Visit www.cals.iastate.edu/stories for a link to photos from the conference.



INDUSTRIAL TECHNOLOGY OFFERS SECOND FOR SUCCESS

By Barbara McBreen



Photo: Barbara McBreen

Gary High wore a graduation robe for the first time in his life when he accepted his bachelor's degree in industrial technology this May. High received his GED in the Navy 30 years ago.

Five years ago Gary High considered himself computer illiterate, now he's operating robots and analyzing plastics using complex computer systems.

At 51 years old, he's considered a "nontraditional" student. High has always worked in jobs that required mechanical knowledge, so pursuing an industrial technology degree made sense. High graduated in May.

"I dropped out of high school in 10th grade and I went from not being able to answer an email to graduating with a bachelor's degree," High says.

His wife, Dawn High ('01 dietetics), encouraged him to go to college. She was a nontraditional student at Iowa State and understood the challenges and the rewards.

"Gary is motivated," Dawn says. "When he told me he wanted to go back to school, I said, 'Let's figure out how to make it happen.'"

In order to enroll in classes Gary had to check on his GED tests, which he took 30 years earlier while serving in the Navy. When he learned he had passed, he signed up for two courses at Ellsworth Community College. He tried it, liked it and graduated with the first associate degree in engineering from Ellsworth.

"It seemed every time I turned around I was given new opportunities," Gary says.

Doors continued to open when he came to Iowa State. He started in aerodynamics, but his adviser told him to stick with what he knew. He knew mechanical systems.

His mechanical experience began in 1979 as a boiler technician and fire room supervisor in the Navy. After six years he was honorably discharged and awarded the Sea Service Ribbon and the Humanitarian Service Medal, which is awarded for meritorious participation in military acts or operations of a humanitarian nature. He went on to work as an injection mold



CHANCE

Working with students less than half his age was part of Gary High's student experience. He worked on a multidisciplinary team project between technology systems management and supply chain management to improve inventory management and reduce costs at a medical center in Cedar Rapids.

operator, truck driver, bulldozer operator and started a trucking company.

David Grewell, professor of agricultural and biosystems engineering, says Gary is an inspiration to other students. The first thing Grewell noticed is that Gary works with his younger peers as a team player. He says that was evident when Gary joined the robotics team, which took third place in the Association of Technology, Management and Applied Engineering competition in 2011.

"He was like a kid on the robotics team, but at the same time he provided the down-to-earth seriousness that kept the group focused," Grewell says.

"The robotic team caught my interest because it was a diverse group of young students with the enthusiasm to excel at applied technology," Gary says. "I found the experience satisfying and I made friendships that will last a lifetime."

That teamwork was also evident in a multi-disciplinary lean management

project combining students from Jacquelyn Baughman's technology systems management course and David Cantor's supply chain management class. The students evaluated the supply room at the Cardiovascular Unit at Mercy Medical Center in Cedar Rapids. The team's goal was to improve inventory management and reduce costs.

"It's all about efficiency," Gary says. "In this class we tried to eliminate excess inventory because that translates into extra costs."

Baughman, a lecturer in agricultural and biosystems engineering, says Gary is a leader in many ways and readily shares his knowledge and experience with other students.

"He knows when to lead, but he knows when to step back because the other students need that experience," Baughman says.

Grewell says Gary's story is one he'll never forget.

"He drives from Iowa Falls every day and he is the one student who is in class

early," Grewell says. "Gary is a great success story."


Gary's leadership and knowledge were helpful when Grewell took a group of students to Taiwan for his International Industrial Academic Leadership Experience class. Gary remembers Taiwan from his years in the Navy.

"I was there 30 years ago and it wasn't developed at all. Today, Taiwan is having an industrial boom," Gary says.

While he was in Taiwan he talked to his dad using the web conferencing tool Skype. Gary's dad had just been diagnosed with cancer, so it was important to stay in touch.

"I was computer illiterate when I started college, but my dad was still in the crank phone era and it was amazing for him," Gary says.

His father passed away in December, but Gary says one of the last things his dad told him was how proud he was of his achievements. **S**

A young man with dark hair and green eyes, wearing a red and blue plaid shirt over a white t-shirt, is looking upwards through a dense canopy of green leaves. The scene is set within a high-tunnel structure, with blue plastic mulch visible on the ground and the foliage above. The lighting is natural, filtering through the leaves.

Scott Thellman is a first-generation farmer in Lawrence, Kansas. The senior in agricultural business started selling hay when he was 15. He's expanded to include vegetables grown in high-tunnel structures.



BALING HAY

SPROUTS

By Barbara McBreen

VEGETABLE BUSINESS

“Growing the future of local agriculture, one plant at a time.”

That's Scott Thellman's mission statement for a business he started when he was just 15 years old.

Thellman, a senior in agricultural business, started a haying business with the purchase of a rusty hay rake and baler for \$100.

“I saved some of the money I earned from working on a local sweet corn farm and put it into fixing up the equipment that was sitting across from our house abandoned in a field,” Thellman says.

After refurbishing the equipment, Thellman managed to harvest close to 1,000 small square bales on his parent's land near Lawrence, Kansas. The bales sold quickly, and he realized he had found an underserved market.

“When I look back on my first few years I can't believe I stayed with it. My old equipment was constantly breaking down. One time, I even had two flat tires on the baler at the same time,” Thellman laughs. “When I started, I wasn't mechanically inclined, but now I can fix anything.”

After high school Thellman took a year off to concentrate on his business

while deciding where to attend college. He says Iowa State University stood out as one of the premier agricultural schools in the country with a strong entrepreneurship program.

As a freshman, he immediately saw the advantages and potential of the Agricultural Entrepreneurship Initiative. Thellman, who now serves on the initiative's student advisory board says the program introduces students to successful agricultural entrepreneurs and strategic business and marketing ideas. It also allows students to fashion their own career path with guidance from entrepreneurial mentors.

“The program improved how I make business decisions that affect my overall profitability and success,” Thellman says.

Kevin Kimle, director of the Ag Entrepreneurship Initiative, says Thellman was a student in his class as a freshman. Kimle describes how Thellman had his laptop open one morning before class, sharing information with classmates about recent stock trades he had made.

“It's so powerful for students to see other students who are practicing entrepreneurs,” Kimle says. “Scott is an example of the classic story of tinkering with something, finding it works and finding a market.”



Photos: Jeff Tuttle



Tom Sloan, one of Thellman's custom-baling customers in Lawrence, says Thellman has gone from using equipment that constantly broke down to technology that monitors inputs and yields. The data was invaluable during last year's drought.

"I'm getting maximum yields because he's helping me manage my hay ground," Sloan says.

Thellman's Juniper Hill Farms, LLC produces a variety of crops, with recent expansions into certified organic vegetables and small grains. He says expanding into the vegetable market required a new set of skills and business strategies.

One strategic change he's made in his operation is a shift from price-taking to price-making. He says if you have the right products for a specific market you can set your price instead of taking the prices set by the market.

"We provide square bales, certified organic vegetables and custom baling," Thellman says. "These niche products

are in high demand, which gives us the ability to negotiate our prices with customers. It really comes down to the relationship you have with your products, your customers and your community."

A portion of his farm is now USDA Certified Organic. Thellman says the certification allowed him to market both organic and conventionally grown forages and vegetables. Long term the certification will reduce input costs, increase sustainability and grow demand for his products.


Barb Kerr, a customer who buys organic hay, agrees. It was the only USDA Certified Organic hay she could find.

"Scotty's one of the most serious young farmers I know," Kerr says. "The organic methods he uses provide better hay and it's cheaper in the long run. He's found a way to help his customers and it's great."

Thellman began using high tunnel structures in 2010 funded with National

Resources Conservation Service grants. The tunnel extends Thellman's vegetable growing season.

His goal this year is to expand his market into more restaurants and grocery stores and increase production. At the same time he wants to make sure his products are affordable and available to all members of his community.

"In 2012, we donated over 400 pounds of fresh produce to local food banks," Thellman says. "Good business means that you truly serve every member of your community, which is a good feeling." 

ONLINE EXTRAS: www.cals.iastate.edu/stories

In his own words: Read Scott Thellman's thoughts on becoming a farmer in a blog post online.

3, 2, 1, NASA SCHOLARSHIP FUELS SUCCESS

By Haley Banwart

Four NASA scholarships; three research projects; two years of interning; one amazing student experience. That sums up Rebecca Meerdink's college experience.

The senior in environmental science is a four-time winner of the Space Grant Consortium scholarship that gives students the opportunity to experience a personalized research project under the supervision of a faculty member.

Meerdink first learned of the NASA scholarship from her older sister who was also a successful applicant of the award. The scholarship gave Meerdink the opportunity to participate in a series of innovative research projects under the supervision of Amy Kaleita, associate professor in agriculture and biosystems engineering.

One such project tested the impact of LED lights on soybean yields, relating to the efforts of growing plants in space.

Meerdink's most recent project involves studying the frequencies of nitrate, a substance known for playing a large role in water quality impairments. Her goal is to create a reasonably priced sensor that can take real-time measurements of nitrate levels in fields and streams so farmers can better gauge when to apply fertilizers.

