

# STORIES

IN AGRICULTURE AND LIFE SCIENCES

IOWA STATE UNIVERSITY  
College of Agriculture and Life Sciences



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# STORIES

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College of Agriculture and Life Sciences

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## UNPRECEDENTED. UNCERTAIN. UNPREDICTABLE.

*Like a song you can't get out of your head, these words have echoed throughout 2020 — an anthem of COVID-19. If you're like me, you're ready for a new tune. Our faculty, staff and students have demonstrated innovation, resiliency and commitment at levels never before experienced at Iowa State University. **Resilient. Committed. Innovative.** This is the song I hope fills your heart as you read the following pages.*

## WE'VE MISSED YOU.

It is with great pleasure and a huge #CALSproud that we share this issue of STORIES magazine. You may notice it looks a little different. We've reduced our page count and the size of our publication in an effort to cut costs.

The STORIES team looks a little different, too. In 2019 we wished writer Ed Adcock a happy retirement, and in 2021 we'll do the same for writer and photographer Barb McBreen. Our former director, Brian Meyer, has taken a new position in the Office of Strategic Relations and Communications at Iowa State. All three were contributors to STORIES since its inception in 2007 and played a huge role in the publication's success. We wish them well as they write their next chapters. We are excited to welcome a few new faces as well. Whitney Baxter and Ann Robinson joined the CALS Communications Service in recent years and have been welcome additions to our team.

To support essential academic and administrative operations during the COVID-19 pandemic Haley Cook, our assistant director of alumni relations, and I have been providing support in different areas of the college.

I'm working as interim director of college relations and Haley has been a key member of the campus response team, working with colleagues from across Iowa State to create a healthy environment here on campus.

Due to COVID-19, we missed traveling the state with Dean Robison for community visits, hosting you at our annual CALS BBQ and gathering for homecoming celebrations. And, we skipped our spring issue of STORIES magazine to cut expenses and to serve the college in other ways.

Like many of you, we've had the opportunity to reimagine how we gather and celebrate. Last spring and this fall we worked with an outstanding team to create a virtual convocation experience to celebrate our newest alumni. Visit [www.convocation.cals.iastate.edu](http://www.convocation.cals.iastate.edu) to check it out.

Our social media feeds remain an opportunity to engage with the college on a daily basis. This summer we launched the #CALScommunity campaign to highlight the voices of our multicultural students, faculty and alumni. We've also maintained our connection with alumni via STORIES Online monthly e-newsletter (email [stories@iastate.edu](mailto:stories@iastate.edu) to subscribe).

We look forward to finding new ways to connect, engage and share with you in 2021. Have an idea for a virtual event or other fun way to connect? Know of an extraordinary member of the college community whose story should be shared? Please let me know.

Thank you for your continued support of the college.

Warm wishes from central campus,

Melea Reicks Licht  
[mreicks@iastate.edu](mailto:mreicks@iastate.edu)



## Dear alumni and friends,

This has been an incredible year — one of tremendous achievement in teaching, research and extension amid a global pandemic, civic stress, drought and wind here in Iowa and the recent election.

All this in addition to the ever-present ups-and-downs in the worlds of agriculture, food, natural resources, health, trade, economics and technology.

Our faculty, staff and students continue to innovate to overcome the challenges we face. Through it all, we remain dedicated to the land-grant mission to improve the world around us through access and service. We have in fact been in Theodore Roosevelt's "arena," as this college always has — striving to achieve and working to help diverse people and landscapes thrive.

In this issue you'll read about innovative research to bolster the battle against COVID-19. You'll meet exceptional students who overcame an unpredictable semester and found ways to excel in the midst of adversity. There are stories of faculty and staff committed to providing the best possible experience for their students and advancing science through their discoveries and its application to practice. Every day we are working to breathe life into the CALS Advantage — advocating for what's important; innovating with an entrepreneurial mindset; grounding oneself in a discipline; and leading.

Due to COVID-19 mitigation, we haven't been able to gather as a college community as we would have liked. We missed hosting you at the annual CALS BBQ, Homecoming, convocation and commencement. We will work to find new ways to connect. Your input and involvement are important to me, and your feedback is always welcome.

It also has been a year of steadfastness, change and advancement in the college — including continued excellence in leadership among new associate deans, chairs and unit directors, as well as retirements and new hiring. See our news from campus section on page 32 for details.

We are nearing the end of a multi-year fundraising campaign. With slightly more than \$200 million raised toward our college goal of \$230 million (of the university overall goal of \$1.5 billion) we are working hard to close the gap by June 2021. The generosity and commitment of so many is remarkable!

Our ability to globally engage, to academically innovate, to do extraordinary research, and extension and outreach, and to be entrepreneurial — is all enabled by the support of each of you, and the fine work of our extraordinary faculty, staff and students.

We thank you for your continued support of and connection to the college. Together we can rise to meet the challenges of the coming year, find ways to improve the human condition, and as always, be better than ever.

Daniel J. Robison  
Endowed Dean's Chair  
College of Agriculture and Life Sciences  
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## A CALS WEEK LIKE NO OTHER

With extra precautions and safety procedures in place due to COVID-19, the CALS Council was able to put on a successful, albeit modified, CALS Week Sept. 28-Oct. 4. Students collaborated with university partners to implement COVID-19 safety measures while honoring traditions of this annual event.

