IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences

STORIES

IN AGRICULTURE AND LIFE SCIENCES **VOL.12 NO.1 2018**

TEACHING EXCELLENCE

STORIES
IN AGRICULTURE AND LIFE SCIENCES

ADMINISTRATION
Joe Colletti, Interim Endowed Dean;
Interim Director, Agriculture Experiment Station

Ruth MacDonald, Interim Senior Associate Dean;
Interim Associate Director, Agriculture Experiment Station

David Acker, Associate Dean, Academic and Global Programs; Raymond and Mary Baker Chair in Global Agriculture

Jay Harmon, Interim Associate Dean, Extension and Outreach; Interim Director, Agriculture and Natural Resources Extension

Mark Honeyman ('77 Animal Science, MS '83, PhD '89), Associate Dean, Operations

Theressa Cooper, Assistant Dean, Diversity

Howard Tyler, Assistant Dean, Student Services

Hongwei Xin, Assistant Dean, Research

EDITOR:
Melea Reicks Licht ('00 public service and administration in agriculture, '05 MS agricultural and life sciences education)

WRITERS:
Ed Adcock, Barb McBreen, Brian Meyer, Melea Reicks Licht, Tracy Schlater, Bailey Schober, Betsy Snow Hickok, Grant Wall, Emma Wilson, Bill Zahren

DESIGN:
PUSH Branding and Design

CONTACTS
To contact the magazine:
STORIES Editor
304 Curtiss Hall
513 Farmhouse Lane
Ames, IA 50011
Phone: (515) 294-5616
E-mail: stories@iastate.edu
www.stories.cals.iastate.edu

For prospective students:
Student Services
20 Curtiss Hall
513 Farmhouse Lane
Ames, IA 50011
Phone: (515) 294-2766
E-mail: calsstudent@iastate.edu
www.students.cals.iastate.edu

To make a gift:
Development Office
310 Curtiss Hall
513 Farmhouse Lane
Ames, IA 50011
Phone: (515) 294-7677
E-mail: agalumni@iastate.edu
www.isuf.info/cals

MIX Paper from responsible sources FSC® C007419 www.fsc.org

Printed with soy inks

IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences

REMEMBER THAT PROFESSOR?

You know the one. The one who challenged you. The one who inspired you. The one who never accepted less than your best. This issue is devoted to them.

I remember laughing my way through agriculture in society class with Paul Lasley as we learned to better understand the lens through which we view the world. In agricultural law with Neil Harl, I learned early to come to class ready to discuss assigned cases—or heaven help you. I loved tech transfer in the role of ag education with Robert Martin in which we explored a learner-centered approach in countries across the globe. My list goes on and on.

After joining the staff at Iowa State, other faculty gave me a new appreciation for teaching from the professor's perspective. Assistant dean of student services Howard Tyler shares his thoughts on teaching excellence on page 18, including hands-on opportunities like the Ag 450 Farm (celebrated in this issue with a 75th anniversary poster on page 20-21). Clark Coffman and crew are featured for their innovative approach to teaching large lecture courses (page 25). A team in ag and biosystems engineering shows how working in small groups can help deliver the best capstone experience (page 22).

New teachers are included alongside the veterans. We celebrate all our national teaching award winners on page 16. Alum Jacob Hunter (page 34), our 2018 Emerging Iowa Leader, is one of many CALS graduates training the next generation of leaders as FFA instructors and agriculture teachers.

Some students are so driven to learn, their tenacity is admired by fellow students and professors alike. That's true for Shemaa Albayati. An Iraqi native, Shemaa and her husband moved their family to Iowa in search of a better life. When she told me her story, I was overwhelmed by her courage and commitment. I'll never forget Shemaa's story or her expression as she crossed the stage in May—as one who's overcome adversity, proven herself a scholar and now proudly a Cyclone.

We welcome you to join in celebrating outstanding CALS teachers via social media using #CALSstories and visit STORIES online (stories.cals.iastate.edu) to read submissions of fellow alumni.

And, please mark your calendar for September 1, 2018, for our annual CALS BBQ in the Jeff and Deb Hansen Agriculture Student Learning Center. Don't miss this opportunity to reconnect with alumni and favorite instructors. I look forward to seeing you there.

Kind regards from central campus,

Melea Reicks Licht

Image by Christopher Gannon

CONTENTS

ON THE COVER

Agronomy professor **Lee Burras** (left) talks soils with **Elijah Young** (senior in environmental science) and **Kaitlin Gibbons** (junior in agronomy). A national-award-winner, Burras is known for sharing his enthusiasm for environmental science. His classes and study abroad programs are among the most sought after in the college. Read more about Burras on page 12. Image by Christopher Gannon.

It was a proud and humbling moment last fall when our former dean, now President Wendy Wintersteen, handed me the reins of our great College of Agriculture and Life Sciences. It is a privilege to serve as the interim endowed dean of one of the world's very best agricultural institutions.

The college is as well-positioned as it's ever been. I've worked in the college nearly four decades as a researcher, educator, mentor and administrator. The next dean of agriculture and life sciences will find us ready and able to build on our worldwide reputation.

The main reason our college is so well-positioned comes down to our people. Our faculty and staff work hard every day to ensure we fulfill our mission in science, education and extension and outreach. Our students amaze, year after year. Without a doubt, we have some of the most dedicated, committed and accomplished student leaders in the nation.

I can say the same about our alumni and friends. When I was named interim endowed dean, one of the first congratulatory notes I received came from 6,400 miles away—from Don Koo Lee, who holds an endowed chair at Yeungnam University in Korea and earned two forestry degrees at Iowa State. No matter what corner of the globe, we can point in any direction to 46,000 living alumni doing meaningful, impactful things to make the world a better place.

I'm sure 46,000 pairs of eyes will be watching the news from Ames this fall. Iowa State is conducting a national search for the next dean of agriculture and life sciences. The search committee plans to have candidates on campus early in the fall semester, and then a decision to announce.

It will be an honor for me to hand over the reins to the person who'll serve as the 11th dean of agriculture in Iowa State's history. We'll all look forward to reading about this new, exciting chapter in upcoming issues of STORIES magazine and STORIES Online monthly e-newsletter.

Joe P. Colletti

Joe Colletti
Interim Dean of Agriculture and Life Sciences

99.2% RECORD HIGH CALS PLACEMENT RATE

CALS Career Services is reporting the highest undergraduate placement rate ever recorded—99.2 percent for 2016-2017. Placement includes students who are employed, furthering their education or fulfilling military obligations.

CYCLONE STATE

65% of CALS grads stay in the state to begin their careers in Iowa.

#1

ISU's undergraduate program in **agricultural and biosystems engineering** is tied for top honors with Purdue and Texas A&M University according to the latest rankings by *U.S. News and World Report*. The department's graduate program is ranked number two in the country. Rankings are measured by expert opinions about program quality and statistical measures of a program's faculty, research and students.

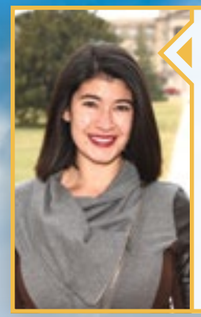
FUNG-CY

Three new fungus species have been named for Iowa State scientists and alumni. Thomas Harrington, professor of plant pathology and microbiology and Doug McNew, mycologist and lab technician, have identified three new species of fungi and named them in honor of former Iowa State University colleagues.

- **Tubakia hallii**, named for forest geneticist Richard Hall ('69 forestry management)
- **Tubakia tiffanyae**, named for mycologist Lois Tiffany ('45 botany, MS '46, PhD '50)
- **Tubakia macnabbii**, named for forest pathologist H. Sande McNabb

ASMUS ON ADVANCING AGRICULTURE

Amy Asmus, vice president of Asmus Farm Supply, presented the 2018 Carl and Marjory Hertz Lecture on Emerging Issues in Agriculture on April 4 at Iowa State. Asmus' presentation, "**What Is Possible: Advancing Agriculture Through AGvocacy, Partnerships and Collaboration**," is available online at www.stories.cals.iastate.edu.



TRAILBLAZER

Daniela Flores, a graduate student in genetics, is the first Iowa State student elected to the **Society for the Advancement of Chicano/Hispanics and Native Americans in Science** (SACNAS) board of directors. The organization makes up the largest multidisciplinary and multiethnic organization in the United States. Flores started the Iowa State SACNAS chapter in 2014.

CELEBRATING FACULTY EXCELLENCE

From Catherine Woteki's induction into the USDA National Institute of Food and Agriculture Hall of Fame, to Fulbright Scholars Amy Toth and Jonathan Wendel, to Allen Miller's fellowship in the American Association for the Advancement of Science, CALS faculty and staff have earned numerous accolades and global and national recognition. Check out STORIES Online for a list of faculty and staff earning top awards: www.stories.cals.iastate.edu.

STUDENT SUCCESS

- **Kelli Roush**, junior in agronomy, first place individual, National Soils Judging Contest
- **Livestock Judging Team**, first place, 2018 Iowa Beef Expo
- **Dairy Judging Team**, second place, Southwest Intercollegiate Dairy Cattle Judging Contest
- **Crops Team**, first place, Students of Agronomy, Soils and Environmental Sciences Crops Contest; second place, Regional Crops Judging Contest; second place, Kansas City American Royal Crops Competition; second place Chicago Collegiate Crops Contest
- **Industrial Technology Club**, People's Choice Award, third place overall, Association of Technology Management and Applied Engineering Robotics Team Competition
- **Turf Club**, first place, Annual Sports Turf Managers Association Student Challenge Competition

HEARTY HELLOS

- **Randall Cass**, extension program specialist, Department of Entomology
- **Miguel Rangel**, manager, Dairy Teaching Farm
- **Kristin Tidgren**, director, Center for Agricultural Law and Taxation

FOND FAREWELLS

- **Clark Ford**, associate professor of food science and human nutrition, retired in April
- **Mike Owen**, professor of agronomy, retired in March
- **Gene Takle**, Charles F. Curtiss Distinguished Professor of agronomy, retired in May

***Megan Kemp**, a junior in agronomy and global resource systems, says she's learned to embrace and celebrate cultural differences at Iowa State and is learning how they impact cropping systems around the globe.*

CREATING CULTURAL CONNECTIONS

Story by Tracy Schlater
Images by Christopher Gannon

Growing up, Megan Kemp just wanted to fit in with her peers in Durango, Iowa. At Iowa State University the junior in agronomy and global resource systems, says she found a place where she feels comfortable embracing and celebrating her differences.

"My mom is Filipino," says Kemp. "She and my dad met as pen pals while he was serving in the military. He went to visit her in the Philippines, and that's where they fell in love. It's honestly the stuff movies are made of."

Kemp's extended family are involved in dairy and beef operations in northeastern Iowa. While she lived on a dairy farm, she didn't do chores.

"My mom's heritage instilled very traditional ideals about gender roles," says Kemp. "So I spent more time in the kitchen."

As a high school student, Kemp participated in the World Food Prize Iowa Youth Institute. She was selected for the Global Youth Institute. She received a $500 scholarship to the College of Agriculture and Life Sciences for her participation. Her plan was to study biology. Given her passion and interest in world hunger, her adviser encouraged her to consider agronomy.

"The day after I switched majors, I walked into Agronomy Hall and immediately Stephanie (Zumbach) and Dr. (Mary) Wiedenhoeft recognized me," says Kemp. "I knew I'd found the right place."

At the urging of a fellow student, Kemp attended a Minorities in Agriculture and Natural Resources and Related Sciences (MANRRS) meeting. Kemp had expressed interest in various other clubs on campus, but this one clicked. For the first time, she felt connected to her Filipino culture.

"It allowed me the freedom to experience my own identity," says Kemp. "I loved growing up in small-town Iowa, but it wasn't very ethnically diverse, and back then I didn't realize how much of a difference that made in how I viewed myself."

***Kemp** (left front) is a member of the Leaders Enhancing Agriculture, Diversity, Inclusion and Trust (LEAD IT) Collective. The student group talks about bias, privilege, inclusivity and other multicultural issues in orientation classes, faculty trainings and student events across the college. Members of the 2017 collective are: (back row, left to right) **Erica Parker**, **Eboni Adderley**, **Mikel Wright**; (middle row, left to right) **Paulina Padrón**, **Taylor Hintch**, **Amali Stephens**, **Nicole Trice**; (front row) **Kemp** and **Valeria Cano Camacho**.*

Kemp immersed herself in the MANRRS group. She started attending regular meetings and attended the national MANRRS conference. She was elected vice president and later took over as president, serving as the link between the local chapter and the organization's national officers.

In the fall of 2016, the College of Agriculture and Life Sciences made diversity and inclusion a higher priority after getting feedback from minority students. At that time, the college decided to develop a student-led group to address cultural competency.