"It is my hope that my work will help increase the data pool for farmers and researchers alike," she says.

Giorgi Chighladze, an agricultural and biosystems engineering research assistant, has been assisting Meerdink with her research.

"Her work advances our research by using radio frequencies to detect chemical footprints that help identify nitrate response. NASA is doing similar work to detect for water on Mars," Chighladze says.

Meerdink also had the opportunity to intern with the Iowa Learning Farms during the past two summers and gain hands-on experience. She studied the relationships between land use and water by taking field samples to test water quality.

Meerdink traveled across the state of Iowa with a unique fleet of trailers known as the Conservation Station, making appearances at events such as field days, county fairs and farmers markets. The Conservation Station trio is equipped with creative learning modules, simulators and other hands-on activities that demonstrate the importance of practicing good conservation.


Meerdink was trained to give presentations while using the Conservation Station's educational activities and tools.

"Using effective communication skills

was a good challenge for me," Meerdink says. "It was always encouraging when the kids were enthused and asked good questions or wanted to know more."

Based on her involvement with both experimental research and educating others about the environment, Meerdink is looking for a career with a blend of fieldwork and public speaking.

"There is still much work to be done to educate the masses," Meerdink says. "In order to accelerate progress, research must be done to obtain accurate information, which then needs to be effectively communicated to the public."

Her first step is graduate school. She's considering programs in agricultural drainage, cover crops, land management and water quality. 



As part of her internship with Iowa Learning Farms, NASA scholarship winner **Rebecca Meerdink** traveled across Iowa to educate about sustainable water and land use.

VOICES

By Mark Mueller

A CHALLENGE FOR TODAY'S MULTIFACETED FARMERS: TAKE ON ANOTHER ROLE—TEACHER

Mark J. Mueller ('81 ag business, '87 agronomy) is a fourth generation farmer near Waverly, Iowa. Production has included corn, tofu and seed soybeans, rye grain, azuki beans, alfalfa and silage corn. He has worked for seed companies, served as president of the Northeast Research and Demonstration Farm Association and hosted Iowa Learning Farms no-till field days. He is married with two daughters, and the oldest is pursuing a degree in agriculture and life sciences at Iowa State University.

Most facets of modern farming impress and occasionally inspire envy among my non-farming friends and acquaintances. Seldom are two days in a row the same. I answer only to my wife and my banker. Some pretty cool toys can be written off as business expenses. There are no cubicles. Every day is casual Friday.

With my job, I usually feel like I won the lottery, even during the "Great Drought of '12" which cut my corn yield in half. But, occasionally, I run into the perception that farming is little more than driving a tractor in the spring and driving a combine in the fall, all the while listening to the radio in air-conditioned comfort.

Agronomist, marketer, mechanic and purchasing agent quickly come to mind when I think of skills useful in farming. Less obvious ones include accountant, machinist, meteorologist, venture capitalist, chemist, engineer and truck driver. The more esoteric skills would include labor negotiator, blacksmith, geographic information specialist, human resources specialist and once in a great while, computer programmer. I don't need to master every discipline required to farm but I'd better be pretty good at a lot of them.

Farmers might be to blame for this perception of skills needed. We make it look easy, especially when we've spent the last several years in another "golden age" of agriculture. Today, the money (\$7 corn) and technology get everyone's attention. Most

don't realize landlords and seed, fertilizer, chemical and machinery companies also saw \$7 corn and raised their prices accordingly. The farmer's pie got bigger, and then everyone took a bigger slice.

I want non-farmers to know that, even now, when crop insurance and hedging strategies are supposed to guarantee profitability, farming is still a risky business that runs on a tremendous amount of borrowed capital. My banker is the most important person in my business. When the good times end, I'll need him more than ever.

Many outside agriculture only have fuzzy memories of farming, probably dating back to a photo of them on the seat of grandpa's tractor. Far more don't even have that tenuous connection.

My solution is for farmers to educate those around us. That can take several forms.

Our farm has hosted international visitors and local grade school students. Bus tours, organized by a Midwest lifestyle magazine, will stop in this year to hear "a real farmer talk about his business and even start a \$250,000 tractor." I've participated in panel discussions about food versus fuel or the merits of GMO crops and shared my international agricultural experiences with service clubs, college classes and church groups. Something as simple as a letter to the editor will reach and teach a few.

There is no shortage of opportunities for farmers to speak with people who don't have any exposure to farming. Teacher. That's another skill set to add to the list. **S**



Photo: Bob Elbert

Elyssa McFarland ('13 agronomy) farms 170 acres near Columbus Junction, Iowa. McFarland is an independent operator and financially responsible for her operation. She relies on her parents, Tom and Chris McFarland, for advice.



Photo: ISU Agronomy Department

VOICES

By Elyssa McFarland

EXAMINING THE ROOTS OF COMMUNITY

I'm a farmer. At 21 years old, you could call me a beginning farmer.

I grew up farming and now I farm 170 acres. I'm financially responsible for my own operation. I help my parents with planting and harvest and they help me.

Agriculture is in a major transition because people are more aware of their food sources. This, combined with advances in technology and environmental awareness, will result in exciting changes in the future. I decided to start out on my own in production agriculture because I wanted to be a part of that history.

I rent land from neighbors I've known all my life. When I'm away they call me with weather updates or just to ask how I'm doing. That's how I see farming. It's about caring for your community, your business and the land.

I just graduated with a degree in agronomy and I plan to pursue a master's degree in soil science and agronomy. My

hope is to work as a consultant or extension specialist before I go into farming full-time. I want others to see the soil as a natural resource where roots grow and flourish.

My first year of farming began with the usual struggles, but was further compounded by last year's historic drought. It was difficult, but I had planned for the worst-case scenario. What I didn't expect was the outpouring of support from my neighbors. Even though their farms were undergoing the same stresses, they would call or stop by and express their concern and hopes that this would not discourage me.

I didn't grow up thinking I wanted to farm, but Iowa State University helped me discover those roots. To help other young people succeed I've dedicated time to the Beginning Farmers Network at Iowa State.

In February, I helped organize the 8th Annual Beginning Farmers Conference. Experts, farmers and students gathered

to discuss farm succession, market outlooks and financing strategies. It was a conversation starter for both beginning and retiring farmers who realize that change is sure to come.

Today, people are removed from production agriculture and don't understand what's involved with farming. I wish consumers knew that taking risks is part of farming. You control input costs, capital purchases and field practices. You can't control weather, markets and land prices. As a farmer I try to manage these risks.

Like the soils across the landscape, farming provides the roots of a rural community.

Farming is more than the tractor you see planting or the combines that run during harvest. There's a lot of time and research that goes into planning, calculating and risking it all—to plant a seed. **S**

VOICES MEETING THE FOOD PRODUCTION CHALLENGE

By Maynard Hogberg

It's a source of great pride for Iowa State University to connect farmers to science. It's what we do. Science, from conception to consumption, has directly influenced the improvement of livestock and poultry.

When the land-grant system of higher education was initiated more than 150 years ago, it was the first time that a publicly supported research and extension program was established to improve food production and the lives of farmers engaged in feeding this country.

It's proven to be the envy of the world. Public funding encouraged the distribution of unbiased, science-based information. Linking the science to the farmer led to significant improvements in production and profitability in rural communities.

Examples are plentiful of applying science to solve problems or improve efficiency for livestock and poultry producers:

- Development of scientific testing and the application of genetic principles led to elimination of porcine stress syndrome (PSS) in swine.


- Genetics research that eliminated defects such as dwarfism in beef cattle.
- Research-based feeding regimes to reduce sulfur toxicity in feedlot cattle that are fed distillers grains with high levels of sulfur.
- Artificial insemination and embryo transfer have greatly improved the efficiency of production and accelerated livestock genetic improvement.
- Improved animal health through better vaccines has improved profitability, animal welfare and food safety.
- Application of manure management techniques has improved water quality and better utilization of nutrients in crop production.
- Research on animal behavior and stress physiology has positively influenced how modern animal housing is constructed.

It is a true dialogue. Scientific results prompted the farmer to ask further questions, stimulating creative thinking on how new research could make improvements. Science is an integral component to problem-solving on the farm.

One way we sustain this dialogue in our Department of Animal Science at Iowa State University is through an external advisory committee, which brings scientists and the livestock and poultry industry together. We convey research progress to the industry. Our faculty scientists and extension specialists can interact with producers to better understand their priorities and challenges. Strong communication ties are essential to make sure science and technology are transferred quickly.

Now more than ever that's important. Projections of a growing global population and the need to double food production over the next 40 years will require a rapid rate of application of new technologies. New scientific advances in livestock production systems will need to minimize environmental impacts, lowering the carbon footprint per unit of food produced. They will need to produce safe, nutritious foods while simultaneously improving animal well-being. And, as we have strived for so many decades, they must help our farmers and their families thrive and remain in the business of protein production.

For this to work quickly and efficiently will require strong and sustained public support and funding for research and extension of our food system.

The consumer is the ultimate benefactor. Science adopted by Iowa's livestock and poultry farmers should result in safe, wholesome and affordable food that is produced with minimal environmental impact and in a socially acceptable manner. 