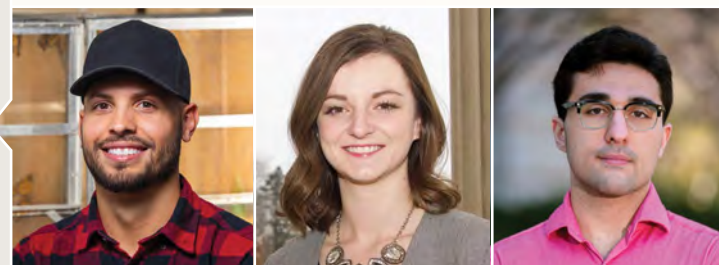
- Complimentary meals were offered on central campus Wednesday, Thursday and Friday, serving approximately 1,350 attendees.
- The annual CALS Week Olympics competition drew 17 teams from CALS student organizations. Alpha Gamma Rho came out on top.
- The Block and Bridle Club hosted their annual hunger fight for Meals from the Heartland, packaging more than 50,000 meals and meeting a lifetime goal of 500,000 meals for the organization.
- Iowa State Bacon Expo used campus-approved food trucks to host their event, serving bacon treats to more than 430 attendees.
- Sigma Alpha hosted a virtual version of their annual “Mr. CALS” competition raising more than \$1,000 for Food at First and crowning Connor Erbsen, a junior in agronomy representing the Beginning Farmers Network, 2020 Mr. CALS.

This year’s CALS Week co-chairs were Marcus Daughton, junior in agricultural systems technology, Logan Hoffman, junior in animal science, Tiffanie Koch, senior in agriculture and life sciences education, and Madelyn Main, senior in agricultural business.



## TEAMING UP FOR NATIONAL SUCCESS

- Members of the **Iowa State University Livestock Judging team** received third place for reasons, while **McKenna Brinning** ('20 animal science) and **Genna VanWye** ('20 animal science) were named All-Americans at the National Collegiate Livestock Judging Contest in November 2019. During the Judge2Win Crew online judging contest in April 2020, Dalton Line, senior in animal science, received high individual.
- The **Crops Team** placed third overall as a team at the Collegiate Crops Contest. Team member Ben Kolbe, senior in agronomy, tied for third place individually in grain grading and was named All-American.
- **ISU Block and Bridle Club** earned first place in the annual yearbook competition at the National Block and Bridle Convention.
- **ISU Professional Agricultural Student Organization** earned second place, crops; first and third place, farm business management; first and third place teams in overall livestock; first place team in swine; first place team in horticulture landscaping; first place in soils; first and third place teams in college bowl and their annual competition.



## STUDENT ACHIEVEMENT

- **Cody Acevedo** (left), senior in animal ecology, received the George Washington Carver Spirit of Innovation and Service Award.
- **Matthew Breitzman** and **Daniel Kohlase**, graduate students in agronomy, received the C.R. Weber Award for Excellence in Plant Breeding.
- **Macy Marek** (center), ('19 agriculture and life sciences education) earned the outstanding senior award at National Block and Bridle Convention.
- **Graham Redweik**, PhD student in food science and human nutrition, was named a Young Ambassador for the American Society of Microbiology.
- **Behnia Rezazadeh Shirazi** (right), senior in biology, was named a Goldwater Scholar.
- **Alexis Stine**, senior in animal science, was crowned Iowa Miss United States Agriculture.

## CALS ALUMNI, FRIENDS HONORED BY COLLEGES, ISU ALUMNI ASSOCIATION

College of Agriculture and Life Sciences (CALS) graduates and friends have been honored by Iowa State University for service to the college and agricultural and life sciences industries. College of Veterinary Medicine awards presented to CALS graduates: Stange Award, **Gary L. Borkowski** ('83 dairy science and agricultural and life sciences education, '87 DVM), senior director, American Association for Accreditation of Laboratory Animal Care and Outstanding Young Alumni Award, **Sherry Johnson** ('08 Spanish and animal science, '12 DVM), partner, Equine Sports Medicine, LLC. These awards will be presented in a virtual ceremony this spring.

## COLLEGE OF AGRICULTURE AND LIFE SCIENCES AWARDS



Floyd Andre Award, **Jeff Plagge** ('78 ag business), CEO Northwest Financial Corp.



George Washington Carver Distinguished Service Award, **Dewayne Goldman** ('91 PhD agronomy), executive director of the National Black Growers Association



Henry A. Wallace Award, **Roger Carlsson** ('78 ag business), chairman First Continental



Henry A. Wallace Award, **Betsy Freese** ('84 ag journalism), executive editor, Living the Country Life, Successful Farming



Outstanding Young Professional Award, **Colin Hurd** ('13 ag studies), business development manager Raven Industries, Founder Smart Ag

## CALS Grads Honored by Farm Managers, Appraisers

Several College of Agriculture And Life Sciences Alumni were honored by the American Society of Farm Managers and Rural Appraisers for professional excellence:

- **Lawain Biermann** ('91 ag studies) 2019 Professional Farm Manager of the Year
- **Rex Wilcox** ('72 ag business) 2019 D. Howard Doane Award
- **James Borel** ('78 ag business) 2019 Carl F. Hertz Distinguished Service Award
- **Ben Isaacson** ('06 animal science, '09 MS) 2019 Early Career Award
- **Chip Flory** ('87 ag journalism) 2019 Meritorious Service in Communication Award

## Kramer 2020 International Crop Adviser of the Year

**Adam Kramer** ('05 ag studies), owner of Black Sand Granary, was named the 2020 International Crop Adviser of the Year by the American Society of Agronomy. The award recognizes exceptional customer service, innovation, leadership and contributions to the transfer of agronomic knowledge.

## LaGrange Named 2020 National Wetland Hero

**Ted LaGrange** ('81 fisheries and wildlife biology, '85 MS animal ecology), wetland program manager for the Nebraska Game and Parks Commission, was named the 2020 National Wetland Hero for Wetlands Program Development by the Environmental Law Institute. LaGrange is honored for his efforts over 25 years building and developing Nebraska's Wetland Program.





# CROSSROADS: FROM SURVIVING TO THRIVING

Story and image by Melea Reicks Licht

Almost as quickly as the pandemic descended upon Iowa State University this March, donors reached out to step up their support for students in need.

Emergency-fund support for more than a dozen students was made possible by the philanthropy of Jerry ('62 agricultural business) and Karen Kolschowsky ('08 honorary degree).