The Leaders Enhancing Agriculture, Diversity, Inclusion and Trust (LEAD IT) Collective is committed to building strong leaders and community partners who not only acknowledge the values of diversity, multiculturalism and inclusion, but also recognize the importance of developing intercultural competency through actively engaging academics, multicultural programs and social justice initiatives.

Establishing herself as a leader in MANRRS meant her name rose to the top of the list as the college looked for students to join.

"It has been my pleasure to watch Megan grow and mature as a strong leader and student," says Theressa Cooper, assistant dean for diversity of the College of Agriculture and Life Sciences. "I have watched Megan grow more self-assured, culturally competent and reflective of the world around her. Megan continuously demonstrates her conviction to exercise determination, diligence and excellence in all things; she is a great model of a young leader."

> ***"It's made me a better global citizen."***

The LEAD IT Collective talks about bias, privilege, inclusivity and other multicultural issues in orientation classes, faculty trainings and student events across the college. Members of the collective attended the National Conference on Race and Ethnicity in May and hope to present at next year's Iowa State Conference on Race and Ethnicity.

The experience in LEAD IT has had a deep impact on Kemp personally and as she looks forward to establishing her professional career.

"It's made me a better global citizen," says Kemp. "Personally, I'm learning to speak Tagalog, so I can talk to my grandmother and learn more about my culture."

It's changed the lens through which she views the world, including the agronomic principles she's learning. Cultural issues and concerns are a key element to cropping systems across the globe.

"Always inquisitive, Megan strives to understand different cultures rather than judge them," says Russ Mullen, retired agronomy professor and Megan's former adviser. "She has an innate desire to help others and sees the good in people and their potential."

Kemp will put those skills to use during an internship with the Center for Sustainable and Rural Livelihoods in Uganda over the summer studying mixed cropping systems and how culture impacts agriculture.

A 'MAGICAL' INTERNSHIP

Story by Emma Wilson
('18 agricultural education and studies and journalism and mass communication)
Image by Christopher Gannon

***Hunter Hamilton**, a junior in agricultural education, looks forward to working as an agricultural educator. His goal is to help his future students "conquer the world and achieve their dreams."*

Hunter Hamilton, a former state officer for the Iowa FFA organization, lives by a creed familiar to many FFA members—one of leadership, service and advancing agriculture. However, Hamilton also lives by a more personal motto: to always keep learning.

That's just what he did when he took an internship at Walt Disney World in Orlando, Florida. The junior, majoring in agricultural education teacher certification minoring in horticulture, reflects on his "magical" experience.

Q: What did your experience at Walt Disney World include?

A: I worked alongside 17 other interns from around the nation in a dome-structured greenhouse. It was hot and sweaty, and it took me awhile to get acclimated to the Florida weather, but I made some amazing friends.

We grew any kind of food crop you could imagine, but in a creative way. From edible flowers, to growing plants in the middle of the air, it was a one-of-a-kind experience. We'd harvest a crop and give it to restaurants on the property. We took a farm-to-table approach.

Q: What was your most rewarding experience at Disney?

A: I met a ton of incredible families and really enjoyed educating the public. Some people on my tours were from agricultural backgrounds, but a lot of people knew nothing about agriculture. The experience of teaching those families something about food production was really rewarding for me.

Q: How did being a state FFA officer prepare you for this internship?

A: The experience helped me develop communication skills. Going into high school I was very shy, but once I became involved and started connecting with people I realized FFA was my thing.

The best part of my job was giving tours. I did two to seven tours a week about what we were growing in the greenhouses and the basis of agricultural production. FFA set me up for success not only by being able to talk about agriculture, but also speaking proficiently and professionally while understanding other perspectives.

Q: What motivates you to be an agricultural educator/FFA adviser?

A: My high school FFA adviser had a great influence on me. She took this shy freshman and watched him transform into a state officer. It's really not about my goals, though. It's seeing students who want to go out and conquer the world and helping them achieve their dreams.

I believe there are endless opportunities available in agriculture. I want every student who walks into my future classroom to grow and achieve their dreams. I want to be the teacher who gives them the opportunity to get involved and step outside their comfort zones.

***Ashley** (left) and **Kenzie Davis** share a passion for microbiology and the opportunities it offers. Ashley, who graduated in May, plans to pursue a degree in pharmacy. Kenzie, a sophomore in microbiology, will follow in their father's footsteps and pursue a career in dentistry.*

MICROBIOLOGY: A FAMILY TRADITION

Story and image by Barb McBreen

When sisters Ashley and Kenzie Davis get together they talk about science at the micro level.

It's a passion they share with their father, Robert Davis ('83 microbiology), who has a dental practice in Huxley, Iowa.

"Since I was four years old I've wanted to be a dentist because I wanted to be like my dad," says Kenzie, a sophomore in microbiology. "It's neat to see how he uses microbiology as a dentist."

While Kenzie plans to follow in her dad's footsteps, Ashley, a May microbiology graduate, plans to attend the University of Colorado Skaggs School of Pharmacy and eventually specialize in oncology.

"Oncology pharmacy involves one-on-one patient care," Ashley says. "I want to work with patients and their families to ease their concerns and inform them about chemotherapy medications."

The sisters, who are two years apart, are fascinated by microbes that are invisible to the human eye, but an intricate part of daily life. Ashley's interested in addressing antibiotic resistance. Kenzie's focused on helping people understand the importance of vaccinations.

"Microbes are hard to understand because they're so tiny," says Ashley. "When you talk about medical studies, most students start with anatomy and physiology, but we start with microbes."

Both can discuss microbes for hours, which includes everything from mold on cheese to microbial clouds. Nick Peters, a plant pathology and microbiology assistant professor who advises Ashley, says microbiology as a major offers endless career opportunities.

"When you look at the total scope of career paths you can go into, from technician to physician or forensics to water quality, there's lots of opportunities," Peters says.

Microbes are present when you get sick, but also are important in the production of foods such as yogurt, cheese and wine.

"Some people think all bacteria is bad, but our bodies are completely made up of bacteria. Bacteria gets a bad rap," says Ashley.

Ashley and Kenzie have worked with high school students at an annual workshop hosted by the microbiology club.

"Going into a lab for the first time is intimidating. The high school workshop gives students confidence and they can decide if they really want to study microbiology because a lot of it is in the lab," Ashley says.

The sisters describe the microbiology department as a small community of friends and classmates. Peters agrees.

"There are 30 students who take classes together, so everyone knows each other." Peters says. "They also get opportunities to work as teaching assistants in the introductory lab classes, so they get a perspective on what it's like to teach."

INTERRUPTION OF WAR

Story by Bill Zahren
Images by Christopher Gannon

***Shemaa Albayati** (center) studies biochemistry with classmates **Emmalee Kirkpatrick**, left, and **Laura Burns**. Albayati is known among her peers and professors for her intelligence and commitment to excellence.*

At age 40, Shemaa Albayati didn't think she'd be starting over. But war has a way of interrupting even the best-laid plans.

Albayati, an Iraqi microbiologist, fled her war-torn country and rebuilt her life in Iowa, earning a bachelor's in genetics from Iowa State in May.

Academics targeted

The Iraqi war, officially known as Operation Iraqi Freedom, began in 2003 with the invasion of forces from the United States, United Kingdom and Poland. Four years later, militants menaced large areas of Iraq.

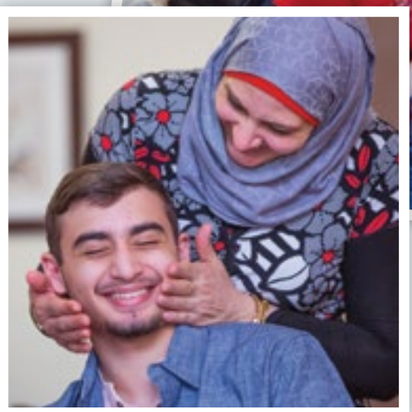
"It was a very, very bad time," Albayati says. "A lot of people were killed, and life was very cheap in Iraq. Someone would kill you for a hundred dollars. At any time, they (members of anti-government militant groups) could come into your home and kill anyone, and nothing would happen. Even the police were afraid of them. It was very bad, very dangerous."

Albayati says insurgents targeted people with advanced degrees such as teachers and physicians, which put her entire family at high risk. She had a bachelor's degree in microbiology, and her husband taught at the university.

"My mother had a degree in biology, and my father had a degree in business and taught at a university," she says. "These were the kind of people they (terrorists) didn't like. They wanted to destroy everything: scientists, doctors, everything."

She and her husband, Yasir, knew they had to leave Iraq.

***Shemaa Albayati**, second from left, rebuilt her life with her family after emigrating from Iraq in 2012. The genetics grad says her family—daughter, **Sarah**, son, **Tawfeeq**, and husband, **Yasir Alimami**—feel fortunate to have the support of West Des Moines friends and neighbors. Standing behind them is Shemaa's brother, **Ali Albayati**, and his wife, **Rusul Alsaffar**.*



***Albayati** pats her son, **Tawfeeq**, on the cheeks in their West Des Moines home. She says she gives him that love pat every day.*

"We feel safe here, safe at home and at school," Albayati says. "People have been so kind."

Emigrating to America

In 2012 they received necessary approvals for Albayati, Yasir and their children, Tawfeeq and Sarah, to get permission to emigrate. They had been very comfortable in pre-war Iraq living on Yasir's income alone in a neighborhood where members of the two main branches of Islam—Sunnis and Shiites—lived together peacefully.

They lost all their money and possessions when they left. Even more difficult was leaving friends and family behind, including siblings and Albayati's elderly mother.

"We appreciate America letting us come here," she says. "There were a lot of countries near us, but they didn't want to help us. This country helped us to start again where it would be safe for my kids."

The family-friendly reputation of Iowa resonated with their family- and relationship-focused native Arab culture, so Albayati and her husband decided to come here.

Albayati is grateful to the Des Moines branch of the U.S. Committee for Refugees and Immigrants for helping them get established in an apartment in West Des Moines, where they have lived and created friendships since arriving. They are in the midst of the long process to become American citizens.

Once resettled, they faced the prospect of earning a living, something that wasn't a problem for them back in Baghdad. Yasir, who spoke English well, got a job to support the family while Albayati, who spoke no English, set out to earn a degree similar to what she had in Iraq. Unfortunately, that meant she had to start almost from scratch.

Starting over

She first enrolled at Des Moines Area Community College (DMACC) in Des Moines where she took English as a Second Language and transfer courses. Advisers at DMACC urged Albayati to consult an adviser at Iowa State, which connected her with Lois Girton in the genetics, development and cell biology department.

Meeting twice a semester, they mapped out Albayati's path to an associate's degree at DMACC and a bachelor's degree at Iowa State. Girton connected Albayati with financial aid resources.

"Because I don't understand how the university works here, it is so different from Iraq, I didn't apply for any scholarships," Albayati says. "Lois sent me an application for a scholarship she thought I qualified for and I got it. I appreciate what she did."

Girton says Albayati worked hard to succeed.

"While it was challenging to determine how best to credit her previous coursework towards her Iowa State degree program, it was always a pleasure to work with Shemaa," Girton says. "She has a passion for excellence in everything she attempts. Without exception, her instructors give her high praise for her engagement, attitude and intelligence. She also is so grateful for any assistance she receives."

After Albayati graduates, Yasir plans to get a credential in web design or programming. Meanwhile, son Tawfeeq (10th grade) and daughter Sarah (seventh grade) are thriving in the Waukee public school system.

Safe at home

Her family has encountered the occasional anti-Arabic sentiment, but that's been rare. She says most people are welcoming and helpful. She feels safe at home in West Des Moines and at Iowa State. And, given her experiences in Iraq, safety is the top priority for Albayati and her family.

"People asked us 'Who do you love more, Iraq or America?' My husband says this: 'Iraq is like my mother, and everyone loves their mother. America is like my wife, and I chose to love my wife.' That's the difference for us between Iraq and America."

Albayati says she looks forward to volunteering after graduation and finding ways to serve others.

"It's important to us to give back to our communities and friends who supported us," she says. "We built ourselves over again here, and I know there are others in need like we were. We look forward to being active members contributing to our community." S

***Albayati,** right, sets the table with her sister-in-law, **Rusul Alsaffar**, for their weekly Sunday family meal at her West Des Moines home.*

*Retired affiliate instructor **Eldon Weber** launched the Pizz-A-Thon 20 years ago. The ag literacy program has since reached more than 8,000 young people. Weber is looking for a new organization to spearhead the effort.*

AGVOCACY THROUGH PIZZ-A-THON

Story by Ed Adcock
Image by Christopher Gannon

Before the word "agvocacy" was coined, Eldon Weber embodied the term as an affiliate instructor in the Department of Agriculture Education and Studies.

Weber, who came to Iowa State in 1987 and retired in 2001, is perhaps best known for developing the Pizz-A-Thon program, which uses the child-friendly fare to teach kids where food comes from. In a program designed for all learning styles, teams explore, discover, create and market a pizza. In the process they trace ingredients back to the soil through hands-on experiences and career exploration.