Maynard Hogberg is professor and chair of the Department of Animal Science in the College of Agriculture and Life Sciences.

Photo: Bob Elbert



Greg Tylka is one of the nation's leading experts on soybean cyst nematode. He says, "I feel like I work for farmers."

SERVING IOWA FARMERS, KEEPING NEMATODES AT BAY

By Virginia Zantow

Greg Tylka's eyes light up when he talks about microscopic roundworms. He can't help it. Tylka finds soybean cyst nematode (SCN) biologically intriguing. The professor of plant pathology and microbiology is one of the nation's leading experts on the pest. Even though he's studied it for over 20 years, he says the tiny worm can still mystify him with its unpredictable ways of interacting with soybeans and other pests.

"I'm always looking forward to the next question or the next problem," Tylka says.

It seems that SCN, estimated to infest 75 percent of soybean fields in Iowa, is always providing that next question or problem.

"The coolest thing about SCN," Tylka says, "is that it actually changes the physiology of the soybean it attaches itself to so the plant reacts differently to other pests and organisms."

For example, when the soybean plant is being fed upon by the soybean aphid, SCN seems to thrive, perhaps because the aphid shuts down some of the plant's defenses. On the other hand, as nematodes

feed on soybeans, soybean aphids do not fare as well as they do on healthy plants. It's enough to make a non-pathologist's head spin.

Tylka and his colleagues also have found SCN breaks soybeans' resistance to brown stem rot, and nematodes make sudden death syndrome much worse. Tylka and his team are trying to determine why this is.

While Tylka has chased clues to the many riddles of SCN over the years, soybean farmers in Iowa have benefited greatly from Tylka's work.

"I feel like I work for farmers," Tylka says.

This is literally true. Over the course of his career, Iowa soybean farmers have funded much of his research through soybean checkoff funds.

Kirk Leeds, CEO of the Iowa Soybean Association, says Tylka is a leader as a researcher, and he takes his Extension role to heart.

"One of the most significant contributions Tylka has made to the soybean industry was in the '90s, when he led

the SCN Coalition, bringing together pathologists across the country to educate farmers about SCN and how to manage it."

The tagline for the SCN Coalition was, "Take the test. Beat the pest." That simple advice is still the way to keep SCN at bay: getting soil tested for the pest, growing SCN-resistant varieties and sometimes growing other crops for a year.

Tylka and his crew test hundreds of SCN-resistant soybean varieties every year—an operation he refers to as "a well-oiled machine" that has been running for more than two decades.

He recently began evaluating new seed treatments claiming to ward off SCN. And, in 2012, farmers were reeling from the effects of the drought, but SCN was undaunted.

"SCN reproduction went crazy high. Soybean yields did not decrease, but the nematode count skyrocketed," Tylka says. "It opens up a new set of questions I want to attack." **S**

THE SCIENCE AND PRACTICE OF FARMING

FARMING FORWARD

BY MANAGING MICRONUTRIENTS

By Virginia Zantow





Photos: Melea Reicks Licht

*Jim and Barb Halbur (above) are about as well known for being devoted Cyclone fans as they are for their advanced farming operation. The Halburs hosted a tailgate tour stop for Iowa State Athletics that also gave ISU President **Steven Leath** (opposite page, center) a chance to tour their grain and chemical facilities with **Brian Halbur** (left) and extension field agronomist **Mark Licht**.*

Farmer Jim Halbur and his family are making the most of expertise offered by Iowa State University Extension and Outreach field agronomist Mark Licht. But if you ask Licht, the relationship is far from one-sided.

“Working with farmers like the Halburs allows me to see how our recommendations work in the field,” Licht says. “I also can see what further research and information is needed.”

The Halburs, who farm near Glidden, Iowa, agree. They call theirs a “symbiotic relationship.” The Halbur operation consists of Jim (‘78 farm operations),

Barb, an ISU education grad and three sons: Brian (‘03 agricultural studies), Scott (‘05 agricultural business and economics, MS ‘06 accounting) and Jay (‘08 agricultural business). Son Chad (‘11 ag studies and accounting) is a lawyer in Chicago and daughter Bridget (‘13 ag studies and accounting) is working on her law degree at Kansas State.

The Halbur farm produces mostly corn, but will also include soybeans this year.

“The Halburs run a modern and efficient operation,” Licht says. “They’re progressive farmers who offer insight into where farming’s going.”

Science-driven decisions

Licht first connected with Halburs several years ago when they reached out to him with questions about soil sampling.

That opened a door for discussions about micronutrients—which ones were needed on their fields, and where. Licht was able to help them pinpoint what they needed from fertilizers in order to reach a higher level of production.

“He’s like the pharmacist of soils,” Barb says.

Licht’s agronomic expertise equipped the Halburs with the knowledge necessary to make an important decision for their



Photo: Melea Reicks Licht

Brian (left) and Jay Halbur discuss signs of possible nutrient deficiency or foliar disease with **Mark Licht** (center), extension field agronomist.

farm—acquiring their own on-site facilities for mixing and storing vital liquid chemicals and dry fertilizers.

Because of these facilities, the Halburs now have the ability to mix their own fertilizers and customize them to their fields' current needs. This gives them optimal control for fine-tuning what goes into the soil.

Brian, who works full-time on the farm and makes a lot of the management decisions, says Licht helps him decide “which products to use, how much to use and what’s going to pay back.”

“Every decision always starts with agronomics,” Licht says. Basic knowledge of soil fertility helps guide the Halburs when they make big decisions.

“Fertilizer technology has changed,” Brian says. “They’re starting to stack a lot more nutrients on a pellet or a granule. You have to make sure that the value is there. Mark and I work quite a bit on trying to back-figure to the base ingredients, because you can buy the same base ingredients that are on the granule.”

Buying fertilizer ingredients in bulk not only helps fine-tune soil fertility—it also saves money. The same goes for micronutrients like sulfur and zinc, which Licht has identified as desirable for

improving soil fertility on the Halbur farm.

Elemental sulfur is more stable in the soil after it has been applied. Instead of using elemental sulfur, the Halburs have used their environmentally safe facilities to mix ammonium thiosulfate, which they’ll use in the meantime while building sulfur levels in the soil with elemental sulfur. They also have mixed and applied ammoniated zinc.

It’s paid off.

“Both those facilities are expensive, but the savings going to this ammonium thiosulfate and ammoniated zinc while you bridge the gap is such a huge amount that it pays for the installation of the system and beyond,” Brian says.

Spirit of independence

The spot of land where the sleek, metal facilities for bulk chemicals and dry fertilizer stand also hosts grain storage and drying facilities.

The high standards the Halburs maintain at their grain facilities enable them to sell their corn to specialty processors.

“Being able to store it and dry it ourselves results in a higher test weight and a cleaner product,” Jay says.

Storing their own grain also helps the Halburs maintain their independence.

Instead of having to rely on a third party to store their grain, the family has complete control over their own product.

“A big theory on this farm is: direct from the manufacturer, direct to the end user,” Jim says.

This independent spirit is certainly a running theme in the Halburs’ life, and it’s one of the things that keeps them on the agricultural forefront. It also puts ISU Extension and Outreach in a position to be extremely valuable to the Halburs’ operation.

“The university provides independent research that checks the performance of products,” Scott says. “Extension provides agronomic advice about that research, how products work and changes in the industry.”

Licht connects the Halburs to other Iowa State researchers who offer different expertise as needed. And, he connects the family with international guests—farmers from countries like Ukraine and Brazil—who want a look at farming in the United States. That helps Licht provide an advanced view of Iowa agriculture to groups he hosts and allows the Halburs to showcase their operation and visit with farmers from around the world. ■

NAVIGATING A RISKY BUSINESS WITH SMART MANAGEMENT

By Willy Klein

Folks in north central Iowa know Kelvin Leibold and trust he has their best interest at heart. As their ISU Extension and Outreach farm management specialist for the past 25 years, he has helped educate landowners at farm leasing meetings and in one-on-one conversations; pork producers on manure management plans; farm producers with each new farm bill; and over 5,000 John Deere employees about farming.

Some say Leibold ('77 ag education, '87 MS) has an inquisitive nature and a passion for agriculture that's infectious, especially combined with his ability to relate to Iowa farmers.

"There is no doubt that our business relationship with Kelvin has added to our bottom line," says Jenny Thomas, Humboldt County farmer. "Back in the '80s he walked us through risk analyses before we made some tough decisions."

Those decisions created the foundation for their family farming business to expand on; today Jenny is the primary operator. She credits support networks established through Leibold for her self-confidence in making difficult decisions.

"His Women's Grain Marketing Club's regular meetings keep me focused on this important component

of my business," says Thomas. "Not only do I have a broader perspective of the factors affecting prices, but I get to meet other women who are making the grain marketing decisions for their family."

Since Leibold started with extension in 1987, farming and educational technology have changed. There is more data available to farmers, and the dollars farmers manage are much greater. But, Leibold says, one thing remains the same. "When I sit down with a farm family, whether the situation is a startup, a retirement or bringing in another generation, it's still all about managing the risks associated with running a family business."