"We were glad to support a fund that offers reassurance and a vote of confidence to students in crisis," says Jerry Kolschowsky. "This year has demonstrated the kind of unforeseen crossroads that some students encounter on their path to a promising future. It's always been our greatest joy to see young people — at Iowa State and across the world — equipped to reach their potential and with the opportunity to lead a fulfilling life."

Daniel J. Robison, holder of the Endowed Dean's Chair in the College of Agriculture and Life Sciences, reallocated \$150,000 from available Iowa State University Foundation accounts to COVID-19 emergency

support. The infusion of funds bolstered the college's emergency grant coffers of \$150,000. And, donors stepped up with an additional \$123,555 for agriculture and life sciences students in need.

Of the \$423,555, more than \$320,000 was promptly distributed to 183 students in need by September.

Angelia Intini, a junior in animal science from Naperville, Illinois, says financial instability caused by COVID-19 was causing her to fall behind with her car and insurance payments. She was concerned she may not be able to stay enrolled and support herself. She reached out to the College of Agriculture and Life Sciences Student Services Office for help.

"Personally, I am surviving. But, it's hard not to get overwhelmed," she wrote in an email to Howard Tyler, assistant dean of student services in the College of Agriculture and Life Sciences.

"I'm in shock, and I seriously cried when I read this," Intini wrote to Tyler in response to receiving financial support. "I have no idea

how I can thank you. I don't know if I ever can, but I know someday I wish to pay it forward."

Tyler says emergency aid can often be the determining factor in getting a student to graduation.

"Our records show graduation rates for students who have received emergency grants are just a shade under 90 percent," he says.

The support students receive from the college extends far beyond finances to personal and academic assistance.

"I will be forever grateful for this kindness you have shown me," wrote Intini. "And to Dr. [Jennifer] Bundy who is an amazing ray of sunshine I admire as my adviser and professor. I have so much gratitude."

In addition to college efforts, the ISU Foundation's Cyclone Strong fund brought in more than \$100,000 from more than 450 donors since March. Of the \$70,000 allocated for financial aid, \$47,000 had been awarded to students by the beginning of the fall semester, with approximately 60 students receiving critical financial assistance helping to pay for everything from groceries to medicine.

**Howard Tyler**, assistant dean of student services, helps connect students like **Angelia Intini** with emergency grants. Intini says the funds allowed her to stay enrolled and make strides toward reaching her ultimate goal of becoming a veterinarian.

## »» CONNECT. ENGAGE. SHARE.

Contact Howard Tyler, assistant dean of student services, for details on how you can support CALS students in need — [htyler@iastate.edu](mailto:htyler@iastate.edu) or 515-294-6434. Visit [stories.cals.iastate.edu](https://stories.cals.iastate.edu) for a link to donate to Cyclone Strong.



# BEEFING UP

## EFFORTS TO FIGHT FOOD INSECURITY

Story by Michelle Hiscocks  
Images contributed

The Governor's Feeding Iowans Task Force led by Lt. Governor Adam Gregg launched several initiatives to help direct locally-grown products to food insecure Iowans following the outbreak of COVID-19.

"The COVID-19 pandemic disrupted our entire food system and our economy. But when times get tough, the Iowa agriculture community rallies together to help those in need," says Iowa Secretary of Agriculture Mike Naig. "The Beef Up Iowa and Pass the Pork food security initiatives are truly great examples of Iowans helping Iowans. These programs create a market for Iowa livestock farmers and deliver locally-grown protein to feeding sites that serve hungry people in our communities."

The Iowa State University Meats Laboratory has served as the primary location for harvesting and processing. Animals are supplied by Iowa farmers and 4-H and FFA youth. Support from Iowa commodity groups helps coordinate these programs and connect beef and pork producers with the opportunity to participate.

Pass the Pork was launched in April 2020 in quick response to the lack of processing options for pig farmers. Local meat processors ground and distributed almost 50,000 pounds of pork before

processing began at Iowa State University in August.

The initial steer for Beef Up Iowa was provided in July by Herry McClure, an Iowa 4-H member from Dallas County and son of Iowa State alumni Jon ('03 ag studies) and Kara McClure ('02 journalism and mass communication).

Undergraduate and graduate students get valuable hands-on experience working alongside faculty and staff while processing donations in the ISU Meats Laboratory. From proper protocol for processing, to packaging and storing, to loading the finished product on the delivery truck, students gain real-world experience. Faculty also record videos of the process to share in online learning and outreach.

"This is a fantastic program for our university. Our students are learning about meat processing, but they are learning so much more about serving humanity," says Dr. Dan Thomson ('90 animal science, '00 DVM), professor and chair of the Department of Animal Science.

The ground meat is distributed to food banks and food pantries across the state through the Iowa Food Bank Association.

"The pandemic has impacted the lives of many Iowans due to

job losses or reductions resulting in an increased need for food one to three times greater across Iowa than pre-COVID," says Linda Gorkow, executive director of the Iowa Food Bank Association. "These great collaborations help in the immense work to fight against hunger in Iowa."

As of Nov. 1, Pass the Pork and Beef Up Iowa provided more than 29,000 pounds of ground pork and 33,000 pounds of ground beef processed at Iowa State.

## »» CONNECT. ENGAGE. SHARE.

Corporate and individual donors are fueling the food insecurity programs Pass the Pork and Beef Up Iowa. To join their fight against food insecurity in Iowa visit [STORIES](https://stories.cals.iastate.edu) website for links to donate. Tyson provided \$50,000 to the Beef Up Iowa program to purchase animals for processing. Pictured below from left: Rex Hoppes, Iowa Beef Industry Council; Matt Wenger, Iowa State University; Liz Croston, Tyson; Terry Houser, Iowa State University; Steve Stouffer, Tyson; Dr. Dan Thomson, Iowa State University; Deputy Secretary of Agriculture Julie Kenney; Addisyn Young, Beef Up Iowa participant; Lt. Governor Adam Gregg; Kinly Johnston, Beef Up Iowa participant; Shane Miller, Tyson; Dan Heffernan, Tyson; Linda Gorkow, Iowa Food Bank Association; Maynard Hogberg, Iowa Cattlemen's Foundation; Mary Greiman, Iowa Cattlemen's Foundation.