The idea was born while Weber was working his way up to assistant state conservationist with the U.S. Soil Conservation Service before joining Iowa State. He was concerned with how many children didn't know the origins of their food, or the importance of soil and water conservation, especially in an agricultural state like Iowa.

"I thought, 'What food do kids like the best?' And I thought of pizza and all the different ingredients and kinds of pizzas," Weber says.

Weber launched Pizz-A-Thon (www.pizz-a-thon.com) in 1997 with a grant from the Kellogg Foundation through its VISION 2020 program. He is grateful it has continued for more than 20 years with support from Happy Joe's Pizza and the Farm Bureau. The Ames Breakfast Lions Club, with support from Smokin' Oak Pizza, sponsors the local Boys and Girls Club Pizza-A-Thon.

In addition to the agricultural literacy program, Weber developed curriculums and in-service workshops for agriculture teachers while at Iowa State. During his tenure, he used his background in soil conservation to write a book, *Earthworm Empire: The Living Soil—A Teacher's Aid... Linking Agriculture to Science, History, Language Arts and Mathematics*, published in 1996.

Pizz-A-Thon has reached more than 8,000 young people, and Weber's goal is to reach 10,000 by 2020.

"Over the last 20 years, I have witnessed the judging of 800 to 1,000 team-created pizzas in the Quad Cities, Cedar Rapids, Marion, Des Moines schools and the Boys & Girls Club of Story County," he says. "I'd love to turn Pizz-A-Thon over to an organization or an educational group that would take it and run with it, as there is room for growth," he says.

Mike Retallick, chair of the agricultural education and studies department, has helped Weber spread the word to potential school participants because he sees value in the program.

"It's a fun and real-world way to help students think about agriculture and where their food is sourced," Retallick says. "Eldon has been very creative in developing lessons about the various aspects of agriculture using a topic everyone understands." S

If you have a suggestion of a retired faculty or staff member to feature as our next, "Perennial Favorite" please e-mail stories@iastate.edu.

*CALS grad **Lee Burras** returned to Iowa State University in 1995 to help create and teach the environmental science program. His soils classes and study abroad programs are among the most sought after in the college.*

Story by Tracy Schlater
Image by Christopher Gannon

Image Melea Reicks Licht

***Burras** co-leads at least one international study abroad course each year to places like Costa Rica (pictured), Ecuador, Uruguay, Uganda and France. Students say the courses help them appreciate diverse cultures and better understand agriculture from a global perspective.*

FACULTY + STAFF

Image contributed

*An award-winning teacher, **Burras** credits hands-on learning for getting students engaged in their education. He posed with students for a selfie as they dug soil cores for a course combining soils and archeology at the Iowa Lakeside Laboratory Regents Resource Center.*

CREATING THE FUTURE, TEACHING TO SERVE

Lee Burras sets his Diet Pepsi on the podium and grabs a piece of chalk off the ledge. Class is about to begin.

Burras' classroom is upbeat and adversarial; he encourages his students to challenge him as much as he challenges them. In order to keep students engaged he uses the chalkboard.

"I want students engaged," says Burras. "I want whatever I'm talking about to come to life in front of them. I can't make that happen with a Power Point presentation."

Burras' passion is infectious, not just for soils but also for life and for learning. His classes are some of the most sought after in the Department of Agronomy.

"Growing up, I had no idea a normal person could be a professor," says Burras, professor of agronomy. "What I did know was that I liked science."

A U.S. Navy ROTC scholarship changed his life by bringing him to Iowa State University from Renwick, Iowa, as an "undecided engineering" major. His path shifted when Peter Peterson, a plant breeder in the Department of Agronomy, hired him to work in the field the summer after his freshman year. Burras ('81 agronomy, '84 MS soil science) says he found his passion when he was invited to be a teaching assistant for Wayne Scholtes during his senior year.

"Working with Peter made me want to be a scientist. Wayne made me want to be a teacher," says Burras. "I believe humans have a need to serve. With teaching, I feel a clear connection to service. And, I am a lifelong learner. I want to learn as much from my students as they learn from me."

Upon accepting his first position at the University of Louisiana in Lafayette he was the only soil expert on campus. Limited budgets taught him to be efficient. He quickly learned quality content in the classroom was the way to make an impact on students.

"I had to make the entire wheel work, rather than simply serve as a cog in the wheel," he says.

Burras returned to Iowa State University in 1995 to help create and teach the environmental science program. His soils classes at Iowa State fill quickly and students often ask to be added to a wait list.

"Dr. Burras believes the only way to predict the future is to create it, and he motivates every single student to do that in their own unique way," says Jacqueline Klindt, senior in agricultural business.

During his 22 years at Iowa State Burras has taught 15 different courses. He often teaches three to four classes per semester. During the summer, he can be found on the shores of West Okoboji Lake in northwest Iowa teaching hands-on soils classes at Lakeside Lab. The Iowa Lakeside Laboratory Regents Resource Center is owned by the state of Iowa and operated through the Board of Regents. It serves as a field station and community resource to support scientific education, research and outreach programs.

"Dr. Burras inspires students to step out of their comfort zone to experience and appreciate diverse cultures and agriculture from a global perspective, resulting in students developing a stronger interest in studying abroad," says Klindt who has studied abroad with Burras twice.

Burras co-leads at least one international study abroad course each year to places like Costa Rica, Ecuador, Uruguay, Uganda and France.

"I believe strongly in the perspective studying abroad provides," says Burras. "Seeing agriculture in practice elsewhere makes students question how things are done here, ultimately helping them become better agronomists."

Burras received the Distinguished Undergraduate Teaching award from Iowa State University in 2010 followed by the Excellence in University Teaching award from the USDA in 2011. His list of awards also includes resident education awards from the Soil Science Society of America and the American Society of Agronomy and the Iowa State University Excellence in Academic Advising Award.

He may teach his students about soil, but they walk away with a better understanding of the world around them.

"Dr. Burras allows us to apply accumulated knowledge to solve issues faced all around the world, and that may arise in our careers after graduation," says Chance Mayland, junior in agronomy. "Along with implementing knowledge, looking at the global spectrum gives us a view on how agriculture differs around the world." S

TAKING THE REINS

***Nikki Ferwerda** (left), Horse Barn manager and lecturer in animal science, and student **Holly Brown**, tend to a four-day old foal and her mare at the Horse Barn this spring.*

Story by Ed Adcock
Image by Christopher Gannon

If you ask Nicole Ferwerda, students are the workhorses of Iowa State's equine facilities.

"It's me and them," she says. Ferwerda is an animal science lecturer who manages the student workers. "They are the ones who feed, clean stalls and treat horses that require medication."

Up to 15 students work at the Horse Barn on main campus and the Equine Learning Center south of campus on Mortensen Road.

Iowa State maintains a herd of Quarter Horse and Thoroughbred broodmares used for teaching and demonstrations. As many as 80 horses are cared for by Iowa State, and the Department of Animal Science offers 10 undergraduate and graduate courses in equine science.

"About 20 percent, or more than 200, of the animal science student body has an equine focus," Ferwerda says. "Students gain valuable experience in the general care, breeding, foaling, early training and marketing of the university's horses."

In addition, the university offers breeding services to the public. Foals produced by the farm are sold privately or in public auctions.

In 2004, the American Quarter Horse Association recognized Iowa State with the Legacy Award for breeding Quarter Horses for 50 consecutive years.

Andy Riehl, a senior in animal ecology, doesn't just work at the Horse Barn, he lives there. The historic barn, built in 1923, includes two student apartments, an office, a reproduction lab, equine treadmill and a classroom.

Riehl does a variety of chores, from cleaning sheds, power washing, sanitizing the foaling area, maintaining the facility and moving manure.

"Overall it has been an excellent experience. I've seen more sunrises then I care to count working this job and watching them makes a great start to every day," he says.

Ferwerda says students taking classes also get involved. A class handles the overnight foal watch. Other classes are responsible for training young horses or preparing yearlings for sales or events. And, reproduction lab students monitor pregnant mares.

Ferwerda teaches those classes, two to four a semester, and advises about 35 undergrads.

"Ever since graduating, I've really focused on horses. I'm lucky I get to teach classes specific to the horse," she says. "I grew up with horses, and started learning about them in 4-H."

The Nebraska native got her bachelor's degree in animal science from the University of Nebraska in Lincoln and a master's degree in equine reproductive physiology from Missouri State University. She joined Iowa State in 2007 after managing the horse farm at Texas A&M University.

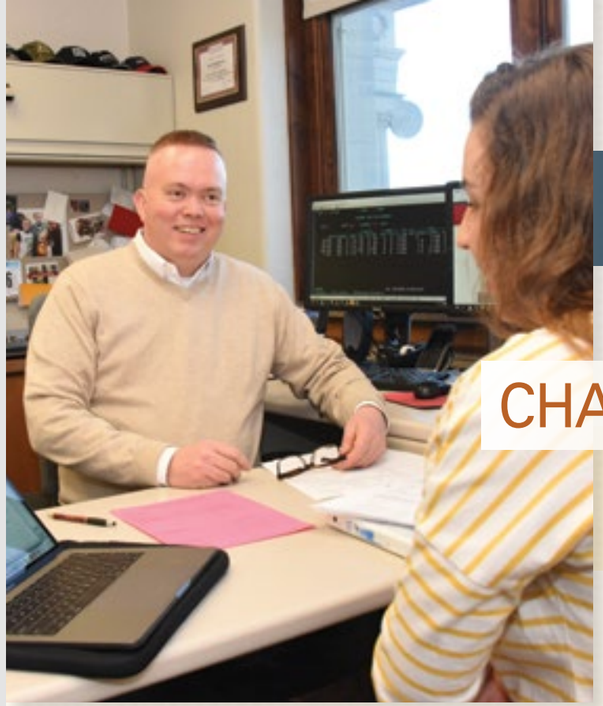
Many of the student workers have a background with horses but very few have handled mares, foals and stallions before working at the Iowa State Horse Farm.

Ashlyn Grogan, an animal science senior, grew up riding horses and says she gained considerable experience working at the Horse Barn.

"I have learned a lot through Nikki's classes, but being able to stay after classes and assist her is how I have really been able to gain hands-on experience" Grogan says. "It has made me much more confident talking to equine industry professionals." S

STORIES EXTRA: www.stories.cals.iastate.edu

Visit STORIES website to learn more about Iowa State's historic equine facilities.



*Ag studies graduate **Ben Chamberlain** has advised hundreds of students in his home department since 2011, including **Madeline Weathers** from Hastings, Minnesota. Chamberlain enjoys helping each student build their unique Iowa State experience.*

CHANGING VIEW OF SUCCESS

Story by Emma Wilson
('18 agricultural education and studies and journalism and mass communication)
Image by Barb McBreen

As Ben Chamberlain looks out his window toward central campus, he humbly admits he has one of the best views on campus.

"There are some days I just look out here and watch the students walking around or listen to the campanile," says Chamberlain. "It's inspiring to be able to do my small part in their experience here at Iowa State."

When Chamberlain started his degree program in agricultural studies in 1995, he intended on being at Iowa State for four years then return home to farm. Iowa State, however, had other plans for him.

Chamberlain has crafted his career around the student experience.

He served as a residence hall director at Iowa State following graduation, then earned a master's degree in student personnel services in higher education and academic advising at Kansas State University. He served as an academic adviser in Iowa State's Ivy College of Business before his passion for agriculture drew him back to the College of Agriculture and Life Sciences—this time as a staff member.

Since 2011, Chamberlain ('99 agricultural studies) has served as an academic adviser for the Department of Agricultural Education and Studies mentoring current and prospective students while working with his family farm in northwest Illinois.

"I always tell my students a degree is important, but often it doesn't matter what degree you have," says Chamberlain. "It's about the experiences you've had and what you bring to the table."

Andrew McEvoy, a May graduate in agricultural studies, first met Chamberlain during summer orientation. McEvoy is just one of hundreds of students Chamberlain has impacted.

"When I applied to Iowa State, I was an agricultural business major," says McEvoy. "Ben sat down with my family and me at orientation and asked genuine questions. He introduced me to the agricultural studies program, and before even starting school, I switched my major to agricultural studies and picked Ben as my adviser."

During the academic year, Chamberlain enjoys traveling to community colleges to meet future students.

"A big part of why I came to Iowa State was because of the campus feel and the agricultural studies degree," says Chamberlain. "I often tell prospective students you've got to find a place that feels comfortable but also challenging because that's what is going to make you grow."

Chamberlain contributes to student success by serving as the Farm Operations Club adviser, as well as preparing students for the National Postsecondary Agricultural contest.