Such was the case when Dave and Annette Sweeney returned to Iowa and her family farm near Radcliffe in the '80s. "He knows the best possible scenario for people isn't always the one they want to hear, but he has the ability to remove the emotion from the situation and make it about the business decision," Sweeney says.

His clients—farmers, lenders, land owners and ag businesses—get information faster and more frequently, making them more sophisticated in their decision making says Leibold. He's appreciative of his clients' vast knowledge and interests and doesn't hesitate to involve them beyond the typical farm management meeting.

Clients say Leibold's contributions to the ag community go beyond programming, analyses and facilitating conversations. It's more personal than that. He takes time to get to know them and their interests, and he knows when he has new information they'd like to have.

That was the case when he approached Annette Sweeney with the Annie's Project curriculum before the national farm women's education program was introduced in Iowa. He knew Sweeney's experiences made her a good candidate to review the program content and its application with women in Iowa.

Leibold's international work and how he transfers knowledge illustrates the ripple effect of his contributions, in Iowa and as far away as Nigeria.

Jenny Thomas says hearing Leibold talk of his work in Nigeria inspired her to volunteer for the Women in Agriculture project in Uganda, coordinated in part by ISU Extension and Outreach. She recently returned from her second trip to Africa saying the project has empowered Ugandan women farmers to better provide for their families and be bolder business women.

Matt Siefker, an Eagle Grove farmer, says he goes to all of Leibold's meetings because, "He's a good person to learn from. He's been out and about in Africa, Asia and South America. I enjoy hearing what he has to talk about."

When hosting Nigerian and Ukrainian farmers, Leibold sets up tours of Siefker's farm so the young Iowa farmer can connect with farmers from those regions.

"I think the more information I can share with Iowa farmers about what is going on the better. Whether it's about the global food markets and bio-fuels, legislation on environmental issues or potential impacts of carbon sequestration and the carbon footprint of our agriculture compared to the rest of the world—it makes them more knowledgeable and competitive in world markets," says Leibold. ■



Photo: Bob Elbert

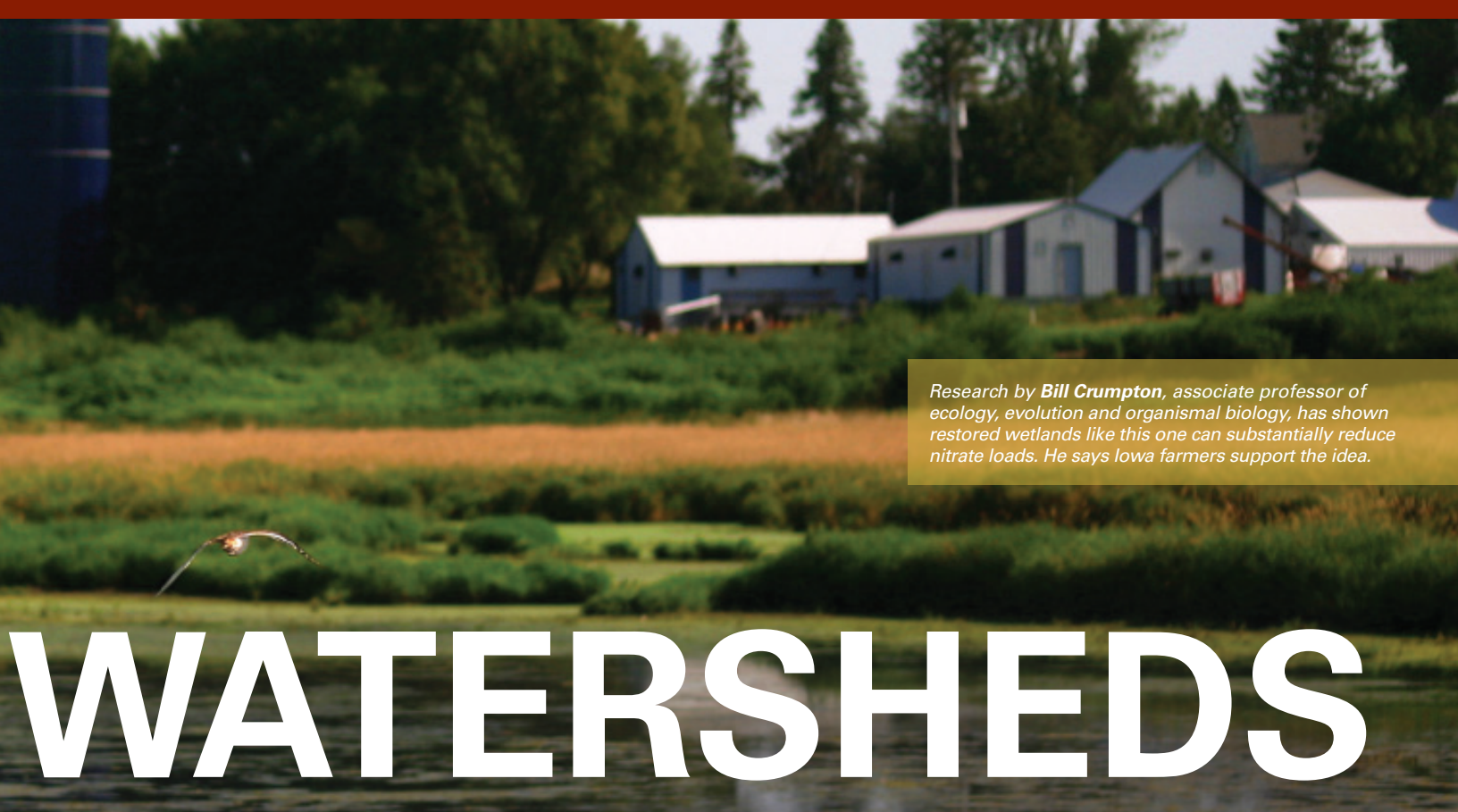
Extension farm management specialist **Kelvin Leibold** looks for ways to help farmers manage risks. He hosts the Women's Grain Marketing Club to discuss factors affecting prices and provide networking opportunities.

REDUCING RUN-OFF MAKES BIG IMPACT IN FIELDS &

By Ed Adcock



***Matt Helmers** and colleagues are researching the use of prairie grass strips in crop fields. They have found the practice can reduce sediment export 95 percent.*



Research by **Bill Crumpton**, associate professor of ecology, evolution and organismal biology, has shown restored wetlands like this one can substantially reduce nitrate loads. He says Iowa farmers support the idea.

WATERSHEDS

Producers wanting to reduce soil and nutrients from leaving their fields can look to techniques developed by Iowa State researchers. These practices span the scale from in-field to watershed.

There is a lot of interest in using bioreactors, trenches filled with wood chips, to intercept tile flow at the edge of fields, says Matt Helmers, associate professor of agricultural and biosystems engineering. This emerging technology is being used at about a dozen sites in Iowa treating approximately 60 acres each. He says the bioreactors are getting attention because they are at a scale individual farmers can implement.

Helmers and his colleagues also are researching strategically placing strips of prairie grass into crop fields at the Neal Smith National Wildlife Refuge. The practice can reduce sediment export 95 percent using 10 to 20 percent restored prairie within the row crop system. The research team is working to create demonstration sites around

the state in association with the Iowa Department of Agriculture and Land Stewardship (IDALS) and the USDA-Natural Resources Conservation Service.

Researchers also are investigating the benefits of including cover crops in row crop systems. Helmers' research has found reductions in nitrate leaching with a winter rye cover crop, while other research shows reductions in soil erosion and phosphorus loss. "There seems to be a lot of interest in cover crops not only for the benefits for water quality but also the longer term benefits to soil quality," Helmers says.

These measures have promise, Helmers says, but research suggests that in-field practices alone may be insufficient to achieve the desired reductions in nitrate export.

Research led by Bill Crumpton, associate professor of ecology, evolution and organismal biology, has demonstrated that restored wetlands can substantially reduce nitrate loads if the restorations are strategically placed.

"It's not just wetland creation, it's targeted and strategic, so they intercept and remove contaminants," Crumpton says. A strategically placed and properly designed wetland as small as 10 acres can remove 35 to 90 percent of the nitrates exported from a 1,000-acre drainage basin.

Crumpton's work provided the technical basis for the Iowa Conservation Reserve Enhancement Program (CREP). This program, sponsored by IDALS and the USDA-Farm Service Agency, provides permanent easements to strategically restore wetlands that remove nitrates from tile drainage water. Over the past 10 years, a total of 72 wetlands have been established through the Iowa CREP with the combined capacity to remove nearly one million pounds of nitrogen each year.

"Iowa farmers have been very accepting of wetland restoration, especially targeted for this purpose, and landowners appreciate the wetlands for benefits beyond nitrate removal, such as wildlife habitat," Crumpton says. ■

Photo Credit: Iowa Department of Land Stewardship

MAKING SENSE OUT OF SCIENCE

By Lynn Laws

Animal Science Professor Leo Timms has a knack for making science simple. The extension dairy specialist leads the Iowa State Dairy team, which develops and provides educational events and publications addressing all areas of dairy production.