Many individuals and companies have contributed to these programs in addition to Coronavirus Aid, Relief, and Economic Security (CARES) Act funding.

Major donors to Pass the Pork as of Nov. 1 include: Landus Cooperative (\$20,000), Stanley (\$15,000), Alliant Energy (\$10,000), MidAmerican Energy (\$10,000), AT&T (\$10,000), Doll Foods (\$5,000), Conterra Ag (\$5,000), Iowa Soybean Association (\$5,000), Corteva (\$5,000), Cactus Cares (\$2,000) and William Napier (\$2,000).

Beef Up Iowa major donors as of Nov. 1 include: Tyson (\$50,000), Corteva (\$20,000), Alliant Energy (\$10,000) and Iowa Corn (\$5,500).



# MAKING SENSE OF SOIL VIA BIG DATA

Story by Zach Clemens  
Images by Melea Reicks Licht



**Ask any farmer, and they will explain the importance of soil. It is what moderates the long-term productivity of any field. Understanding the inherent properties of soil and how these vary across the landscape is vital to choosing management practices that maximize the longevity of the land's value.**

"We rely on soil for so many different things, the list can be overwhelming at times," says Bradley Miller, assistant professor of agronomy. "Think about why the state of Iowa has the agricultural economy that it does. What makes this state unique? Largely, it's the soil."

## A CYCLONE DOWN DEEP

Miller ('00 environmental science, '06 MS soil science and water resources) is no stranger to Iowa soil, or Iowa State University. The Iowa native continued his education at Michigan State University with a Ph.D., then worked in Germany developing methods for digital soil mapping at the Leibniz Centre for Agricultural Landscape Research. He joined the ranks of his former mentors in 2015 when he accepted a faculty position at Iowa State.

"When I came out of high school, I was confused about what I really wanted to do. I received some nice mentorship from Nick Howell who I worked for at Reiman Gardens," Miller says. "Then one of my co-workers suggested that I meet with Lee Burras and the rest, as they say, is history."

As an undergraduate, Miller worked as a research assistant learning about geographic information systems (GIS) and the need for better soil maps.

"When Bill Crumpton encouraged me to pursue a master's, it was pivotal. Those mentorships really put me on the path to success," Miller says.

Miller teaches geospatial technologies and digital soil mapping, while overseeing the department's Geospatial Laboratory for Soil Informatics. He advises graduate students, and his research examines spatial variations in environmental processes that affect soil properties. He studies how those variations impact environmental quality and sustainable crop production.

## UPDATING THE SOIL SURVEY

"We have been essentially mapping soil in Iowa the same way for almost 100 years," Miller says.

The latest soil maps have only been slightly updated since they were created by Iowa State University, state and national conservation agencies and the counties of Iowa around three decades ago.

"The existing soil maps give a general idea of the soil resources. But, as we get into precision agriculture, a lot of farmers are using these maps to determine management zones within their fields," Miller says. "The creators of these maps never intended them for this use, yet it is still the best data available for this purpose."

Miller and his cadre of graduate students — Luis Bentancor, Meyer Bohn, Dustin Ehret, Caner Ferhatoglu and Emma Molburg — are taking a statistically based approach to accomplish finer spatial detail and reduce uncertainty in how soil properties are predicted.

"In some ways, we aren't inventing the wheel. We are building on concepts from the past with the new algorithms we have in our toolbox," Miller says. "The

big difference is big data. We now have many sources of remotely sensed information, plus we have machine learning that helps us find much more complex patterns."

Machine learning is a type of artificial intelligence in which computers create models based on large data sets. The different technologies Miller uses range from spectral data collected by satellites, to elevation data collected by lasers from airplanes.

The big questions Miller is tackling are, what is the best sampling design to capture the variation in the landscape; what are the best predictor variables to use; and what is the appropriate machine learning algorithm to find those complex patterns.

"Projects like Dr. Miller's help us update and enhance tools used by about seven million people annually in a way that is more consistent over a larger area in less amount of time," says David Hoover, director of the National Soil Survey Center in the U.S. Department of Agriculture Natural Resource Conservation Service. "With digital soil mapping techniques, we can enhance those products or remap areas that have not been mapped before."

## A CERTIFIED STRONG FOUNDATION

With the help of Miller, the Department of Agronomy is offering a new soil science certificate. It allows undergraduates to receive official academic recognition in soil science, as opposed to advising themes or options within a major.

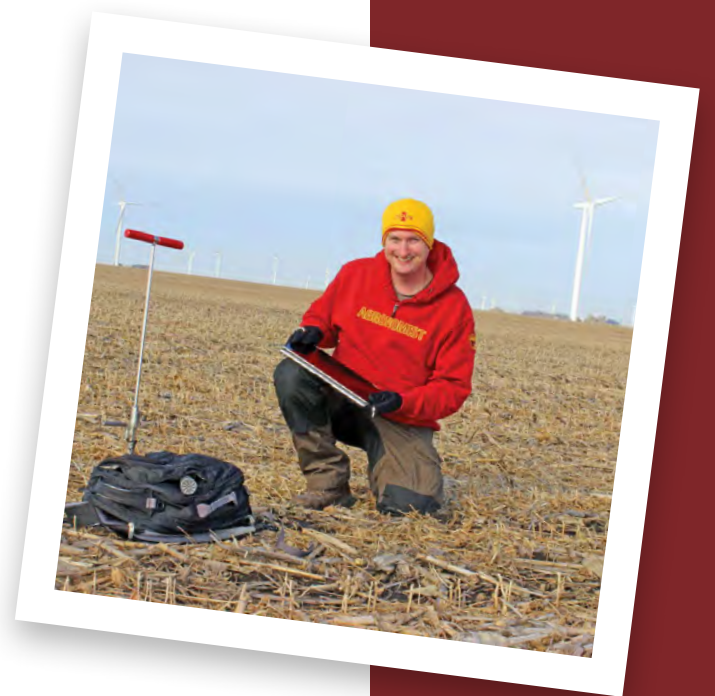
"Understanding soil is critical for addressing issues of food scarcity, infrastructure development, water management, climate change, biodiversity loss and human health," Miller says.