"The most rewarding thing for me is meeting prospective students, interacting with them in my orientation class, advising some throughout their undergrad and then shaking their hand at graduation," says Chamberlain. "That is such a cool thing to be a part of, and I don't think many people get that opportunity." S

CELEBRATING AWARD-WINNING EDUCATORS

2017 | Ann Marie VanDerZanden, Iowa State University associate provost for academic programs, Louis Thompson Distinguished Undergraduate Teacher and horticulture professor, received the USDA Food and Agricultural Sciences National Excellence in Teaching Award.

"Teaching happens in many different ways and it can happen at unexpected times. It's not just constrained to a classroom. If you're a faculty member and you're interacting with students, as cliché as it might sound, teachable moments can happen anytime."

2015 | Mike Retallick, agricultural and life sciences education professor and department chair, received the National Association of Agricultural Educators Teacher Mentor Award.

"Teaching is about student learning, which occurs when learners actively construct their own new knowledge by building on prior knowledge through the use of experience and social interaction. My goal as a facilitator is to provide authentic and engaging experiences in order for such learning to occur."

2014 | Curtis Youngs, animal science professor, received the USDA Food and Agricultural Sciences Regional Excellence in Teaching Award.

"My goal is to give students the tools and confidence they need to succeed in whatever life adventure they choose. I am truly blessed because on a regular basis I see the phenomenal accomplishments of talented and trail-blazing students in the College of Agriculture and Life Sciences."

2011 | Lee Burras, professor of agronomy, received the 2011 USDA Food and Agricultural Sciences Excellence in Teaching Award.

"I strive to develop each student academically, professionally and personally. My charge is to help each student become a competent professional who is also a happy and involved member of society. The essence of my work is to facilitate each student's growth as an individual while simultaneously teaching him or her the fundamentals of professional knowledge and conduct."

2009 | Doug Kenealy, Emeritus University Professor of animal science, received the 2009 USDA Food and Agricultural Sciences Excellence in Teaching Award.

"I believe that you can push students, whether first-year or upper-class, if you consistently remind them of where they will use the building blocks of their education and how it will enhance future success in the classroom or in their career."

2008 | Dick Schultz, University Professor of natural resource ecology and management, received the 2008 regional USDA Food and Agricultural Sciences Excellence in Teaching Award.

"My goal is to help students appreciate the privilege of being born in the United States and to be sensitive to the challenges that billions of people face each day. I also want students to appreciate nature, evaluate our impact on the environment and be prepared to develop and implement management techniques, based on scientific principles, that will sustain the planet for future generations."

2007 | Amy Kaleita, agricultural and biosystems engineering associate professor and associate chair for teaching, received the 2007 USDA Food and Agricultural Sciences New Teacher Award.

"I strive to help students learn to be learners, so that they can use their foundation of knowledge to continue to develop as professionals. The knowledge gained through educational exploration will give them the building blocks, but a lifestyle of learning will help them to be innovative and adaptive."

2006 | Gail Nonnecke, Global, University and Morrill Professor of horticulture, received the 2006 USDA Food and Agricultural Sciences Excellence in Teaching National Award.

"Undergraduate education is paramount for training our future professionals to help our nation and also global communities. I experience immense pride from being able to learn with and invest in the next generation of future leaders in global food and agriculture."

2006 | Jim Kliebenstein, Emeritus Professor of economics, received the 2006 regional USDA Food and Agricultural Sciences Excellence in Teaching Award.

"Creating an atmosphere where there is the desire and excitement to learn is essential. When done effectively, students will accomplish more than they ever felt possible."

*Providing tools to enhance the student experience is **Ann Marie VanDerZanden's** goal as associate provost for academic programs. As a horticulture professor, **VanDerZanden** (left) enjoys working with students including Nicholas Paoli (sitting), **Marcus Jansen, Victoria Buldhaupt** and **Emily Stoffel** (right).*

ENHANCING TEACHING & LEARNING

Story and image by Barb McBreen

Ann Marie VanDerZanden displays her grandmother's eighth grade graduation certificate on the wall behind her desk in Beardshear Hall.

Extension and education have been consistent and important influences in her life.

Her father was a school principal and she became involved in 4-H in elementary school. She went on to work in the extension center in her hometown during high school.

"The thing that really interested me was talking to people and teaching people about horticulture, especially from the extension standpoint," VanDerZanden says.

As the associate provost for academic programs, VanDerZanden determines how to ensure a strong learning environment for students at Iowa State University. She believes each component of the student experience, which includes clubs, extracurricular activities, studying abroad and internships, has an impact.

"When you put all these together it creates a robust experience for students and that's a huge point of pride," says VanDerZanden, who also is a Louis Thompson Distinguished Undergraduate Teacher and horticulture professor.

VanDerZanden coordinates academic programs, facilitates articulation agreements and leads efforts related to accreditation, academic quality, distance education and international programs.

"There are a lot of people on our campus approaching teaching in unique ways," says VanDerZanden. "They are finding ways to use different technologies to bring new ideas to the classroom and get students engaged."

VanDerZanden studies methods and technologies to enhance teaching and learning for both students and faculty. She has taught over 20 different courses.

Presenting students with real-life scenarios was one tool VanDerZanden used in her classes. Marcus Jansen, a May horticulture graduate, says solving those types of problems helped him learn how to work with clients, develop presentations and present budgets.

"She challenged us in different areas," Jansen says. "What I like about her teaching style is that she treats you like a professional. She'll give you the assignment and the resources to work with clients."

Nicholas Paoli, a May horticulture graduate and project manager for A+ Lawn and Landscape in Des Moines, says VanDerZanden has a no-nonsense teaching style. He credits her constructive criticism and tell-it-like-it-is style for helping him grow and develop as a professional landscape designer.

"She truly changes the lives of her students for the better and develops them into strong young professionals ready for the real world," Paoli says.

VanDerZanden began teaching at Iowa State in 2003. She moved to the Center for Excellence in Learning and Teaching in 2009 where she served as associate director and director.

Her passion for teaching continues in her administrative role.

"Think about the amount of growth a student goes through from freshmen to senior year—not only at a personal level, but at an academic level and on a professional level. It's a very pivotal time in their life," VanDerZanden says.

VanDerZanden received the Teaching Award of Excellence from the North American Colleges and Teachers of Agriculture 2016. In 2017, she received the U.S. Department of Agriculture National Excellence in College and University Teaching Award for Food and Agricultural Sciences.

BUILDING CHARACTER AND CAREERS

By Howard Tyler, assistant dean for student services
Image by Christopher Gannon

Over 180 years ago, the American education system underwent a period of dramatic educational reform, led by Horace Mann. As Massachusetts's first secretary to the nation's first Board of Education, Mann's primary goals were to prepare students to be successful in the workplace after school and to be successful in life.

These are still the goals we have for today's students. Many of the strategies Mann implemented for achieving these goals in the 1830s remain in place today.

Twenty years ago, we told students: "You won't always be able to look information up, you need to know it," and: "You won't always have a calculator in your pocket." The digital revolution, and especially the mass availability of smartphones, has invalidated those assertions. Currently, over two-thirds of Americans and over one-third of all people in the world own smartphones.

So, today's graduates literally have all the information they need at their fingertips. What they need from higher education is to learn how to determine the accuracy of information, how to think critically, how to apply information in new ways to solve novel problems and how to create new information. In short, we need to continue to focus less on rote memorization and regurgitation of facts, and more on getting students excited about life-long learning and problem-solving.

Fortunately, in the College of Agriculture and Life Sciences, we have a long history of hands-on learning well-suited to these goals. Many of our instructors embrace new teaching strategies and are using unique combinations of experiential learning, new technologies, service learning and other approaches to help prepare students to be successful in today's world.

In many ways, our college has always been ahead of the curve producing graduates with these traits. For example, our university farm system is second to none. For 160 years our farms have provided opportunities for students to practice what they learn in the classroom and take part in the creation of new knowledge through undergraduate research.

Our instructors are guides to assist students through the process of learning how to most effectively use all available information. The current educational revolution brings out the traditional strengths of our instructors, our facilities and our students. We can expect our graduates to maintain top placement rates—a record high of 99.2 percent this year.

More importantly, we can continue to expect the phenomenal successes we see in our graduates as professionals, as lifelong learners, as citizens and as contributing members of society.

One thing Horace Mann said that remains relevant today is:

"Building a person's character is just as important as reading, writing and arithmetic."

AG 450 FARM

STUDENT-POWERED FOR 75 YEARS

***Dylan Lyman,** senior in agricultural studies, checks grain quality and bin inventory as part of the course Agricultural Farm Management and Operations (Ag 450). The student-operated farm is celebrating its 75th anniversary this fall.*

Story by Melea Reicks Licht
Images by Christopher Gannon

The course Agricultural Farm Management and Operations, or Ag 450 as it's come to be known, began with the purchase of 187 acres south of Ames in 1943.

The late William Murray, professor of economics, wanted to provide students with the experience of managing a farm operation and developed the initial course. It remains the only completely student-managed farm at a land-grant university in the nation.

Robby Frutchey ('15 agricultural studies), instructor-in-charge of Ag 450 and holder of the James and Clare Frevert Ag 450 Fellowship, says the course is designed to function as a diversified livestock and grain operation similar to most Iowa farms.

"This includes record-keeping and accounting, negotiating and making decisions related to buying inputs and capital projects. The students market and sell farm products. And, they provide the daily care of livestock and maintenance of farm facilities and machinery. A huge part of the class is learning to maximize their time and be efficient," says Frutchey.

Approximately 150 students are involved in the management of the farm each year. The Ag 450 Farm finishes 4,000 head of hogs annually and operates a 1,400-acre corn and soybean system. It serves as the capstone course for the agricultural studies major, but Ag 450 is open to other majors as well.

The class has evolved to keep pace with agriculture, according to the farm's operator Greg Vogel ('78 agricultural business), who has been with the program since 1992. Vogel has announced his plans to retire next year, and upon retirement he'll be Ag 450's longest-serving farm operator.

"We teach more than farming. Ag 450 prepares students for the changing world. The class has evolved to include more communications and how to decipher information. We add reality to the theories they learn in class," Vogel says. "Students discover there isn't a black or white answer. They learn to use critical thinking to work in the gray areas."

The experiential course uses a team-based learning model. Topics are covered in seven modules: finance, marketing, safety, crops, machinery, swine and custom operations. Major decisions regarding farm management are determined via student vote.

"Ag 450 is unique in that they gave us students the power to tailor our learning to our interests, and the professor and farm operator work side-by-side with us," says May graduate Tim Sadler ('18 agricultural studies). "The course gave me the experience to be a part of a farm of my own for the first time. I experienced real-life scenarios of working with a team, and it gave me the opportunity to learn and apply my knowledge."

To mark the Ag 450 Farm's 75th anniversary, student farm managers are planning a celebration September 21-22 including a banquet, farm tours, a silent auction, merchandise sales and the premier of their anniversary video.

STORIES EXTRA: www.stories.cals.iastate.edu

Find links online to register for the Ag 450 Farm reunion September 21-22, watch a trailer of the farm's anniversary video, purchase Ag 450 Farm merchandise and learn more about the history of the farm including instructors, operators and a timeline of improvements and events.

AG 450 FARM

STUDENT-POWERED FOR 75 YEARS

Student managers also provide day-to-day care of livestock and maintenance of farm facilities and machinery. The Ag 450 Farm finishes 4,000 head of hogs annually.

***Logan Hassebrock** ('17 agricultural studies) finishes up field work at the Ag 450 Farm. Student managers oversee the 1,400-acre corn and soybean operation.*

***Greg Vogel**, second from left, and **Robby Frutchey**, standing, review operating budgets in the Ag 450 Farm classroom with agricultural studies seniors **Savanah Laur**, left, and **Marissa Lange**.*

***Dustin Lefeber**, a senior in agricultural studies, moves seed from a planter on Iowa State's Ag 450 Farm.*

*Senior agricultural studies majors **Trevor Schnuckel**, left, and **Peter Lizza** chat while loading corn grown at the Ag 450 Farm. The experiential course uses a team-based learning model.*

***Dylan Lyman**, senior in agricultural studies, checks the quality of the corn crop on Iowa State's Ag 450 Farm. The course—officially titled Agricultural Farm Management and Operations—began with the purchase of 187 acres south of Ames in 1943.*

***Tyler Guy**, senior in agricultural studies, lubricates a field cultivator on Iowa State's Ag 450 Farm.*

*Senior agricultural studies major **Trevor Schnuckel** monitors corn loading on the Ag 450 Farm in February.*

Ag and biosystems engineering students teamed up to modify this grain sifter for ADM in their senior capstone course. (From left) ***Levi Benning****,* ***Ross Henning****,* ***Brian Davis*** *and* ***Kyle Henik*** *agree they like working together to solve real-world problems.*

TEAM TEACHING, TARGETED RESULTS

Story by Bailey Schober
Images by Christopher Gannon

Instructors in agricultural and biosystems engineering are adding value to their students' education by teaming up and working with industry. Together, they offer students the freedom to make mistakes, and the freedom to succeed, all in one important capstone course—Applied Project Management in Technology and Technology Capstone.