*Extension dairy specialist **Leo Timms** works to improve animal health, animal well-being and product safety. His research-based tools and processes have improved animal health and performance worldwide.*

"I try to help make things simple and understandable, including economics, so ultimately people can make better decisions that improve animal health, animal well-being and product safety. When you do all those, it's profitable for the farmer and everyone else," says Timms.

Donna Moenning, senior vice president of integrated communications at the Midwest Dairy Association, says Timms "makes sense out of science" for the entire dairy industry, health professionals and the general public.

"It's a win for everyone, including consumers, who value sound, fact-based, transparent information about how their food is produced," says Moenning.

Mario Lopez-Benavides, manager of technical service and clinical trials at DeLaval Manufacturing, says Timms' "whole-picture approach" and his "keep it simple" attitude is what makes him a great teacher, researcher and developer of new products and processes.

"For our research and development team working on milk quality and animal health, partnering with Leo in developing practical, on-farm solutions over many years of collaboration has been a success," says Lopez-Benavides.

In his 27 years at ISU, Timms has given over 550 invited talks on everything from

dairy economics and finance management to crop, manure and energy systems to human resource management. And his research has provided new tools and processes needed by the dairy industry to ensure animal health and performance.

His sealant technologies for mastitis prevention resulted in seven patents, commercialization and use worldwide. Marketing surveys in 2012, by Hoard's Dairyman, showed a 58 percent adoption rate of these technologies in North America. And his collaborative research on simple mastitis tests at calving is used by more than 40 percent of the industry. His observational model on teat health led to development of international teat health scoring systems and adoption worldwide.

Timms' current research includes ways to keep dairy cows' feet and legs healthy and novel ways to treat diseases in dairy cows with antimicrobials.

Timms teaches numerous classes on campus—many of which he developed—about dairy farm practices and management and animal health and performance.

Patrick Gorden, director of Food Supply Veterinary Medicine at Iowa State and former student of Timms, says Timms' first-in-the-nation dairy animal production medicine course in 1984, "led to the development of similar courses in all of the other food animal species. These courses have become a core essential in the education of food animal veterinarians throughout the country."

Timms also has responsibilities for the Iowa State Dairy, which, at any given time, has a herd average of 440 cows and 330 growing calves. He and the rest of the dairy team are currently researching cost-effective dairy milking systems that make milking less physically demanding for dairy producers. **S**

GROWING MORE WITH LESS

By Darcy Maulsby



Photo: Brent Pringnitz

Agronomist Antonio Mallarino's insights on phosphorus use led to the development of the Phosphorus Index used by Iowa farmers to determine nutrient management plans.

High yields don't happen by accident. They demand a science-based approach to soil fertility and sustainable agronomic practices—key areas of research for Antonio Mallarino and John Sawyer.

"Iowa farmers are among the best in the world," says Mallarino, a professor of soil fertility at Iowa State. "They love the land and are very good at helping me keep my feet on the ground, so my research is useful."

His research helped create the Phosphorus Index in 2000. Developed for the Natural Resources Conservation Service, the Phosphorus Index was adopted by the Iowa Department of Natural Resources for nutrient management plans. The index offers a site-specific, farmer-friendly tool that balances cost-effective crop production with practical soil and water conservation practices, says John Lawrence, associate dean of extension and outreach in the College of Agriculture and Life Sciences.

"The Phosphorus Index allowed us to address regulatory pressure and environmental concerns and still allows us to farm," says Lawrence, who notes other

states look to Iowa State for guidance in creating similar tools for their farmers. "Iowa is a better place because of this work."

The science and practice of agriculture remains a passion for Mallarino, who helped his father manage their family's farm while he pursued his agronomy degree at the University of Uruguay. "I often think as a farmer first and a scientist second," says Mallarino, who joined the faculty after earning his doctorate in crop production and physiology at Iowa State in 1988. "From the start, I've wanted to help farmers become more profitable while taking care of land and water resources."

Roy Bardole farms with his sons Tim and Pete near Rippey, Iowa. They have assisted Mallarino with on-farm research, including a study to determine whether the deep placement of fertilizer in a strip-till system for soybean production works better than other application methods. "We need these kinds of real-world answers," says Bardole, who has served on the American Soybean Association and the United Soybean Board. "Very few researchers around the globe have Antonio's objectivity and commit-

ment to benefiting local farmers."

John Sawyer, professor of agronomy, shares this commitment to serving Iowa farmers. He is focused on providing farmers with cost-effective, appropriate agronomic practices, from nitrogen applications to soil conservation. When new research revealed that existing nitrogen recommendations were higher than necessary, Sawyer helped fine-tune nitrogen application guidelines in the mid-2000s for different states and different regions within states, including Iowa.

"Iowa farmers are receptive to new ideas," says Sawyer, who has served as an extension soil fertility and nutrient management specialist since 1998. "We want to provide relevant research to address timely issues and help farmers find solutions."

As farmers make crop nutrient decisions every year in the face of uncertain weather and market conditions, their decisions have important economic and environmental consequences, Lawrence adds. "The applied research and extension education by John and Antonio provide practical solutions to complex questions." ■



ISU Extension and Outreach's **Jenn Bentley** (right) discusses calf health parameters and evaluates calf growth with herdsman **Jessica Hanson** as they work to determine a successful calf program.

Dairy production is a labor intensive way of life for many families in northeast Iowa—and has been for generations. Jennifer Bentley comes from one of those families. Her work as a dairy specialist with Iowa State University Extension and Outreach keeps her true to her roots.

Bentley ('02 dairy science, MS '10 agriculture) grew up on the Stacyville dairy farm her father and brothers still operate. She has built her career

means they get more nutrients and are healthier. Data gathered by the robotic milkers is used to improve cow management and production.”

Brian and Eileen Hoefler have a “family” dairy because of robotic milking. The family manages their 180-cow herd without hired help since adding robotic milkers in 2011. Three robots milk and compile daily records—available via computer—about herd health, feed use, animal weight, milk production and if a cow is in heat and ready to breed.

understand how to make our investment in the automated system cash flow for us.”

“Farmers learning from farmers” is the concept Bentley used when she started a young dairy producer peer group two years ago. All members are young couples just getting started in business. At quarterly meetings, they cover a topic they have selected and review benchmark data.

Monica and Brian Enyart both grew up on dairy farms. They have 120 cows, milk 95 with help from Brian’s dad—and are raising two preschoolers. They joined the young dairy peer group to increase their information and social networks.

“We’re all at the same stage of life, so it is a very comfortable group to interact with. We have the same questions, same problems,” says Monica ('06 ag ed). “Without this interaction, we’d keep doing things the same way and getting the same results. This group allows us to evaluate what we are doing, see what others are doing and learn about different

or better ways of solving our problems.”

Peer group members keep data sheets and review them at each meeting. “Before we began using the data sheets, we’d get the milk check every month but never compare it to previous months and we never compared to other producers. Now we do both,” says Monica Enyart. “We have six quarters of data to compare and we are identifying adjustments to increase our profits.”

The peer group setting allows for good conversations—and the calculated benchmarks are a key part of the conversations. Jenn Bentley knows that initiating good conversations—over benchmarks or new technology—is key to supporting families committed to the dairy lifestyle. ■

CONVERSATIONS By Willy Klein CENTRAL TO ADVANCING DAIRY LIFESTYLE

connecting dairy families to local and Iowa State University resources and education, first as an ag research technician, educator and calf manager at the Northeast Iowa Community Based Dairy Foundation in Calmar, then in her current role with extension.

With the potential to add to the bottom line and quality of life, new technologies are of particular interest to Bentley’s clients. Robotic milkers milk the cows; automated feeders provide nutrients to young calves; and dairy producers check cow data on cell phones while walking among the herd.

“There is increasing interest in automation and robotics because of the many benefits,” says Bentley. “Besides being less labor intensive, automatic calf feeders allow calves to feed more often, which

Bentley encourages the Hoeflers to share their new technology experiences with other producers. “Farmers tell us they like to learn from other farmers,” says Bentley. “As the Hoeflers talk about the robotic milking and automated feeding technologies, they are helping other dairy producers make decisions for their operations.”

Early adopters like the Hoeflers turn to Bentley when considering new technology. After hearing her speak about ventilation in calf systems the Hoeflers consulted her about their plans to add automated calf feeding to their operation.

“Jenn was a great person to discuss our ideas with,” says Hoefler. “She came back with information, education and links to Iowa State University that helped us

WINDS OF CHANGE

By Brian Meyer

Drawing concentric circles around swine barns never made sense to Steve Hoff.

That's what he saw in source-based swine odor models. Like a pebble dropped in a pond, the models seemed to say the more ripples you put between a proposed facility and neighbors, the better.

That's backwards, says Hoff, a professor of agricultural and biosystems engineering. "What's real are those living nearby who may be on the receiving end of odors."

That's where he focused his research, which led to development of a revolutionary receptor-based model called the Community Assessment Model, or CAM.

Since 2005, CAM has been a valuable preplanning tool offering guidance for hundreds of Iowa pork producers on where to build new facilities.

"Steve's model uniquely anticipated where a potential odor problem would be," says Jay Harmon, a professor of agricultural and biosystems engineering and extension agricultural engineer. Hoff and Harmon care for and maintain CAM.