The certificate will help students build a strong foundation in understanding soil systems and open more career opportunities requiring specialized education in soil science.

"Not only does completion of the certificate establish a student's credentials for jobs at the federal level," says agronomy professor Michael Thompson, who was part of the team who developed the soil certificate. "It also will be noted by other private and public employers to identify students with deeper knowledge and experience with soils than other graduates." ■

**Bradley Miller** is using the latest geographic information science to update Iowa soil maps. While high tech, the process still starts with a basic soil sample. Miller gets in-field assistance from graduate student **Emma Molburg** (left) and undergrad **Laura Monson**.

Bradley Miller, assistant professor of agronomy, earned international recognition in 2018 for his achievements in bridging historical understanding of soil geography with modern geospatial technologies. He was awarded the Dan Yaalon Young Scientist Medal by the International Union of Soil Sciences. Miller is now putting that expertise to work to provide Iowans with better soil information.





# MOLDING

## MEDICAL CAREERS

Story by Whitney Baxter  
Image by Christopher Gannon

It was while researching new therapies for metastatic breast cancer at Washington University in St. Louis that Alison Esser ('03 biology, environmental science) realized she enjoyed training, advising and mentoring students. So, she switched from her research scientist role to an advising role that led to her current position at Iowa State University.

Esser, advising coordinator in the genetics, development and cell biology department, joined Iowa State in May 2020. She advises approximately 80 students majoring in genetics and bioinformatics and computational biology. She also teaches two genetics orientation classes and coordinates the genetics and bioinformatics and computational biology learning community.

"I enjoy advising because I can help students achieve their goals," Esser says. "I have the unique opportunity to interact with students from their initial campus visits through their academic careers and maintain relationships

with them as alumni. It's exciting and I love that our alumni stay involved and contribute to the program through assisting with informational interviews, job shadowing and as speakers on career panels."

Many of the students she advises have goals of obtaining health-related careers — physicians, genetic counselors and biomedical scientists, to name a few. Esser guides students in selecting appropriate courses to help them achieve their career goals. In her orientation classes, she connects students with alumni who can provide students with insight into health careers.

"The science-oriented curriculum in majors like genetics is a natural fit for students interested in human health," says Andy Zehr, CALS director of marketing and new student programs. "The biology, chemistry, physics, biochemistry and math courses required for genetics students to graduate are the very same courses most medical

schools require for admission."

Starting her new position mid-pandemic has been "interesting and sometimes challenging," Esser says. Normally, she would have met her incoming freshmen advisees in person during orientation in June, but those meetings took place virtually.

This semester, Esser has taken a hybrid approach with the learning community, holding both in-person and virtual activities with students.

"She started her job at a very difficult time when she cannot meet most of the people she needed to," says Yanhai Yin, professor and chair of genetics, development and cell biology. "Yet she navigated the situation well and started her job effectively. I really appreciate her resilience in learning and doing her important job through the pandemic, which is critical for our teaching mission."

The Department of Genetics, Development and Cell Biology is administered jointly by the College of Liberal Arts and Sciences and

the College of Agriculture and Life Sciences. The department teaches more than 30 courses and participates in three undergraduate programs: genetics; biology; and bioinformatics and computational biology; and seven graduate programs: genetics and genomics; molecular, cellular and developmental biology; plant biology; bioinformatics and computational biology; microbiology; neuroscience; and toxicology. **N**

Above: **Alison Esser** advises students with goals of obtaining health-related careers who are majoring in genetics and bioinformatics and computational biology.

# A CHAMPION FOR INCLUSIVITY

Story by Whitney Baxter  
Image by Barb McBreen

As chair of the College of Agriculture and Life Sciences Diversity, Equity and Inclusion Committee, Awoke Dolliiso is working to cultivate a welcoming and inclusive environment on campus.

Dolliiso ('95 agricultural education and studies, '98 MS, '02 PhD) first became interested in working to improve diversity, equity and inclusion following a student recruitment, retention and placement presentation. Data about underrepresented student placement had not been collected, which concerned him. As a result, Dolliiso, associate teaching professor in agricultural education and studies,

became involved with the university and college diversity committees to learn more about diversity, equity and inclusion challenges.

As a chair of the college committee, he spearheaded an effort to set up a committee focused on diversity, equity and inclusion issues in each of the college's departments. He convenes the college group each month to learn about cultural competency issues and lead an exchange of ideas.

"Amazing things are happening because of that," Dolliiso says. "Each department is doing something unique and we're learning from each other."

Theresa Cooper, assistant dean for diversity in the College of Agriculture and Life Sciences says Dolliiso's leadership is inspiring change.

"As chair of the Diversity, Equity and Inclusion Committee, Awoke has helped to establish diversity and inclusion excellence as core values throughout our academic departments," Cooper says. "Awoke is a true champion for

diversity, equity and inclusion, not only in CALS, but throughout the university."

Mike Retallick ('05 PhD agriculture and life sciences education), professor and chair of agricultural education and studies, agrees.

"Awoke has been instrumental in providing leadership in the department when it comes to equity, diversity and inclusion," Retallick says. "His work extends to both the college and university levels and he has been effective in connecting our departmental work to the broader campus community."

Dolliiso's efforts earned him the 2019 College of Agriculture and Life Sciences Faculty Award for Diversity Enhancement.

In the leadership class Dolliiso teaches, he assigns diversity-related online discussion topics to help students become more culturally rounded. Students must provide comments about each side of the issue, explaining why they can or cannot relate to it.