Instructors source capstone projects from corporations, small-town businesses, start-ups or faculty members. Projects must demonstrate a need for improving a process, increasing efficiency and implementing an action so students can fully manage a technology project from start to finish.

"I live vicariously through these students. I love to watch them grow and take on the world."

Gretchen Mosher *(left) and* ***Steve Bell*** *(right) meet with student teams twice weekly to offer input on their capstone projects. In addition to teaching and mentoring, the capstone model helps build relationships with industry partners.*

The Department of Agricultural and Biosystems Engineering (ABE) has 480 students in the industrial technology and agricultural systems technology majors. Over the course of four years, these students gain classroom and laboratory experience exploring machinery, processes, management, manufacturing and occupational safety.

As seniors, they participate in this two-semester course that is project and team based. The course helps students refine, expand and build upon their project management skills.

"My favorite part of the capstone class is the opportunity to work with leading companies on real problems and projects. I enjoy getting to work alongside my peers to push ourselves to new limits and reach out to a variety of resources both at the university and industry levels," says Brian Davis, a senior in agricultural systems technology.

Brian Davis*, top, runs a test batch of wheat seed through the grain sifter. The student team retrofitted the sifter for educational use to meet ADM's needs.*

Teamwork by design

The course is taught in two sections, and each section is co-taught. Jacek Koziel, associate professor, and Joe Vanstrom ('08 industrial technology, '12 MS industrial and agricultural technology), lecturer, are a teaching team. Gretchen Mosher ('11 PhD industrial and agricultural technology), assistant professor, and Steve Bell, lecturer, co-teach the second section.

"This is a unique course because we don't really teach, but instead, mentor. Joe and I come to weekly mentoring meetings together. We both have a little bit of input, kind of like a mom and dad providing the same input, but from different perspectives," Koziel says.

Student teams of three or four are carefully formed by the instructors based on project preference, individual strengths and weaknesses determined by the CliftonStrengths assessment and previous work experience.

"We are not technical experts in all subject matters as our projects are so eclectic, but we point our student teams to where resources are in the department, college, campus or externally," says Vanstrom.

Student-driven

Davis, Ross Henning, Kyle Henik and Levi Benning are tackling a project for ADM with the guidance of Koziel and Vanstrom.

Their project focuses on improving a grain seed sifter for use as an educational tool. Employees cannot see inside the seed sifter during demonstrations. ADM asked the student team to modify the sifter to be better suited for educational use. The team will add clear side panels showing flow paths, imaging videos for close-up views of the product in hard-to-see areas, custom catch pan assemblies, interior lighting and emergency stops and outlets.

"I like having the freedom to use our own opinions, to put forth our ideas and see them come to life. It's great working as a team and meeting each week to come up with the best solutions for our project," says Henik, a senior in industrial technology.

Henning says the course offers valuable career development.

"There's a sufficient amount of time for students to thoroughly examine a project and deliberately make decisions for a well-executed outcome," says Henning, a senior in agricultural systems technology.

Davis brought the project idea to this course when he returned from his summer internship at ADM. Thanks to his two

*Lecturer **Joe Vanstrom** offers his thoughts to **Kyle Henik** about the team's project. Vanstrom says he connects students with resources on and off campus to help them think critically and advance their projects.*

internships and the capstone project experience, Davis was offered a full-time position with ADM upon his graduation in May. Henning, Henik, and Benning also graduated in May.

Capstone revival

When Mosher started teaching this course six years ago, she had a total of 18 students and five projects, and she taught one section on her own. There were about 65 students and 20 projects between the two sections.

Bell teamed up with Mosher in 2015, and Koziel and Vanstrom first taught the course together in 2016. Although the structure of the course has stayed nearly the same, the quality of the course has increased because of the quality of projects and the increased focus on project management skills.

This year, they set a record for enrollment with 144 students and 40 projects. Koziel and Vanstrom's student teams meet for one hour weekly, and Mosher and Bell's teams meet for 30 minutes bi-weekly to discuss their project updates and receive guidance on making the next step toward completion.

"I've overseen a massive amount of growth in this course. Our team saw the need to have both a responsive and sustainable teaching approach," says Mosher.

The commitment is intensive for the instructors, including up to 28 hours of weekly team meetings, but they say it is worth it to promote student growth through personal and professional development.

The course culminates with student presentations on Capstone Day during which students explain their results to an audience of industry clients, students, faculty and staff.

"Capstone Day is always a major win. It's a day when there is a sense of relief and the industry clients are happy and excited. Working through a project involves a lot of detailed planning so the culmination point is rewarding," says Vanstrom.

Bell says the capstone format is fun for the students and the instructors.

"I've spent over 30 years in industry. I always thought I would love to come back to teach a bunch of young spirits," Bell says. "Truth be told, I live vicariously through these students. I love to watch them grow and take on the world."

Community of commitment

In addition to teaching and mentoring, instructors build relationships with companies to ensure they manage expectations and maintain connections.

"We were able to start a research collaboration with FarrPro as a result of earlier engagement with a technology capstone project. With companies like FarrPro, we can be research and development partners, and they can be our conduit for cutting-edge research into animal production systems and other focus areas," says Koziel.

Mosher says companies are always looking for ways to engage with students.

"The technology capstone provides an 'in' with our department so students can check out a company's culture," she says. "This course also keeps the university connected to our industry stakeholders."

Course success is the result of balancing time and relationships, mentoring students, establishing a community of commitment and emphasizing the process.

"Both sets of technology capstone instructors work to give students the best educational experience possible. We are the last touchpoint before students go into industry, and we want to make it a positive experience for them," says Vanstrom.

STORIES EXTRA: www.stories.cals.iastate.edu

Learn more about Iowa State's number-one-in-the-nation undergraduate program in agricultural and biosystems engineering (ABE). The program tied for top honors with Purdue and Texas A&M University in 2018 rankings by *U.S. News and World Report*. The department's graduate program is one of the country's best ranked at number two.

SMALL GROUPS LARGE LEARNING

__Clark Coffman__, top left, won the college's outstanding teaching award in 2017 for his innovative approaches to engaging students in critical thinking. He works with a team of learning assistants to bring a small-class feel to large biology courses.

Story by Ed Adcock
Image by Christopher Gannon

Clark Coffman says it can feel daunting facing hundreds of students in a lecture hall as part of the large introductory science classes he teaches.

"If you're outnumbered 400 to 1, how do you get students to learn?," asks Coffman, an associate professor in the Department of Genetics, Development and Cell Biology. The answer? Engagement.

"If you get the students engaged, they're going to learn more. Our goal is to get them to take something and grapple with it," he says.

Coffman won the College of Agriculture and Life Sciences outstanding teaching award in 2017 for his innovative approaches. He is part of a team in his department teaching Principles of Biology II, a lecture and lab course exploring cell biology, molecular biology and genetics. He also is part of a team of Iowa State faculty awarded a National Science Foundation grant to research ways to improve student achievement in large science classes.

Besides the sheer number, his students range from freshman to upper classmen, encompassing 60 to 80 majors, with varied backgrounds and abilities.

The teaching team has adapted a model developed at the University of Colorado to employ undergraduates who have taken the course or a similar one as learning assistants. The assistants move around the room and work with groups of four to seven students engaging in course exercises.

Comments from student evaluations reflect the value of the learning assistants, or "LAs":

- "What I LOVED about this class was that there were teaching assistants or LAs that were extremely helpful. They were always there to explain something we did not understand."
- "A lot of students, including myself, do not like to ask a question that over 300 other students will hear. So I was much more comfortable asking a LA for help."

The learning assistants are part of the instructional team and meet with the instructors weekly to plan the coursework and strategize techniques for achieving course outcomes. Coffman often asks them: "What made it click for you when you were trying to learn a particular concept?"

Since the new model began, the number of students getting a D, F or dropping the course has decreased.

"Students are staying enrolled and their performance has improved," he says. "A lot of these students are in their first set of science courses and we're not doing them any favors if we drive them off."

Students often feel if they have to work at learning something, they are doing something wrong. Research shows we learn through engagement and making mistakes, he says, so the teachers use information from class research to show students if they put in the effort they can learn and be successful.

"We want to teach them it's okay to make mistakes, to get them out of the pressure of the exam-taking mode and into learning mode," Coffman says.

*Horticulture student **Paige Van Mersbergen** (left) looks over landscape designs with clients **Shawn** and **Cass Dorius** inside a landscape design studio in Horticulture Hall. Lecturer **Lisa Orgler** (right) says working directly with clients allows students to develop professional experience.*

LEARNING FROM THE GROUND UP

Story by Barb McBreen
Image by Christopher Gannon

Sculpting landscape is an art that requires an understanding of lines, perspective, elevation, balance and color. The artist must incorporate soils, plants and structures.

Lisa Orgler, a senior lecturer in horticulture and Iowa State landscape architecture grad, helps students master that art by working through the process from concept to construction.

"The biggest thing I want them to learn is they are creating a space, not just placing plants in the ground," Orgler says. "They are creating garden rooms."

Each spring Orgler teaches a landscape design class in which students learn to create landscape drawings addressing various scenarios and incorporating different themes. When students finish their landscape drawing they share it with the class, similar to what a professional landscape designer would do with a client.

Learning design principles is what Brenna Rodenburg, a sophomore in horticulture, appreciates about Orgler's class.

"It's understanding unity, order and balance in a design. Anyone can plop plants somewhere they think look pretty, but understanding why they should go there and how they work together is the main thing that's helping me become a better designer," says Rodenburg.

When you walk into Orgler's design class you can feel her connection to her students. The room is full of light chatter and laughter. Her enthusiasm is obvious.

Students, who were assigned the same project parameters, have designed everything from formal gardens, to wispy prairie retreats, to angular and practical landscaped yards. The designs, posted along one wall, look like pieces in an art gallery.

After one presentation, Orgler provides feedback about the use of space. She points to an open courtyard in the design and comments on how the elements in a sitting area are too centered.

"This is typical when we have an open space. We want to center everything in the space, but you need to consider the spatial connection and relationship with other areas outside that space," Orgler says.

After another student's presentation, Orgler explains spatial design needs to be well thought-out.

For the final assignment the class met with a client in Ames. The students visited the site, measured the area, developed maps and listened to the client's vision for the yard. It's an experience that replicates the service they'll provide as professional landscape designers.

Iowa State alumni Dianne and Dave Brotherson, who live in Ames and work at Iowa State, said the class provided them with several designs three years ago. Dianne was impressed with the designs, but also the option to implement the design over several years.

"It turned out very nice," Dianne says. "It was fun working with students and seeing their ideas. We even bought the plants for the prairie garden from the Iowa State Horticulture Club."

Giving students an opportunity to work with clients gives them a real-world perspective. Orgler says she can give them feedback, but a client directs them according to their personal preferences, similar to what landscape professionals experience.

She also teaches a landscape class preparing students to compete in the annual National Collegiate Landscaping Competition. The 42-year-old competition was held in mid-March at Alamance Community College in Graham, North Carolina. The competition is another way to help students get hands-on experience.

The competition included close to 40 events ranging from plant identification to irrigation to business management. Brenna Rodenburg, a sophomore in horticulture and vice president of the Iowa State Landscape Club, says the workshops she attended provided information about industry trends.

"The first day we were there we attended several workshops and I went to a sustainability workshop," Rodenburg says. "The one I liked the best was a green roof workshop. They explained how you can install them on your house."

Diana Cochran, an assistant professor in horticulture and Horticulture Club adviser, accompanied the Landscape Club to the competition as a faculty adviser. She also remembers attending the competition as a student and says it completely changed the direction of her career.

"When I think about my career I can trace it back to this competition," Cochran says. "That is where I found my first internship."

TEACHING EXCELLENCE

When Orgler teaches about landscape design she encourages students to "create garden rooms," not just place plants in the ground.

Image contributed

She says that internship led to other opportunities, which introduced her to professors who convinced her to go to graduate school. More than 700 students attended the nationwide competition, which hosts one of the largest landscape design career fairs in the nation.

"I always encourage students to go because you meet people who are in your field and people who are passionate about the same things you are," Cochran says.

The Landscape Club sent 15 students to the competition. The club raised funds for the trip by selling one-hour landscape consulting sessions. Orgler says she was on hand to help students during the consults.

"They were working with real clients and they did an amazing job," Orgler says.

The competition isn't about winning, Cochran says, but describes it as a competition for all the right reasons. The Iowa State team placed in the top half overall. She says it helps students learn how to think on their feet and solve problems.

STORIES EXTRA: www.stories.cals.iastate.edu

Catch more scenes from the National Collegiate Landscaping Competition and see students sculpting landscapes and working with clients online.