Hoff fed the model with years of ISU research data, including emissions; downwind odor concentrations; and historical weather and atmospheric patterns. CAM notes location of neighbors, other odor sources, number and age of animals, seasonal ventilation rates and more.

Instead of concentric circles, CAM produces shifting oblong or jagged shapes that illustrate where odor may move, depending on predominant weather and

DATA-DRIVEN MODEL DIRECTS LOCATION OF SWINE BARN

the seasons. The model estimates what percentage of time a neighbor may be exposed and factors in how odor-reduction technologies would benefit sites.

CAM is intentionally voluntary and conservative, Hoff says. "It errs on the side of caution. We want a farmer to start out on the right foot by considering his neighbors."

If Hoff and Harmon are the brains behind CAM, then its face is represented by Colin Johnson of ISU's Iowa Pork Industry Center and Kent Mowrer of the Coalition to Support Iowa's Farmers.

For more than eight years, ISU and the


coalition have partnered to advise farmers on selecting sites. The coalition's mission is to help farmers raise livestock responsibly and successfully.

Mowrer, a field specialist, makes initial contacts, answering farmers' questions and determining if a situation would benefit from running CAM.

Johnson, an extension program specialist, brings to the table extension resources on environmental, economic and community stewardship. "I stress that growth needs to be environmentally, socially and economically sustainable," he says.

Mowrer says that although CAM may not be run for every site, it's there in spirit. "Each time we go to a farm we're using ISU's science that went into CAM. CAM really helps explain the importance of putting new barns where they'll have the least impact."

Recently, Mowrer says about two-thirds of the calls fielded by the coalition have been from young people. A new hog barn is a step that makes economic sense to sons or daughters who want to farm.

"Many of these young people will be tomorrow's leaders who'll invest in their communities and schools," Johnson says. "That's a win-win for everyone." 

Jay Harmon (left), Steve Hoff (center) and Colin Johnson help farmers use a computer model to choose neighbor-friendly locations for new swine facilities and deliver a message of responsible environmental, economic and community stewardship.



Photo: Bob Elbert

FARMING WITH A FOCUS

ON ENVIRONMENTAL, ANIMAL WELFARE

By Melea Reicks Licht

Heidi Vittetoe has thick skin. It has helped her protect what's at her core—the care and commitment to her family, her animals and her state's most vital industry.

Vittetoe ('80 animal science) and her husband Jerome run a fourth-generation farrow-to-finish sow operation near Washington, Iowa,—JW Vittetoe Pork, Ltd. She is the general manager of the pork operation, which markets about 250,000 hogs annually, employs 65 individuals and has 30 local farmers as contract growers. Vittetoe's two daughters are integral parts of their business. Rachel (Berdo) is the office manager and human resources expert and Amanda (Adam) is the nursery supervisor.

During her 30 years raising hogs, Vittetoe has seen consumer demand shift towards a leaner product that's still moist and flavorful. And more consumers want to know how their pork is raised.

"It is important to us to listen to consumers and to maintain the best welfare of the animals," she says. "We have worked to nearly eliminate our use of antibiotics in feed, emphasizing vaccines for prevention. When pigs do get sick, we use more of supportive therapies like aspirin or ibuprofen."

Pigs have unique needs at different ages. The Vittetoos work hard to address those needs by providing the right feed, the right environment and the right handling at every stage. They make that happen by implementing new technologies in the breeding process to improve uniformity of pigs in barns, thereby shortening the marketing

window. And, she says, using computers to keep track of everything from genetic markers to sales data to feed rations has revolutionized the industry.

Vittetoe was honored by the Iowa Farm Bureau Federation as the 2011 Woman in Agriculture, in recognition of her outstanding leadership.

She and her husband have been named Iowa Master Pork Producers by the Iowa Pork Producers Association and Pork All-Americans. While she's a known leader and advocate for agriculture, she's also a leader in her community serving on the school board, in her church and, in years past, with state and local Farm Bureau activities.

When she was appointed to the Iowa Environmental Protection Commission in 2003, she offered a farmer's perspective to the group that provides policy oversight over Iowa's environmental protection efforts.

Lori Glanzman, former director of utilities for Mount Pleasant, Iowa, served on the commission with Vittetoe.

"When Heidi said something, people listened. Her input always carried weight. Her comments were always thought through," Glanzmann says. "She's one of the smartest women I know."

Vittetoe's service on the commission prompted some discussion about farmers' role in shaping environmental policy. "I found it ironic when charges were leveled



Photo: JBS United

Heidi Vittetoe has seen the pork industry evolve over the last 30 years as consumers ask for leaner products and more details about how animals are raised.

that in having an impact on rules about hog production, I somehow had a conflict of interest," she says. "I was there to offer my authentic, real-life experience."

Those are the times when having thick skin pays off.

She takes a balanced view of critics. "I would have taken it much more personally if someone had said I didn't have the backbone to stand up for what I thought was right," Vittetoe says.

What she believes in is staying positive and building trust.

"I make a point of asking our employees to spread the good news of ag. This year we began training them on all aspects of the company so they could clearly articulate what we're about," she says.

Vittetoe builds trust with consumers through open communication and transparency.

"When we offer tours of our barn and talk about why we do what we do, I feel that people leave feeling better about not only hog production, but about where all their food comes from," she says. ■



LIVING HISTORY

By Melea Reicks Licht

USHERING IN A NEW ERA IN AGRICULTURAL EDUCATION

As Antoine Alston shares his journey from North Carolina to Iowa State and back he includes African Americans' contributions to agricultural education throughout history. It's clear their stories are his stories, too.

Every story he tells in his animated Southern drawl reveals his reverence for the past. Carving out his place in history rests upon his shoulders as an opportunity and a responsibility he takes seriously.

Alston (PhD '00 agricultural education) is the interim associate dean for academic studies at North Carolina A&T State University and a professor of agricultural education.

Alston proudly shares how his grandfather attended a segregated high school in North Carolina and went on to earn a bachelor's degree from the Delaware State University in dairy science—an accomplishment of exceptional merit for an African American in 1939. Alston's father was his high school agriculture teacher and his mother a third grade teacher.

One of his stories includes his role as caretaker of the New Farmer Association (NFA) archives.

"The New Farmers Association was like the black FFA. For my father, like many African Americans with a rural interest, the NFA provided the first introduction

to college through animal judging and plant identification contests," Alston says. "Ensuring careful stewardship of the organization's archives is part of my legacy."

Created in the 1930s, the NFA was merged with the FFA in 1965 as a result of the Civil Rights Act.

Tradition of warm welcomes

Alston earned his undergraduate degree at North Carolina A&T State University in 1996. He was drawn to Iowa State University in 1998 by its "stellar reputation" and the recently launched George Washington Carver Fellowship Program. He also was impressed by the College of

Antoine Alston is helping to propel agricultural education forward through advances in instructional technology. The professor and interim associate dean at North Carolina A&T State University also is an expert on inclusivity in agriculture.

Agriculture and Life Science's commitment to supporting minority populations.

"You can't have a conversation about agriculture without Iowa State University—whether it be agricultural research or the historical advancements of the industry," Alston says. "It also has a reputation for high minority graduation rates and welcoming African American students with open arms. That's one reason I refer so many of my own students to Iowa State."

Alston studied under agricultural education professors Wade Miller and Greg Miller and also worked with department mainstay Harold Crawford, emeritus professor. He says their teachings relate to every day of his career.

"Antoine was a serious student with clear goals about what he wanted from the Ph.D. program and where he was headed professionally," says Greg Miller. "Antoine has been an outstanding member of the discipline and his accomplishments in teaching, research and service certainly justify his meteoric rise as a professor."

Alston was the first George Washington Carver Fellow to graduate with a doctorate. He was just 24 when he defended his dissertation. Since then, the Iowa State fellowship program has provided full tuition to 34 master's and doctoral candidates from underrepresented populations with preference given to those from traditionally black or Hispanic serving institutions.

Dynamic diamonds in the rough

After earning his doctorate at Iowa State in 2000, Alston joined the faculty at North Carolina A&T as an assistant professor that same year. Since then he's earned tenure and served as coordinator

of agricultural education graduate and undergraduate programs.

"I came back to North Carolina because that is where my heart is. Historically black institutions have a tradition for taking diamonds in the rough and molding them into dynamic individuals," Alston says.

Alston says one benefit of a smaller department is the opportunity to teach "everything" which for him includes rural leadership, instructional technology, diversity and inclusion. He has created fifteen online courses.

Former advisee and current colleague Chastity Warren English credits Alston for helping her complete her thesis project and inspiring her to take on a doctorate program.

"He was there to the very end to make sure that I accomplished this goal. And he has done the same for so many students over the years," Warren English says. "He is a true champion for agriculture, students and higher education."

During his tenure at A&T Alston moved the agricultural education master's program online and grew the program's notoriety. It earned a spot in the top 100 online education programs with a ranking of 85 from *U.S. News & World Report*.