"Students are more open, engaging and willing to tackle tough topics and learn from other perspectives..."

"I've found it to be a very rich learning experience," Dolliiso says. "Students are more open, engaging and willing to tackle tough topics and learn from other perspectives than I thought."

Dolliiso also strives to make sure term faculty at Iowa State are given fair and equitable opportunities for advancement.

Previously, there was no clearly defined advancement pathway in place for term faculty. He is co-chairing a Faculty Senate working group to review the existing term faculty advancement process. The group will propose a more standardized process to be used university-wide with options for adjustments at the unit level. **N**

Above: **Awoke Dolliiso** incorporates cultural competency activities in his agricultural education leadership class and chairs the college's Diversity, Equity and Inclusion Committee.



# APPLYING CHEMISTRY TO IMPROVE ANIMAL HEALTH

Story by Ann Y. Robinson  
Image by Christopher Gannon



## Paiton McDonald's commitment and enthusiasm for Iowa State started before she ever set foot on campus.

A junior in agricultural biochemistry and international agriculture, McDonald began to develop her interests in high school in western North Carolina when she researched Mongolia and the importance of its horses to one of the world's last nomadic cultures. Her winning essay brought her to the World Food Prize Global Youth Institute in Des Moines.

"I just loved Iowa," she says. "When I found out that Iowa State

had a major that combined biochemistry with agriculture, it sealed it. I applied before I had even visited Iowa State."

### RESEARCHER, TEACHER

After arriving at Iowa State, McDonald quickly found work in the lab of Jodi McGill, assistant professor in the Department of Veterinary Microbiology and Preventive Medicine. McDonald is now a co-author on several of the lab's upcoming publications, and she presented (virtually) on her research at the December Conference for Research Workers in Animal Diseases.

"She's become an important part of our team," says McGill.

"For example, this past semester, we started a new project involving a bacteria that causes respiratory infection in cattle. Paiton taught herself how to culture and quantify the

bacteria. She's now teaching the rest of us."

Last year, McDonald decided to try sharing her "unique" love for general chemistry. She applied to become a teaching assistant and was excited to be accepted as an undergraduate.

"I wanted to help people not hate a subject that I love," she says, "and it's been great! It's so fascinating to see how people learn."

### 'INFECTIOUS' LEADERSHIP

McDonald has served as an assistant for the Honors Undergraduate Program community, which she calls her "home away from home." She also finds time for activities including the Dairy Science Club (she was born in Wisconsin and milk is her favorite food) and the student-led Stupka Memorial Undergraduate Research Symposium.

"Even as a freshman, Paiton showed so much initiative," says Desiree (Desi) Gunning, undergraduate program specialist for the Roy J. Carver Department of Biochemistry, Biophysics and Molecular Biology. "She decided the Stupka Symposium needed a newsletter. She recruited another

student to help, and the result was beautiful. Now she's the symposium treasurer and on her way to becoming co-chair."

"Paiton's energy and smiles are infectious," says Gunning of the department's 2020 Garnett B. Whitehurst Scholar. "She has a great impact on everything she does."

McDonald's goal is to become a professor at a Midwest land-grant university researching emerging livestock diseases. Her next steps include getting a doctorate in immunology and infectious diseases. She looks forward to the day when she will help people in places like Mongolia live better by improving the health of their livestock. **N**

**Paiton McDonald's** work as an undergrad teaching assistant allows her to gain real-world experience working alongside researchers studying infectious diseases.

Image: Alyssa Ivy



## GETTING INVOLVED TO GIVE BACK

Story and image by  
Barb McBreen



Helping fellow students is how Janiya Stroger gives back.

Stroger, a junior in animal science, learned quickly that getting involved in clubs and organizations on campus offered her opportunities and support.

"There have been times when I've wanted to give up and the people involved in those organizations wouldn't let me give up," Stroger says. "My involvement also provided opportunities I wouldn't have learned about otherwise."

Iowa State's animal science department attracted Stroger to come to Ames from Calumet City, Illinois. She's cared for several pets throughout her life and that inspired her to pursue her dream of becoming a veterinarian.

Stroger propelled into leadership and mentoring positions. She serves as the secretary of the Minorities in Agriculture and Natural Resources and Related Sciences (MANRRS) Club. She's also a mentor with the Fostering Opportunity through Collaboration Unity and Scholarship (FOCUS), the first multicultural learning community in the College of Agriculture and Life Sciences.

Audrey Kennis, student services specialist in the College of Agriculture and Life Sciences, says Stroger has been a strong mentor within the FOCUS learning community. The group meets every week offering opportunities to learn from peers and get involved in the community.

"Janiya is a strong student, a strong leader and she has tremendous interpersonal skills," Kennis says. "It's students like Janiya who play a critical role in helping other students feel welcome and thrive."

Stroger mentors Immanuel Taylor, a freshman in animal science. Taylor says having a mentor has helped him learn about opportunities and incorporate time management skills during his first year.

"Janiya is an excellent mentor," Taylor says. "She makes it easier to see how things work. She's also an animal science major, so she understands what I need to do to pursue my major."

The Leaders Enhancing Agriculture, Diversity, Inclusion and Trust, Collective, or LEAD-IT, is another group Stroger is involved in. The group is housed in the

college and works to build strong leaders and community partners with a focus on inclusion through academic, multicultural programs and social justice initiatives.

"We're an extension of the dean's office and we facilitate discussions and workshops on discrimination and racism, cultural competency and bias to name a few," Stroger says. "Professors invite us to classes to discuss these issues that aren't usually talked about"

Becoming involved with LEAD-IT presentations was outside her comfort zone, says Stroger, but her mentors encouraged her to push herself. The LEAD-IT initiative offers a safe space where students, faculty and staff can discuss issues.

"I've learned that you have to step away from what you're comfortable with in order to grow," Stroger says. "This is a learning experience and it helps students become advocates for minorities in the college." **N**

**Janiya Stroger** (left) mentors fellow animal science student **Immanuel Taylor** as part of the college's multicultural learning community.