LINKING CULTURES AND STUDENTS WORLDWIDE

Story by Barb McBreen

Images by Catherine Swoboda, Christopher Gannon

Whether it's measuring the health of a stream in Iowa, or feeding children in Uganda, Dick Schultz's passion for making the world a better place is evident in his energy and dedication to teaching.

Jesse Matt first met Schultz, a professor in natural resource ecology and management, in an Alabama swamp during an Iowa State University forestry field camp. Matt, a May forestry graduate, was scrambling around a muddy stream, collecting samples for a hydrology lab. He says the conditions in the swamp were treacherous.

"The water was ice cold, the mud was ankle deep, humidity clung to the forest like a wet blanket and the threat of snakes was ever-present," Matt says. "Most professors wouldn't be caught within a hundred miles of mud, poisonous snakes or physical work. Then there is Dick Schultz. He was right there in the stream with us, trudging from team to team."

Schultz takes the same approach in his forestry classes. It's all hands on. Students learn by doing.

On a recent site visit, Schultz's energy is obvious as he leads his watershed management class to a stream in Boone County. He just returned from working with students in Uganda the night before, and he walks vigorously ahead of his class, down a slope and across a pasture spanning about one-half mile.

"Dick is a high-energy teacher," says Bree Marmur, a doctorate student and teaching assistant in natural resource ecology and management. "If you haven't taken his class—you should."

At the site, the students break into teams to measure and evaluate a half-mile section of stream channel. Schultz and Marmur move up and down the stream to answer student questions.

"We're teaching them to assess stream health and how to improve the health of the stream," Marmur says. "Dick also shares a lot of personal stories about water issues at the global level."

There's little that will keep Schultz and his students from a trip to the field.

"You can stand in front of a class and talk, but if the students haven't felt the wind or heard the birds – it's not experiential learning," Schultz says. "My students learn quickly that the only time we don't go out into the field is when it's lightning."

Back in Schultz's office, a few photos and mementos from study abroad trips are tucked among his bookshelves. When asked what he hopes students take away from his study abroad classes he picks up a hoe and a machete.

"The students are not tourists. They are learning about other cultures and providing a service," Schultz says.

He emphasizes studying abroad isn't about riding a tour bus, but rather preparing students to become global citizens. He hopes to help them understand other cultures through service. He says it's important to understand and work with others to bring about change.

"When you go to another country you can't walk in and say you have the answers," Schultz says. "I tell students they are there to learn and provide service, and they come back changed people."

The machete and hoe are the two tools used by students in the Iowa State University Uganda Service Learning Program. The program has worked in partnership with the donor-supported Iowa State University Center for Sustainable Rural Livelihoods for 12 years.

"The beauty of the program is that we have made a commitment. It makes a difference to the people you are interacting with because they can see our long-term commitment," Schultz says.

In Uganda, Iowa State students work with students from Makerere University in Uganda to teach elementary school children. Together they also plant school gardens and harvest food. During the past 10 years the partnership has increased the caloric intake for the elementary students participating in the school lunch program from 50 calories two days a week to 800 calories three or more days a week. The program is working with five schools with a goal of providing nutritious lunches every day for every child.

> ***"Dick helps us all see the unifying themes of humor, compassion and love for the land that define us all, wherever in the world we may come from."***

Schultz gets emotional when he talks about the children in Uganda.

"There are all these bright, beautiful kids with almost zero opportunities. The number of kids, especially girls, who get to high school is minimal," Schultz says.

In rural Uganda Schultz is a legend, says Matt, who spent the spring semester working in Uganda. He adds that the people in the Kamuli district in Uganda know who is wearing the green hat and working in the sweet potato fields.

"He visits Uganda every summer, bringing humor, his green hat, an iron work ethic and a small army of Iowa State students eager to help the world," Matt says. "These are the ingredients for one of the most rewarding study abroad opportunities at Iowa State."

It is hard to win the respect of a Ugandan farmer, Matt says. The farmers work long hours in the worst conditions and the soil is harder than a steel hoe.

"Dick is the cultural link between Iowa State students and the people of rural Uganda," Matt says. "He helps us all see the unifying themes of humor, compassion and love for the land that define us all, wherever in the world we may come from." S

TEACHING EXCELLENCE

*Left: In Uganda **Dick Schultz** is known for his green hat and for working alongside local farmers and Iowa State students to grow food for local schools' lunch programs. Together they've increased student intake from 50 calories two days a week to 800 calories three or more days a week.*

Image by Christopher Gannon

***Dick Schultz**, second from right, instructs students **Brett Peters**, left, **Michael Russell** and **Tanner Archer** (right) on how to assess stream health along the shore of Bluff Creek in Boone County, Iowa. "The only time we don't go out into the field is when it's lightning," Schultz says.*

***Matthew Nelson** (left) and his wife **Erin** catch up with his favorite CALS professor **Andrew Manu** during a recent visit to campus. Nelson, a technology development representative for Monsanto, credits Manu for helping him discover his passion for weed science and advancing through graduate school.*

#CALSSTORIES
MY FAVORITE CALS PROFESSOR

Story and image by Melea Reicks Licht

We put out the call in STORIES Online monthly e-newsletter and CALS social media outlets for stories of your favorite teachers, and you answered in force.

Several outstanding instructors were honored by alumni and thanked for broadening perspectives, offering a listening ear, never accepting less than the best and making science fun among much more. Here's a few examples of the submissions received. Visit stories.cals.iastate.edu to read them all, and share your own story about your favorite CALS professor using #CALSstories on social media.

Over my four years in Ames, Dr. (Andrew) Manu (professor of agronomy) served as my adviser, mentor and even my boss!

While I struggled with Agronomy 114, I excelled in Agronomy 154. The interactive method of using computers (rest in peace, sadly) with hands-on activities, lectures and the site-lab made for a very fun and challenging class. It was actually through this class that I got to know my adviser—Dr. Manu. He noticed I was doing well in his class and asked that I meet with him.

Halfway through my sophomore year, he encouraged me to dive further into soil science by adding the environmental studies secondary major. This gave me a more in-depth understanding of soils and soil conservation. He encouraged me to study abroad with Dr. (Lee) Burras to Costa Rica, and helped me get a summer job in Dr. Mahdi Al-Kaisi's soil lab.

During my junior year, when I discovered my passion for weed science (my current field), he encouraged me to pursue it. He served as an excellent sounding board, helped me through graduate school applications, wrote letters of recommendation and was really my guide through the entire process.

He became my boss during my senior year. Dr. Manu asked if I would serve as a TA (teaching assistant) for Agronomy 154, teaching a section of site lab. I also helped him with the grading and scoring of exams, which meant I got to spend a lot of quality time with him—an absolute joy. Being a TA for this course was probably the most rewarding experience of my college career. It gave me valuable teaching experience that would help me in graduate school and in my professional career. It also gave me the opportunity to help young CALS students navigate a challenging, but important soils course. Watching their growth over the course of each semester was incredible.

I've never met a professor who cares more about his students—about them personally, about them finding their passion and about them succeeding academically. I remember going through the class roster with him entering test scores. He would remember something about each and every student, and noted ones that were struggling, but had the potential to succeed. In reality, he saw that potential in every student, and would seek them out to see how he could help them.

— ***Matthew Nelson** (*'15 agronomy, environmental studies*)*

The late Dr. William Murray (professor emeritus of economics) led class discussions and made assignments that were so realistic to the days just before rapid increases in land values. His assignments reflected the need for students to understand the value of land resources needed for safe borrowing for production with lending institutions, and costs of marketing of crops and livestock was also a factor in land values. I remember that the class assignment of calculating the value of the farm I was raised on came within $25 per acre of what his assessment was, which I thought was rather remarkable.

— ***William Thom** ('61 farm operations)*

Dr. Chris Currey (assistant professor of horticulture) and Dr. Jeff Iles (professor and chair of horticulture) were my favorite professors. I learned the most from both of them because of their unique teaching styles and perspectives. They both challenged me to think outside the box. They also made an effort to leave the classroom to show us how to apply what we've learned to a real situation. They both prepared us for what we would see and how to adapt to working in the horticulture industry.

— ***Lexie Ryan** ('15 horticulture)*

Dr. Chris Currey (assistant professor of horticulture) once told me, "You want to be my graduate student for two reasons. One, I have a lot of really cool gardening books. Two, I have an awesome beard." Who wouldn't want to work with someone like that?

— ***Kellie Walters** ('13 horticulture, '15 MS)*

My favorite professor was Dr. Richard Schultz (University Professor of natural resource ecology and management). I took several classes with him, including: Natural Resources Ecology and Soils, Watershed Management, a spring travel course to Ecuador and a spring travel course to Uganda. Dr. Schultz has more of an experiential learning approach which meant that a good portion of classes were spent out in the field and working with students. He would always challenge us to understand different perspectives of local, domestic and international agricultural issues and approaches through projects and discussions. Dr. Schultz's commitment to teaching combined with his fun-loving personality made his classes the highlight of my day!

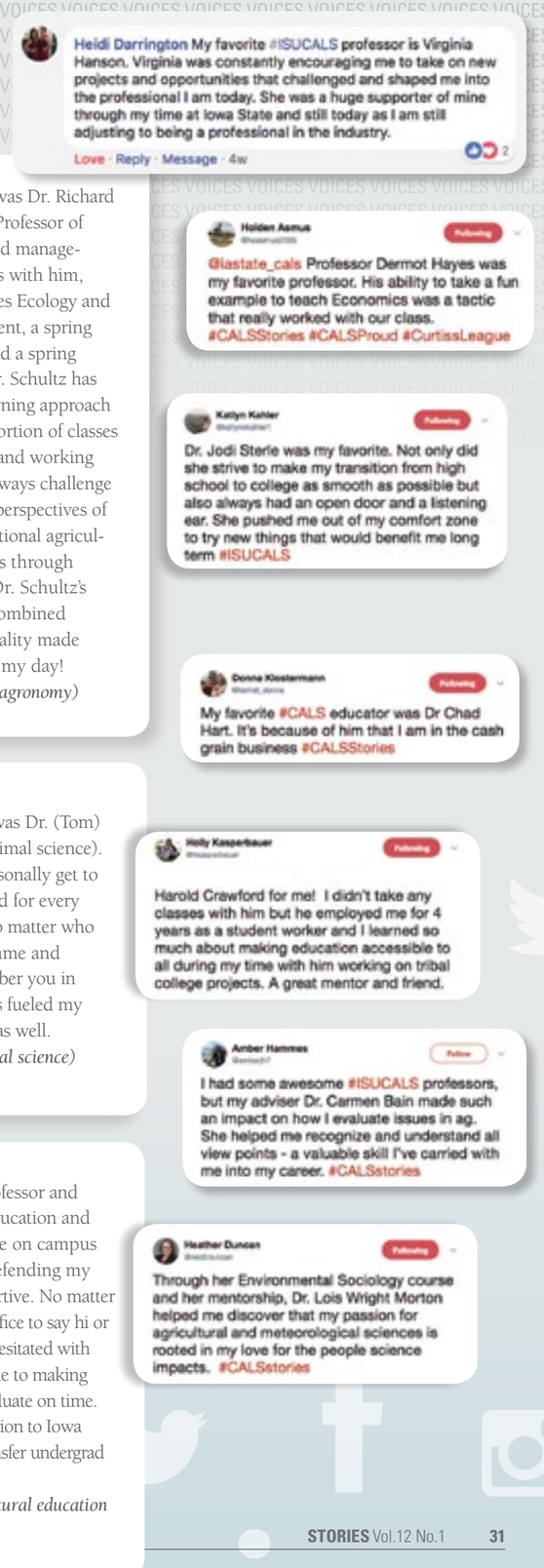
— ***Bridget McFarland** ('17 agronomy)*

My favorite professor was Dr. (Tom) Baas (professor of animal science). He took a lot of time to personally get to know his students and cared for every student as an individual. No matter who you were, he knew your name and probably still would remember you in a crowd. His AN S 225 class fueled my love for the swine industry as well.

— ***Amber Howell** ('16 animal science)*

Dr. (Mike) Retallick (professor and chair of agricultural education and studies)—from my first time on campus and meeting with him to defending my thesis, he was always supportive. No matter the day, I could stop in the office to say hi or to ask a question. He never hesitated with the "tough love" when it came to making sure I would defend and graduate on time. He definitely made the transition to Iowa State, both coming in as a transfer undergrad and graduate student, easy.

— ***Jenny Lichty** ('09 agricultural education and studies, '14 MS)*



SUPER TURF

Story by Melea Reicks Licht
Image contributed

They start to arrive three weeks before the Super Bowl.

Turfgrass professionals from across the globe assemble like superheroes to prep the prestigious field. Semis roll in full of turf equipment and tools. Owned by the National Football League and moved from location to location, the tools are unloaded, prepped and operated by this traveling team of turf experts including many College of Agriculture and Life Sciences alumni. The team is managed by Ed Mangan, the NFL's field director.