"I attribute part of that success to Dr. (Harold) Crawford who I worked with as part of my fellowship in the Brenton Center for Agricultural Instruction and Technology Transfer in the college. That gave me my background and understanding of where education is going," Alston says.

He also created an online "2+2" program, which allows individuals with associate degrees in agricultural disciplines to transfer and complete a bachelor's in agricultural education from A&T. The first online teacher education candidates

in such a program graduated in 2006. As a result, their enrollment has dramatically increased and transfer students experience a smoother path to graduation.

In mentoring undergraduate and graduate students Alston hopes to inspire them to pass along their passion for agriculture and the environment. His impact on students has been recognized with numerous awards in recent years including Fellow of North American Colleges and Teachers of Agriculture; Outstanding Contribution to Agricultural Education from the National Association of Agricultural Educators and National FFA; USDA Food and Agriculture Sciences Excellence in Teaching Award (Southern Region); and the University of North Carolina Board of Governor's Teaching Excellence Award.

His research interests are focused on instructional technology, distance learning and inclusiveness within agricultural education learning environments, particularly as it relates to minority populations.

Speaking out for inclusiveness

With such enthusiasm and expertise on the role minority populations play in agricultural education and the agricultural industry it is understandable that Alston is a popular speaker on the subject. His message is simple.

"Have an open mindset. Be inclusive and demonstrate a sense of tolerance of other ideas and backgrounds. Be willing to be a mentor. Find opportunities to create an all-inclusive environment in your profession. We live in a global society and if your organization doesn't mirror that, it isn't serving the population and it isn't going to survive." ■

The Christensens own and manage a farm and feedlot near Royal, Iowa. Jim says the care and comfort of their animals is the farm's first priority.



GROWING STRONG CONNECTIONS TO AGRICULTURE

By Barbara McBreen

If you ask Julie and Jim Christensen about their greatest accomplishment they will tell you—it's their children's connection to agriculture.

"All four of our children have a deep love for agriculture and they are proud of those roots," says Julie.

Jim ('80 farm operations) adds, "They are proud of where they came from and they understand the responsibility of caring for the land and animals."

The Christensens own and manage a farm and feedlot near Royal, Iowa, where they have raised corn, soybeans, beef cattle—and a crop of ISU agriculture and life sciences graduates—for more than 30 years.

"We enjoy what we do," Julie says. "We have chores every day and we like getting up and getting going."

They agree there isn't an average day at the farm, but that's what makes it exciting. Their philosophy is simple.

"The care and comfort of our animals is our first priority every day," Jim says. "As long as we stay focused on the principles of animal care and land sustainability, the business should continue to support our family for generations to come."

In 2012, Iowa ranked fourth in the nation in the number of cattle and calves in feeding operations in the state. Jim grew up on a cattle-feeding farm and says beef demand at the global level is a challenge and an opportunity. Last year's drought presented some challenges as

producers deal with high feed costs, cow liquidation and negative feeding margins.

"We're seeing smaller domestic cattle numbers, increased global competition and a growing protein need in the world's population," Jim says. "This has created a need to develop safe, healthy and efficient food animal production systems that are based on sound science, grounded in basic research and use applied technology."

Iowa State played an important role in bringing Julie and Jim together—they met when Jim lived in the Alpha Gamma Rho fraternity and Julie lived across the street in the Kappa Delta house. While Jim grew up raising cattle, he says he gained a better understanding of animal science at Iowa State. His favorite classes included meat science taught by David Topel, an emeritus professor of animal science, and a graduate class on ruminant nutrition from Wise Burroughs, a Charles F. Curtiss Distinguished professor in animal science.

Today they see Iowa State as central to helping producers like themselves remain on the front lines in developing the science to feed a growing world population.

"Iowa State University is a leader in the five critical areas of scientific develop-

ment that are needed to meet the future challenges we face: genetics, animal health and well being, food safety, nutrition and the environment," Jim says.

The Christensens are active members in the Iowa Cattlemen's Association and Jim serves on the Iowa State Department of Animal Science External Advisory Board.

"Jim and Julie are strong supporters of Iowa State University. Their passion for making Iowa State stronger and more able to support the beef cattle industry is greatly appreciated," says Maynard Hogberg, chair of the Iowa State animal science department.

Their passion for ISU athletics also burns strong. It drives them to attend as many Iowa State football and basketball games as possible. Julie's dad, Dick Ludwig ('53 agronomy) was an avid Iowa State sports



*Managing a feedlot and grain farm takes time and lots of planning. **Wes Christensen** ('13 agricultural studies), plans to work with his parents **Jim Christensen** ('80 farm operations) and **Julie**, after working off the farm for a couple of years.*



Photo: Euvonne Sheridan Photography & Design

*The Christensen family: back row (left to right) **Mark Pierce** ('10 agricultural business), **Mike Hosch** ('05 animal science), **Jim Christensen** ('80 farm operations), **Wes Christensen** ('13 agricultural studies) and **Luis Soto**. Front row: **Lee Christensen** ('10 animal science), **Jennifer Hosch**, ('05 animal science), **Samuel Hosch**, **Julie Christensen**, **Jackie Sorenson** ('12 marketing) and **Anne Soto**.*

fan and her grandfather, Fred Ludwig, played basketball for Iowa State from 1925 to 1929.

Three of the four Christensen children attended Iowa State, and Jim and Julie are happy to share all are finding their own success.


Jennifer Hosch ('05 animal science and '09 veterinary medicine) is a practicing veterinarian in Farley, Iowa. She and her husband, Mike ('05 animal science), farm near Cascade, Iowa.

Lee Christensen ('10 animal science) received her master's degree from California

Polytechnic State University in 2012 and is working as a food scientist for Kraft Foods in Madison, Wis. Lee married Mark Pierce ('10 agricultural business) this summer.

Anne Soto graduated from the University of Minnesota and taught in the Teach for America program for three years. She received an MBA from Indiana University and is an education investment analyst near Oakland, California. Anne and her husband Luis live in the San Francisco Bay area.

Wes graduated from Iowa State in May in agricultural studies. He was an active student ambassador and recently took a study abroad trip to Panama to learn about tropical agriculture production and international business and trade.

Wes plans to work outside the farm for a few years before returning to Royal where he hopes to be part of the family's sixth generation that will operate and manage the farm. 

ALUMNI NEWS IN BRIEF

CALS AWARD HONORS RETIRING CAST CEO, JOHN BONNER

John Bonner (BS '68 dairy science, MS '71 animal science, PhD '74 animal science), retiring executive vice president and chief executive officer of the Council for Agricultural Science and Technology, was presented the college's Impact Award for Extraordinary Partnership at a reception Jan. 23 on the ISU campus. Bonner served as head of the Ames-based organization since 2005.

AG TECHNOLOGY SPEECH BY MONSANTO VP JIM TOBIN AVAILABLE ONLINE

Jim Tobin, vice president of industry affairs at Monsanto Company, presented the 2013 Carl and Marjory Hertz Lecture on Emerging Issues in Agriculture March 28 on the Iowa State University campus. Tobin ('78 agricultural education) presented "Agricultural Technology: Reflections on the Journey, Perspectives on the Future." For a link to a podcast of the lecture visit www.stories.cals.iastate.edu.



CALS GRADS HONORED BY ISU FOUNDATION, ALUMNI ASSOCIATION

Two Agriculture and Life Sciences graduates were honored with the highest awards presented by the ISU Alumni Association and ISU Foundation during a ceremony on April 19.

Neil E. Harl ('55 ag and life sciences education; PhD '65 economics), left, Charles F. Curtiss Distinguished Professor in Agriculture and Life Sciences and professor emeritus of economics, received the Order of the Knoll Faculty and Staff Award for his dedicated and long-term professional and volunteer service to the Iowa State University Foundation and Iowa State through the advancement of philanthropy. **Esmail Zirakparvar** (MS '77 plant pathology, PhD '79), right, retired chief operating officer of Bayer CropScience, was honored with the Distinguished Alumni Award—presented to alumni nationally and internationally recognized for preeminent contributions to their professions or life's work.



In Memoriam

George Beal ('43 agricultural economics, MS '47, PhD '53 rural sociology), 95, of Kailua died Sept. 20. The Iowa State University Charles F. Curtiss Distinguished Professor of Sociology served in the Army during World War II before joining the faculty at ISU. He received the Henry A. Wallace Award for Distinguished Service to Agriculture. After retirement in 1977 he and his family moved to Kailua, Hawaii, where he took a position as professor with the East West Center. Beal was previously profiled in *STORIES* magazine and the George M. Beal Distinguished Lectureship in Rural Sociology was recently established by alumni in his honor. Visit www.stories.cals.iastate.edu for a link to honor Beal by supporting the fund and read more about his contributions to sociology and Iowa State University.

Members of the Iowa Institute for Cooperatives and Iowa State University teamed up on funding for ISU Economist Keri Jacobs' position. She, Dave Holm and other institute staff work together on research and professional development for Iowa's agricultural co-ops.



Photo: Bob Elbert

COOPERATIVE

By Kristin Senty

BY NATURE AND BY TRADE

While cooperatives are the focus of economist Keri Jacobs's work, the word "cooperative" also describes the nature of the role she plays with the Iowa Institute for Cooperatives (IIC).