"It's students like Janiya who play a critical role in helping other students feel welcome and thrive."





Story by Haley Cook  
Images by Christopher Gannon

# STARTUP

## FOR SOIL HEALTH

The spark for **Josh Jeske's** Precision Tillage technology came during an average trip through a corn field, but his entrepreneurial journey has been anything but typical. He and his dad Jeff tried out the technology on their family farm this fall.

**The road to entrepreneurship requires creativity, motivation and a great network of supporters. Josh Jeske, with his innovative outlook on agriculture and enthusiasm for soil health, is working to corner the market in all of those areas.**

Jeske managed his own swine facility for Iowa Select Farms near his hometown of Eldora, Iowa, since he was 16. The senior in agricultural and life sciences education chose to focus his education on agricultural communications because of the versatility of course offerings.

"It lets me take a broad array of classes from soil conservation and land use to statistics," says Jeske.

Following high school Jeske studied at Ellsworth Community College, where he joined the Professional Agricultural Student Organization (PAS). In 2019, a last-minute adjustment to the club's PAS competition team gave him an opportunity to participate in the sales competition and planted the seed for a potential career path. He pulled an all-nighter to prep and it paid off. He won the state competition and placed in the national PAS competition.

### THE IOWA STATE ADVENTURE BEGINS

Shortly after arriving on campus in 2019, he received an email about the ISU Innovation Prize, an incentive-based competition co-hosted by the College of Agriculture and Life Sciences' Agricultural Entrepreneurship Initiative (AgEI) and the Iowa State Pappajohn Center for Entrepreneurship.

Fresh off of his win at the PAS competition, Jeske responded to the event with the goal of learning more about sales. The educational programming offered during the competition helped him think about how he'd solve common problems in an uncommon way.

"I remember hitting an area of densely compacted soil with my dad's plow and thought, 'what would it be like if we could measure that force, and use it to determine the ideal tillage depth, or pass over areas that don't need tillage,'" Jeske says.

The concept for his business, Precision Tillage, was born.

### GAME-CHANGER

Jeske's idea gained wings, and he won the AgTech focus area of the competition. He was paired with other participants and mentors — a "dream team," of entrepreneurial-minded marketers, technology specialists and business people, to help guide and shape his plan.

Precision Tillage, it was determined, would be a hardware and software combination that allowed the farmer to put a sensor on tillage equipment and "see," in real-time, what area of a field needed minimal tillage or no-till. The goal of the product is to maintain profitability and protect the soil.

Kevin Kimle, associate teaching professor in the Department of Economics and director of AgEI, was a judge during the competition



[CONTINUE READING](#) ►



and now serves as a mentor for Jeske. In the spring of 2019, Jeske took Kimle's Economics in Agriculture course (Econ 334), a class that offers students an opportunity to develop a comprehensive feasibility study for a new business.

"Kimle's class was a game-changer," says Jeske, "I just fell in love with it. It forced you to make things real in how you viewed your business. By the end of the semester I had a business plan and marketing materials."

Kimle and other mentors helped connect Jeske with student-entrepreneurs, like Vikrant Sant, a student in economics and mathematics and Dillon Jensen, a student in computer science, who helped develop the technology behind Precision Tillage.

"Josh's off-the-charts aspiration to be an entrepreneur were apparent from the first moment I met him. That enthusiasm is contagious to others, as he's been terrific engaging with other students who aspire to be entrepreneurial and innovative," says Kimle.

Kimle encouraged Jeske to apply to CyStarters, an 11-week summer accelerator program that provides financial support to students and recent graduates to focus on their business. Jeske's application was accepted, and he began the program in the summer of 2020.

A COVID SETBACK

Shortly after the start of CyStarters, Jeske contracted COVID-19, and hit a major road-block in his journey with Precision Tillage.

"I had just started working with my intern and was looking forward to digging into my business. All of that came to a halt for about a month while I was sick and needed to quarantine. It was during a key time in the program," says Jeske.

Following his illness, Jeske was able to continue with CyStarters, meeting with industry mentors and fellow cohort members virtually.

"In a normal face-to-face environment, you can really dig in, but no one wants to hang on a Zoom meeting and brainstorm for hours. We had to be much more efficient in our use of time," he says.

ONWARD

Jeske continues to work on his prototype for Precision Tillage. Through this process, Jeske has learned a few major lessons:

- Economy for the business and the consumer is key. Originally Jeske wanted to use ground penetrating radar to measure soil density, a technology that was expensive and required significant amount of training.
- Collaboration helps efficiency and problem-solving. Jeske was able to work with mentors and fellow student-entrepreneurs to help determine how to measure soil density in a more efficient and cost-effective manner.
- Mentorship is important. Jeske can name a number of industry leaders, Iowa State faculty and staff and students who helped guide and shape his entrepreneurship journey. His goal is to continue to foster those relationships.

"I really want to help make agriculture sustainable and focus on the next generation. I'm going to inherit a farm one day — I want it to be profitable and sustainable and I want to use new technologies to make that happen. My goal for the future is to continue this mindset of entrepreneurship and grow this network of people I've met during my time at Iowa State," says Jeske.

Jeske frequents the new Student Innovation Center where he has secure working space to develop his technologies. His hardware and software creation aims to monitor soil conditions in real-time so farmers can make tillage decisions on the fly.



HOW IT WORKS:

Precision Tillage hardware (sensors) measure the expansion and contraction of resistance springs on tillage equipment.

Software automatically uploads data into the cloud and logs it into a database.

Farmers use an on-phone app to access the data and view soil density in real-time so they can make tillage decisions based on results.

»» CONNECT. ENGAGE. SHARE.

To learn more about how to connect with and support emerging entrepreneurs like Josh Jeske in the College of Agriculture and Life Sciences contact Kevin Kimle, director of the Agricultural Entrepreneurship Initiative, at 515-294-1803 or kimle@iastate.edu.