"There's 27 of us in all different types of jobs that come together to take care of the turf for the Super Bowl. There's minor league and major league baseball turf managers, NFL guys and one turf expert even comes from Japan," says Kevin Hansen, sports fields and grounds manager at SMG-NRG Park in Houston. NRG Stadium is home to the Houston Texans and hosted Super Bowl LI in 2017.

*Iowa Staters working Super Bowl LII at U.S. Bank Stadium in Minneapolis were (left to right): **Georgeanna Heitshusen** ('17 horticulture), Michigan State University; **Lee Kuiters** ('00 horticulture, ag and life sciences education), Atlanta Falcons; **Kevin Hansen** ('13 horticulture, '15 MS professional ag), Houston Texans; and **Josh Lenz** ('14 horticulture, '16 MS), Arizona State University.*

Image by Dan McClanahan

***Georgeanna Heitshusen** ('17 horticulture), was the first woman selected for the Toro turf internship in 2016. Now a grounds-keeper at Michigan State University, she worked the Cyclone athletic fields as a student and says the highlight of working the Super Bowl is learning from turf professionals from around the world.*

Hansen ('13 horticulture, '15 MS professional agriculture) says many people don't realize turf science is a career. He first stepped foot on a Super Bowl field in 2012 as an intern with the Toro Super Bowl Sports Turfgrass Training Program for Super Bowl XLVII at the Mercedes-Benz Superdome in New Orleans.

Toro has partnered with the NFL since 1967 to provide equipment to prepare the game field and practice fields leading up to the Super Bowl. In 2003, Toro and the NFL established the training program. Iowa State has had three students accepted into the Toro program—more than any other college.

As grounds manager, Hansen is responsible for the field at NRG stadium and their practice fields.

"We keep the natural grass growing and healthy including aerating and top-dressing. When those big NFL players come out and beat it up day after day, we work to keep it healthy, safe and playable," Hansen says.

He says healthy grass starts with healthy soil.

"Once we have a good subsurface for plants to grow in, we feed the plant the right nutrients and fight off diseases and insects throughout the year," Hansen says.

Two weeks prior to the big game Hansen and most of his teammates leave their home turf to serve at Super Bowl stadium.

"We lay out stencils for logos on the center of the field. Once we know the teams who'll be playing, we'll lay out team logos," says Hansen. "In Minnesota (in 2018) we managed an indoor stadium and two practice facilities."

The team also focuses on ensuring a safe, level playing field.

"We do some in-fill to make the field level and consistent. It has to pass NFL requirements for hardness and infield depth," says Hansen.

Lee Kuiters ('00 horticulture, agricultural and life sciences education), superintendent of grounds maintenance for the Atlanta Falcons, has worked every Super Bowl for the last 15 years.

"We work 10-12 hours a day, seven days a week. Once you get there, it's pretty much straight work. But a lot of us take the day Monday to do something unique to the city before heading home Tuesday," Kuiters says.

With a week left before the Super Bowl, the turf team spends much of their time touching up paint jobs after frequent rehearsals by halftime performers.

When game day arrives, Hansen, Kuiters and other CALS alumni join their colleagues in running nets on the end zones, scanning the field for debris and, when playing on natural turf, replacing divots. There were four Cyclones on the turf management team in 2018.

An Ames native, Hansen grew up working for Iowa State turf programs and visiting the Horticulture Building with his mom Barb Clawson, a senior lecturer in horticulture.

"I like being outside. Turf management fit my skills and what I wanted to do. Tim Van Loo (Iowa State manager of athletics turf and grounds) and Mike Andresen (Iowa State manager of facilities and grounds) were big mentors growing up," Hansen says. "And the Toro program is really how I got my start."

Kuiters graduated before the Toro internship program began. He says Iowa State's name recognition for quality turf grass graduates helped him land his first job.

"I wanted to be a teacher and coach, but halfway through my student teaching I realized that wasn't for me. I took a hort class with Mike Gaul and remember going over turf management and knowing that's what I wanted to pursue," Kuiters says. "Then, working for Mike Andresen on the Iowa State athletic fields played a big part of me going into sports turf and athletic field maintenance."

Following the Super Bowl, post-game confetti rains down upon thousands and fans celebrate for hours, including the CALS grads.

"We pick up our equipment and hang out to celebrate, too," says Hansen. "The host facility cleans up—that was me last year when it was in Houston. My favorite part is networking with other turf professionals, getting to know them and meeting new people over the years."

Kuiters says working in turf management provides him a niche in professional sports.

"I grew up on a farm, and I loved sports. This was a nice combination of the two," says Kuiters. "It's the one job in the (NFL) organization that I can do. Not many people can play and not many people can coach, but I can do this. It's been a neat experience."

EMERGING LEADER
EXTREME FAN

Story by Melea Reicks Licht
Image by Andy Abeyta

Jacob Hunter is a super fan. He proudly wears the "I-STATE" logo on his shirt and engages strangers in conversations about Iowa State University. But, Hunter admits he can't name a single Iowa State University student athlete.

Hunter ('11 agricultural and life sciences education) is a top fan of the College of Agriculture and Life Sciences at Iowa State University. His recruitment and advocacy efforts are introducing the college to the next generation of agriculturalists.

Rising to the top

As the agricultural instructor at North Scott High School in Eldridge, Iowa, Hunter draws in students from neighboring school districts. He formerly served as the director of Iowa education programs for the World Food Prize Foundation.

"Through his earlier work with the World Food Prize Foundation, to his current role at North Scott High School, Jacob inspires future leaders with his informed, passionate and steadfast commitment to the challenges facing global agriculture," says Joe Colletti, interim endowed dean of the College of Agriculture and Life Sciences.

Hunter, a member of the college's young alumni program—The Curtiss League, received the 2018 Emerging Iowa Leader Award in recognition of his efforts to advance agriculture and life sciences in Iowa through communications, education, engagement and outstanding alumni service. He was presented the award at center court of Hilton Coliseum during the college-sponsored Cyclone women's basketball game February 10.

Shane Knoche, principal at North Scott High School, says Hunter is a leader in competency-based education.

"When we hired Mr. Hunter, we set the goal of having a top ten ag and FFA program in five years. In his second year, North Scott was ranked number two in the state," Knoche says.

Melissa Garcia Rodriguez, a senior in animal science, credits Hunter for inspiring her to enroll in the College of Agriculture and Life Sciences.

*During **Jacob Hunter's** first year as North Scott's agricultural instructor, the number of first year students grew by 400 percent. In his second year, North Scott was ranked the number two agricultural education program in the state.*

"As a student from East High School in Des Moines, Mr. Hunter saw a potential in me that not many other teachers did. He didn't judge me based on my background," Garcia-Rodriguez says. "He worked with me to bring out the best in me and others in my classroom. I am at Iowa State today because of his guidance."

Growth mindset

Hunter leads the North Scott program with fellow alumnus Andrea Kuffel ('16 agricultural and life sciences education). Together they strive to create a rigorous and relevant curriculum that inspires students to act locally and think globally.

During his first year as North Scott's agricultural instructor, the program grew from 16 first-year students to over 70 first-year students.

"The growth of over 400 percent allowed us to add a second teacher at the junior high," Hunter says. "And, we added an agriculture biology course that allows students to earn credits for high school graduation and meet the Regent Admission Index (RAI) requirements."

North Scott also added online agriculture courses for students in neighboring school districts to take classes and join FFA. Students also are finding success in FFA contests.

"Just this fall we had North Scott's first state championship team in Milk Quality and Products. They competed at Nationals in October," he says.

Hunter has plans for continued growth of the program, specifically by reaching out to urban school districts—an area in which he is familiar. His student teaching experience was in the Chicago Public Schools and his first full-time positions were at Central Campus High School in Des Moines and Lincoln Community High School in Illinois.

"We are working to build North Scott into the regional agriculture center for the Quad Cities area. This would allow students from the metro schools to have easier access to an agriculture program," Hunter says.

*When **Jacob Hunter**, ag instructor and FFA adviser at North Scott, received the college's 2018 Emerging Iowa Leader Award during a Cyclone Women's Basketball game, a busload of supporters—students, family and friends—drove six hours round-trip to show their support.*

Cyclone story

A DeWitt native who grew up near Iowa City, Hunter seemed predestined to be a Hawkeye. Then his mother, an Iowa State alum, convinced him to attend State 4-H Conference at Iowa State University. His course for Cyclone adventure was set.

Hunter made the most of his student experience while at Iowa State. He served as a peer mentor to incoming freshman, and he was elected president of the Agricultural Education Club and secretary of the college's ambassador program. A member of the Fred Foreman Leadership Scholars, his knack for inspiring others and his leadership acumen earned him a position as state vice president of the Iowa FFA Association.

At graduation, Hunter was named 2011 Outstanding Ambassador of Agriculture and Ag Man of the Year by his peers in the College of Agriculture and Life Sciences.

Of all his experiences at Iowa State, Hunter says the most impactful was teaching about health and horticulture in Uganda's rural Kamuli district with the college's service learning program.

"Working hand-in-hand with our counterparts in Uganda taught me so much about myself, about how much good is being done in the world and about how much good still needs to be done," he says.

Global outlook

Hunter says his experience in Uganda solidified his future as an advocate of global agricultural education.

In 2014, Hunter joined the staff at the World Food Prize as director of Iowa education programs. The World Food Prize, headquartered in Des Moines, Iowa, and created by Iowa native Norman Borlaug, recognizes contributions in any field involved in the world food supply. The College of Agriculture and Life Sciences at Iowa State began to partner with the Prize in 2012 hosting youth programs as part of its Iowa Youth Institute.

"The institute encourages participants to stretch their thinking to address a global food challenge and consider careers in agriculture," he says.

Hunter values his time at the World Food Prize and is thankful for the opportunities the position provided in developing future agricultural leaders.

When he felt the call to return to the classroom in 2016, he brought his passion for global agricultural education with him.

"I often tell my students I will be retired by 2050. It's up to you to take on feeding the world," he says. "They don't know it, but they are the future scientists, policy makers, leaders, rebels, farmers and creative minds that have no choice but to take on this ambitious goal."

Hunter is convinced his students will rise to the challenge. S

TALKING TOUGH

4 TIPS FOR ADVOCATING FOR AGRICULTURE

Story by Melea Reicks Licht
Image contributed

Martha Smith is good at getting her point across. So good in fact, her skills earned her a national title, a new truck and recognition on the floor of the Colorado Senate.

Smith ('04 ag business, international ag) won the American Farm Bureau Federation's Young Farmers and Ranchers Discussion Meet in January in Nashville, Tennessee. Her prize included a new Ford truck and her national title earned her a tribute from the General Assembly at the Colorado State Capitol on January 31.

"Martha was an outstanding representative for Colorado and for young farmers and ranchers across the country," says Chad Vorthmann, executive vice president of the Colorado Farm Bureau. "It is talented people like her who will lead the agriculture industry into the next generation and help us continue to feed people around the world."

Smith, who was raised on a sixth-generation family farm in Lexington, Virginia, is an area business manager for the Channel brand of seed for Monsanto in Kansas, Colorado and Wyoming. She's held several positions with Monsanto since graduating from Iowa State including work as a seed quality supervisor in Michigan, operations supervisor in Hawaii and director of government affairs in the southeastern U.S. just prior to her current role.

Smith says it's the people that draw her to Farm Bureau conferences and contests.

"I appreciate the opportunity to dig into the issues impacting agriculture and hear different views from around the country. But, it's really about the network you meet while competing and hearing other perspectives. I wish there were more forums for that in agriculture," Smith says.

Smith credits her Iowa State agricultural business mentors emeritus professor Jim Kliebenstein and professor Ron Deiter with leading by example.

"Dr. Kliebenstein's ability to listen and to make a point was a great example to me. I grew up on a cattle farm. I was all about cows. Jim encouraged me to check out the grain industry in such a positive way. He showed me how to disarm someone in a very safe way and challenge them to think differently. Thanks to his suggestion I'm where I am today," Smith says. "Dr. Deiter is almost the exact opposite. He'll flat out challenge you. Their two different styles, and their passion really stuck with me."

An effective advocate for Iowa State, Smith is a member of the college's young alumni program—the Curtiss League—and serves on the board for the Iowa State University Alumni Association Club in Denver.

"Iowa State and Farm Bureau are how I make connections after corporate relocations," Smith says.

Smith offers a few of her favorite tips for engaging in productive discussions:

1. NETWORK "Don't be afraid to reach out to people even if you don't know them well. Connect with experts to learn about their areas of expertise."

2. LISTEN "Make sure everyone's views are heard. That moment of vulnerability could result in greater good for the discussion, project or the entire company. If I'm sitting at a table and everyone agrees then I know someone is missing from the table."