The institute is a trade association which provides information, education and training, technical assistance and legislative support to co-op members. As an Iowa State assistant professor and extension economist, Jacobs supports IIC with the latest research on agricultural co-ops, agribusiness and agricultural economics and plays a key role in providing professional development to volunteer board members who lead Iowa's 59 agricultural co-ops.

David Holm, executive director of IIC, works with Jacobs. He says their partnership "couldn't be created any better."

With IIC's ear to the ground in its daily work with statewide co-ops, Holm is able to provide Jacobs with a sense of the issues its members really want to know about. This, in turn, helps guide her research in ways she says will be "truly important to stakeholders."

"The expertise of Dave and the members of IIC adds value, helping me to better understand the latest trends and key issues in agricultural co-ops," Jacobs says.

Access to on-the-ground information also helps Jacobs inject current industry issues into her coursework on co-ops at ISU. With the most up-to-date knowledge, her students become attractive prospects for employment.

Cooperatives are governed by volunteer boards made up of individual members, many of whom are serving in that structure for the first time. Holm recruits members and brings them

together for professional development sessions, while Jacobs provides them with the training and support they need through a comprehensive co-op director's certification program.

It's the kind of preparation that Holm says is "critical" to the success of co-ops.

"We need board members to offer direction, management and strategy. If there's no place for them to develop those skills it's hard to succeed," he says.

But the training is not only a positive for the co-op. Holm says it also "benefits the entire rural community," as members tend to move on to other leadership positions.

For Jacobs's part in facilitating that, he says co-op members are impressed. "Keri is extremely insightful, with the ability to look at the issues in a deeper way. It's a value to have her independent approach and analysis." **S**

STEWARDED "IOWA'S PUBLIC

By Ed Adcock

In 1930, *with the Great Depression taking hold,* a group of farmers and businessmen around Kanawha set out to raise money to buy Iowa State University's first outlying research farm. Northern Iowa's staple crops differed from the rest of the state, and they wanted a direct way to link to Iowa State's expertise. The plan was that the association would own the land and the Iowa Agriculture and Home Economics Experiment Station would operate it, conducting research projects.

Northern Iowa had considerable acres of barley, flax, sugar beets and potatoes. Diseases in sugar beets and potatoes were a growing problem. The farmers hoped that by aligning with Iowa State experts, together they could turn things around. The partnership worked.

Despite trying economic times, the group met its goal and on May 4, 1931 the Northern Iowa Experimental Association was organized with 350 stockholders creating the 85-acre Northern Research Farm. Experimental work dealt with problems related to corn, wheat, oats, barley, sugar beets, flax and potatoes.

"That's been the foundational premise repeated over and over across the state," says Mark Honeyman, research farms coordinator. "These associations own the land and provide it at a very low fee. They give advice to the college on what kind of research they'd like done there. We staff it, equip it, build the buildings and conduct



Contributed Photo

Association-led farms bring together farmers, researchers, faculty, extension field specialists and farm staff on about 600 research trials annually.



FARMS

research and field days. That relationship is very enduring and very positive.”

Eight associations own farms that Iowa State operates for research and demonstration. Three other locations—McNay, Allee and Brayton Forest—are on land given to the university.

The farms are scattered across the state for many reasons. “The soils are different, the climates are different and to some degree the agricultural enterprises and

communities differ,” Honeyman says.

A common thread is the partnership that brings together farmers and researchers, either campus faculty, extension field specialists or farm staff. Annually, about 130 project leaders conduct nearly 600 research trials.

“The research farms are fairly humble, it’s one or two people, it’s a network of plots and that’s it. It’s a fairly low budget operation, but the information that they

generate is incredibly solid,” he says.

An example of association input came in 2006 when the Northwest farm was facing cutbacks that caused it to close one of its locations. Rodney Mogler, an association member who was part of the discussions, farmed near the closed location.

“We suggested creating a research program on private farms that the college and extension adopted, and now it’s being expanded across the state. I feel comfortable with on-farm research results from my home farm and that of my neighbors,” Mogler says.

Honeyman says other states, especially large ones, generally have research stations staffed with faculty that do research. The association model works in Iowa because of its size and Iowa State is centrally located.

“These grass-roots farm associations are Iowa’s public farms,” he says. ☐



Produce farmers give their attention to a speaker at a mid-1960s field day at the Muscatine Island Research and Demonstration Farm at Fruitland.

IOWA GIFT OF GRAIN SHOWS STUDENTS THE WORLD

By Melea Reicks Licht

Shane Bugeja's experience in Stuttgart, Germany, in 2012 was different in two ways. First, he was immersed in the culture for four months studying agronomy and animal nutrition at the University of Hohenheim. It forced him out of his comfort zone and allowed him to grow and experience more than his previous travels combined.

Second, when Bugeja ('13 agronomy) discovered his trip abroad was supported by a gift of grain from an Iowa farmer he was touched. "It is so cool to think that a wagon full of grain paid for my plane ticket," he says. "That's pretty fitting."

That gift of grain came from Iowa State alumni Keith and Barb Sexton of Rockwell City, Iowa. Their gift was used to fund scholarships that support students including Bugeja in international experiences. Keith ('71 agricultural business) and sons Brian ('08 agricultural studies) and Brent, a senior in animal science, have studied abroad. The Sextons felt it was important to give other students the same opportunity.

"Agriculture is our profession and we believe it is beneficial to support agriculture students, especially when you read about the large debt load of so many students," Keith says. "We believe travel outside the U.S. makes participants better citizens. It expands their interaction with people from other cultures and hopefully makes them appreciate their home culture more."

That was the case for Bugeja who interacted with students from all over the world.

After a month-long intensive language program, Bugeja took three months of graduate classes and toured German farms, including one that used animal waste as a power source.

"I gained broader knowledge about the interaction between animal welfare and environmental stewardship. I learned that animal-friendly doesn't always mean environmentally-friendly and that there are consequences to every decision in animal and crop production," Bugeja says.

The Sextons chose to donate with a gift of grain to make the most of favorable



Shane Bugeja took part in a semester abroad in Stuttgart, Germany, thanks in part to a gift of grain from alumni Keith and Barb Sexton.

tax implications. Tax advisers can help farmers navigate through the process. Ray Klein, executive director of development for the College of Agriculture and Life Sciences, is the first contact for anyone interested in making a similar gift of grain to the college. He can be reached at (515) 294-8892 or rklein@iastate.edu.

"There are steps to put in place in advance to ensure the funds are granted as you like," Keith says. "Because there is some extra effort required of the purchaser of the grain, we only use grain gifts for our larger contributions. We are fortunate that our local elevator has been very accepting and easy to work with as they make separate checks to the various organizations."

Bugeja was always interested in science and says agronomy is a perfect way to apply science to benefit people. In his work with Iowa State agronomist Fernando Miguez this summer Bugeja is studying the emission of carbon from farm fields and prairies. The research will offer details useful in improving crop modeling.

In time their research may help farmers make management decisions to improve yield of the same crops that fueled his experience abroad. ■

FARMER PHILANTHROPY IMPORTANT TO COMMUNITY DEVELOPMENT

Iowa's farmers are substantially involved in philanthropy, donating their time and money to organizations, causes and charities, according to the Iowa Farm and Rural Life Poll. Of the more than 1,200 farmers who participated in the poll, 89 percent reported they donated money to a cause in the previous year, and 80 percent volunteered time to charity. Overall, 91 percent donated time or money to an organization, cause or charity, including churches and religious groups. Recent surveys of the general public show that between 70 and 75 percent of Americans donate time and money to charity. Read more Iowa Farm and Rural Life Poll findings at www.stories.cals.iastate.edu.

STORIES

IN AGRICULTURE AND LIFE SCIENCES

IOWA AGRICULTURE AND HOME ECONOMICS EXPERIMENT STATION 125TH ANNIVERSARY

The next STORIES in Agriculture and Life Sciences celebrates the 125th Anniversary of the **IOWA AGRICULTURE AND HOME ECONOMICS EXPERIMENT STATION**. You'll find stories about research that drives **INNOVATION IN INDUSTRY**, technological advances that have **REVOLUTIONIZED AGRICULTURE** and current research making **DISCOVERIES IN BIOLOGICAL AND LIFE SCIENCES** that will become the foundation for future advances in science and agriculture.

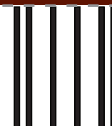
*Thank you to two eagle-eyed alums who caught mistakes in the last STORIES. **Rodger Pitstick** ('54 industrial education, MS '59, PhD '78), a former computer teacher, pointed out the Apple computer featured in last issue's feature comparing 1977 to 2012 was actually an Apple IIc, which debuted in 1984. And **Harold Lawson** ('79 farm operations) pointed out that Fred Hoiboar, the pig in Iowa's Biggest Boar contest on page 36 of the last issue, was a Hampshire, not a Yorkshire. Thank you for your notes, and for reading STORIES.*



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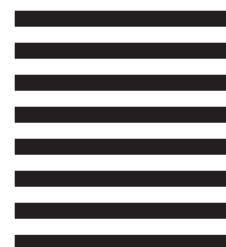
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