3. EMPATHIZE "Take a step back and try to understand the other point of view. When I was a lobbyist I spent a lot of time trying to understand the other side. You won't connect with them if you haven't figured out why they think the way they do."

4. VOCALIZE "It's all about learning and building consensus while being prepared to be challenged. Challenging isn't always negative."

SHAO ELECTED TO CHINESE ACADEMY OF SCIENCES

Mingan Shao ('96 PhD soil science) with the Institute of Soil and Water Conservation and Ministry of Water Resources in Yangling, Shaanxi, China, was one of 61 Chinese Academy of Sciences academicians elected to the Chinese Academy of Sciences. Shao's research focus is in water, heat and mass transport in soil.

NORTHEY NAMED USDA UNDER SECRETARY

Bill Northey was sworn in as the U.S. Department of Agriculture Under Secretary for Farm and Foreign Agricultural Service (FFAS) in March. Northey ('81 ag business) had served as Iowa's Secretary of Agriculture for more than 11 years. He is a former president of the National Corn Growers Association, served in state and local roles for the Iowa Farm Bureau and is a fourth-generation corn and soybean farmer.

CHAPIN, DE JONG HEAD STATE FARM SERVICE AGENCIES

Clark Chapin and **Amanda De Jong** have been appointed by President Donald J. Trump to manage the Farm Service Agency (FSA) in their states. **Chapin** ('12 MS interdisciplinary studies) will lead the Connecticut FSA. He previously served 16 years as a Connecticut state legislator prior to his most recent role as project director for Working Lands Alliance. **De Jong** ('02 ag business) will lead the Iowa FSA. She worked with U.S. Senator Charles Grassley and the U.S. Department of Agriculture before serving in her most recent role as senior policy advisor for the Iowa Corn Growers Association.

LAWRENCE APPOINTED TO LEAD ISU EXTENSION AND OUTREACH

John Lawrence was named vice president for ISU Extension and Outreach in March, following a nationwide search. **Lawrence** ('84 animal science, '86 MS economics) served as interim vice president for one year. He previously served as the College of Agriculture and Life Sciences associate dean for extension and outreach and director of Agriculture and Natural Resources Extension and Outreach. Lawrence has been an ISU faculty member since 1991.

HUNTER HONORED AS EMERGING IOWA LEADER

Jacob Hunter ('11 ag and life sciences education), agricultural educator and FFA adviser at North Scott High School in Eldridge, received the 2018 Emerging Iowa Leader Award from the College of Agriculture and Life Sciences during a college-sponsored basketball game on February 10. Hunter formerly served as the director of Iowa education programs for the World Food Prize Foundation.

CALS ALUMNI, FRIENDS RECOGNIZED BY ISU ALUMNI ASSOCIATION

CALS alumni and friends were among those honored by the ISU Alumni Association this spring.

Lequetia Ancar ('99 industrial technology, '04 MS, '08 PhD industrial and ag technology), program coordinator for the ISU College of Engineering, received the Faculty-Staff Inspiration Award.

Eric Hoiberg, former CALS associate dean and faculty member in the Department of Sociology, received the Faculty-Staff Inspiration Award.

William Olson ('09 microbiology), student at the Medical University of Innsbruck in Innsbruck, Austria, was honored as a STATEment Maker.

Kevin Roepke ('06 public service and administration in agriculture), U.S. Soybean Export Council's regional director to the Americas in Mexico, was honored as a STATEment Maker.

CALS ALUMNI EARN TOP NATIONAL HONORS

Jon Bergstrom ('92 ag studies), senior technical support manager and market development manager for DSM Nutritional Products, American Association of Animal Science Outstanding Early Career Agribusiness Award

Ian Plagge ('07 ag business) and Valerie Plagge ('06 ag and life sciences education), farmers near Latimer, Iowa; 62nd National Outstanding Young Farmers Awards Congress National Outstanding Farmers Honorees

Melea Reicks Licht ('00 public service and administration in ag, '05 MS ag and life sciences education), Iowa State University College of Agriculture and Life Sciences director of alumni relations, Sigma Alpha National Sorority Spirit of Ruth Award

Mark Schleisman ('86 ag business), farmer near Lake City, Iowa; American Soybean Association Conservation Legacy Award

Martha Smith ('04 ag business), area business manager-Channel Brand for Monsanto, Young Farmers and Ranchers Discussion Meet Champion

Charles Sukup ('76 ag engineering, '82 MS), president of Sukup Manufacturing Company, elected to the National Academy of Engineering

Kirk Weih ('79 farm operations), Hertz Farm Management, American Society of Farm Managers and Rural Appraisers D. Howard Doane Award

EXPANDING EXPLORATION, INNOVATION IN THE BIOSCIENCES

Story by Betsy Snow Hickok
Image by Christopher Gannon

New biosciences facilities—an addition to Bessey Hall and an Advanced Teaching and Research Building located at the northwest corner of Stange Road and Pammel Drive—provide access to the latest technology and allow for easy collaboration among students.

Encompassing biology and life science, the biosciences include the study of all living things, from microorganisms to maize to mammals. Iowa State expertise in the biosciences has bettered lives for centuries. Today, new discoveries will be needed to address the challenges of a growing population—from feeding the world to preventing human, animal and plant diseases.

In this challenge lies opportunity. Interest is growing in these fields at Iowa State, with enrollment in related majors swelling to more than 7,000 students across 25 programs in the College of Agriculture and Life Sciences and the College of Liberal Arts and Sciences.

New biosciences facilities not only help accommodate that growth, but are designed for the experiential, interdisciplinary teaching and research that are the hallmark of an Iowa State education. Located on the northern edge of campus, the two buildings—a Bessey Hall addition and the nearby Advanced Teaching and Research Building at the northwest corner of Stange Road and Pammel Drive—also provide easy access for potential industry collaboration.

Last fall, the lower two floors of the Bessey Hall addition opened classrooms and workspace to throngs of grateful biology students and faculty. And, the two upper floors provide much-needed lab space for faculty research teams.

"Older lab and teaching spaces simply were not built with technology in mind," says Chanda Skelton, teaching laboratory coordinator for the Department of Ecology, Evolution and Organismal Biology. "Now our students can easily use laptops, tablets and smart phones, microscopes with digital cameras and other technology. Also, the openness of the rooms allows students to work more easily in small groups, and they seem more willing to interact."

This spring, the impressive Advanced Teaching and Research Building (ATRB) also opened. The building provides efficient, flexible research and teaching space, houses the entire Department of Plant Pathology and Microbiology, and brings together the research enterprises of genetics, development and cellular biology and entomology.

"The ATRB takes Iowa State to a whole new level of interdisciplinary research," says Thomas Baum, department chair of plant pathology and microbiology. "This high-tech building provides space for synergistic activities bringing together expertise from several departments. The new teaching labs will be absolute difference-makers for undergraduate and graduate experiential learning."

The biosciences facilities are a campaign priority for both the College of Agriculture and Life Sciences and the College of Liberal Arts and Sciences during the *Forever True, For Iowa State* campaign.

"The facilities represent Iowa State's commitment to exposing undergraduate students to current technologies at the heart of many life-science-related areas," says Garnett Whitehurst ('80 biochemistry) whose generous gift to the project will be acknowledged by naming the Bessey Hall atrium in his honor. "Providing both undergraduate and graduate students with these experiences puts Iowa State on the leading edge in preparing tomorrow's leaders in these critical fields."

STORIES EXTRA: www.stories.cals.iastate.edu

Catch a glimpse inside the new Advanced Teaching and Research Building and the addition to Bessey Hall on STORIES website.

FOREVER TRUE FOR IOWA STATE

Iowa State University's comprehensive *Forever True, For Iowa State* campaign promises true transformation for the College of Agriculture and Life Sciences. The college's goal to raise $200 million will help grow six key areas: global agriculture, agricultural business and entrepreneurship, student and faculty enrichment, biosciences, sustainability and new innovative facilities for animal agriculture teaching and research. In strengthening these areas, the campaign will ensure the college continues to provide a world-class education that meets the needs of tomorrow's students.

***Amy Powell**, a 4-H animal science program specialist, leads youth in comparing natural fibers to synthetic fibers. Powell creates curriculum and activities to better understand the science of livestock production.*

BRINGING SCIENCE TO THE SHOW RING

Story by Grant Wall
Image contributed

Amy Powell's charge was simple—emphasize science in Iowa State University Extension and Outreach's youth programming.

Powell is a 4-H animal science program specialist. She creates curriculum and activities to help the 16,000 youth enrolled in Iowa 4-H animal science projects, FFA and ag-focused classrooms better understand the science behind the animals they raise.

"A lot of kids in our youth programs do a great job in the show ring but don't understand the science behind their animals," Powell says. "Why do they need a certain type or amount of feed? What characteristics led the animal to grow the way it did? Those are the questions I'm trying to help them answer."

Powell took on her position in 2014 and immediately set out to create a 4-H curriculum in animal science.

"This position was the first of its kind at Iowa State merging content expertise in animal science with a youth development focus," says Mike Anderson, state 4-H program livestock specialist. "Amy has been instrumental in assisting us by improving current programs and developing new and exciting products."

The goal is not only to educate youth, but also help them become advocates for agriculture in Iowa.

"Once our students become better educated, they can provide better answers when someone approaches them at a fair," Powell says. "This programming develops STEM (science, technology, engineering and math) skills kids need."

A better educated student ultimately leads to better educated consumers.

"Helping people understand and not fear technology in agriculture is important because without those things we can't feed the world," Powell says. "Helping youth understand science will help us move forward more efficiently and sustainably. Even if they don't pursue a career in animal science, they now know this information and will be able to share it and make educated choices as consumers based on science and facts."

Powell designs and runs programming for specific species and topic areas throughout the year.

In 2014 she introduced the Livestock Skill-a-thon at the Iowa State Fair and has grown the event to include 213 youth participants. Additionally, 15 county fairs have adopted a similar program.

"Her programs help us understand how to read a feed tag, read medication labels, learn about loadout procedures and so much more," says Jake Sterle, freshman in animal science at Iowa State. "She helps you understand the big picture while also learning to pay attention to detail."

Evaluations for her Beef Blast program, held twice a year for over 100 youth, show a marked increase in knowledge. The program also helps promote a possible career path—80 percent of event participants indicate they are considering a college major in animal science. S

IN OUR NEXT ISSUE

STORIES
IN AGRICULTURE AND LIFE SCIENCES

THE LEGACY OF GEORGE WASHINGTON CARVER

The next STORIES will celebrate the legacy of one of Iowa State's most famous alums and faculty members: **GEORGE WASHINGTON CARVER**. You'll read stories that illustrate the special **CONNECTION** between students and **FACULTY MENTORS** and that demonstrate **SCIENTIFIC DISCOVERY AND INNOVATION**. Meet students, faculty and staff **CHAMPIONING ACCEPTANCE AND INCLUSIVITY**. Learn more about **UNDERGRAD RESEARCH** and how a CALS internship program is inspiring **FUTURE SCIENTISTS** in Carver's name.

Join us at these

UPCOMING CALS ALUMNI EVENTS

Connect. Engage. Share.

AUGUST 28-30

Farm Progress Show, Central Iowa Expo Site (corner of Central and Seventh Street), Boone, Iowa

Visit with expert speakers, view interactive displays of CALS research and pick up your #CALSproud alumni button.

SEPTEMBER 1

CALS BBQ, three hours prior to Cyclone football kick-off, Hansen Agriculture Student Learning Center, Ames, Iowa

Enjoy a complimentary meal, college update and hands-on educational activities from CALS student organizations.

IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences

*Look for details on these events, and other department and major-specific news in the college's **STORIES Online** e-newsletter. If you aren't receiving this monthly e-newsletter, subscribe by e-mailing stories@iastate.edu.*

078-3996

CALS Communications
304 Curtiss Hall
513 Farmhouse Lane
Ames, Iowa 50011

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL
FIRST-CLASS MAIL PERMIT NO. 675 AMES, IOWA

POSTAGE WILL BE PAID BY ADDRESSEE

IOWA STATE UNIVERSITY

MAIL CENTER
184 GENERAL SERVICES BUILDING
AMES IA 50010-9901

IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences
CALS Communications
304 Curtiss Hall
513 Farmhouse Lane
Ames, Iowa 50011

WE WANT TO HEAR FROM YOU!

NAME

DEGREE INFORMATION

NEW? ☐ ADDRESS

E-MAIL ADDRESS

PLEASE SEND ME MORE INFORMATION ON:

☐ Undergraduate Programs ☐ Graduate Programs ☐ Distance Education

Please Specify

☐ Investing in the College

IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences

Please e-mail us at stories@iastate.edu to share feedback and your current e-mail or mail address. Or complete and return this card. By sharing your e-mail address you will be signed up to receive our monthly e-mail update, *STORIES Online*.