ADVANCING ACADEMIC INNOVATION

Story by Carmen Bain, Associate Dean of Academic Innovation  
Image contributed

After spending nearly 13 years as a faculty member in Iowa State's Department of Sociology, it is with great honor I accepted the position as the College of Agriculture and Life Sciences' first Associate Dean for Academic Innovation in April. Stepping into this new role amid a global pandemic has certainly brought its challenges, but true to Iowa State form, our faculty, staff and students continue to rise up and overcome.

Now more than ever, it is essential we continue to serve and care for our students. They are transitioning to remote and hybrid learning, some are battling illness or isolation and many are struggling with mental health issues. We are putting more resources into developing quality virtual course content, strengthening student mental health support, and — thanks to donor assistance — offering emergency financial aid to keep at-risk students enrolled. We are committed to student success and we will work with our students to get through these difficult times.

We also continue to focus on recruiting and retaining students. My goal over the next decade is to advance high impact and value-added academic and educational programming across the college and university. It is essential we advance an undergraduate educational experience that values multidisciplinary collaboration, entrepreneurship, research, experiential learning and a global perspective. These experiences are necessary not only to recruit and retain outstanding students to our college, but also to ensure the next generation develops the skills, understanding and passion to productively contribute to and shape society.

Key to this effort is retaining outstanding employees who are passionate about teaching, advising and mentoring students. My goal is to help ensure faculty, staff and advisers receive the support and recognition they deserve. They too are facing extraordinary challenges. They continue to adapt to new delivery modes, explore different communication channels, and find fresh and innovative ways to

connect with students.

Above all else, we must strive to integrate equity, diversity and inclusion throughout our college. We are considering a suite of approaches to build on the exceptional work already underway by our Office of Diversity and Inclusion Programs. This includes the George Washington Carver Summer Research Internship Program, the Leaders Enhancing Agriculture, Diversity, Inclusion and Trust (LEAD-IT) student collective, the Minorities in Agriculture Natural Resources and Related Sciences (MANRRS) chapter, multicultural peer mentoring and cultural competency training. We will

work to create an inclusive campus climate and college community, to graduate civic minded students with knowledge and skills to engage in a culturally diverse society and produce diverse leaders in industry and academia.

These challenges and opportunities will take the effort of all in our college community, our alumni, supporters and external partners. Together we can ensure our undergraduate education continues to innovate over the next decade and beyond to meet the needs of our students and advance society.

»» CONNECT. ENGAGE. SHARE.

To learn more about how you can help support the College of Agriculture and Life Sciences advance academic innovation or provide support to students via scholarships or emergency support contact Carmen Bain, associate dean of academic innovation, at cbain@iastate.edu or 515-294-9895.



# RESEARCHERS RESPOND TO COVID-19

Story by Ann Y. Robinson  
Image by Christopher Gannon

## TRACKING COVID IMPACTS VIA NEW WEB HUB.

A new web hub, “COVID-19 Pandemic: Research and Resources,” developed by the Center for Agricultural and Rural Development and Department of Economics has quickly become an important resource for those seeking insights into the pandemic’s economic and social impacts on agriculture, business, communities and individuals. The site’s growing set of research papers, tables, graphs and maps interpret the pandemic’s influence across local, regional and global economies. There also is an interactive tool to estimate total COVID-19-related losses to Iowa’s corn, soybean and ethanol markets.

## SKIPPING MEDICAL LABS? NEW TEST MAY MAKE IT POSSIBLE.

A transportable platform resembling a mobile phone could be used to detect the virus that causes COVID-19 — without sending samples away to a medical laboratory. Its creation is the goal of a research team led by Marit Nilsen-Hamilton, professor in biochemistry, biophysics and molecular biology,

through her company Aptalogic. “The testing platform could identify viral particles in saliva or blood samples,” says Nilsen-Hamilton. “It even has the potential to detect the virus in the air or on surfaces.” Her partners include Pranav Shrotriya, professor of mechanical engineering at Iowa State, and Wendy Maury, a University of Iowa virologist. Support for the project includes funding from the U.S. Department of Homeland Security for development of an air monitor to detect the SARS-CoV-2 virus (COVID-19) and other biothreats.

## EXAMINING COVID’S RURAL IMPACTS.

COVID-19’s toll on the health and vitality of Iowa’s rural communities is the focus of research by David Peters, associate professor of sociology and rural extension sociologist. He’s working with collaborators in sociology, criminology and public health, who want to assure the pandemic’s impact on small towns will not be ignored in academic and policy discussions. “Small towns are too often statistically invisible, creating a false sense of rural immunity, even as they may be faced with rising

numbers of cases and deaths,” Peters says. “Without timely social research, policies may fail to address pressing rural needs or be ill-suited to rural contexts.” The team will survey over 15,000 residents across 72 small Iowa towns. Their project received a rapid-response grant from the National Science Foundation in July. Peters also has published a COVID-19 susceptibility scale detailing 11 risk components in the Journal of Rural Health. Find a link to the map of risk scores via STORIES website ([stories.cals.iastate.edu](http://stories.cals.iastate.edu)).

## TARGETING COVID RNA TO DEVELOP DRUG THERAPIES.

At this point, there is no effective way to cure infection from the SARS-CoV-2 Virus that causes COVID-19. To identify COVID-specific antiviral drugs Iowa State researchers are looking for unique structures within the SARS-CoV-2 virus’ RNA genome that can be exploited to limit its ability to replicate. The team consists of Walter Moss, assistant professor in the Roy J. Carver Department of Biochemistry, Biophysics and Molecular Biology, with Allen Miller, plant pathology

and microbiology, and Cathy Miller, veterinary microbiology and preventive medicine. Their main tool is a new method Moss devised with Ryan Andrews, a doctoral candidate, to analyze unusual sequence patterns in viral RNA, such as the types found in Zika, HIV and coronavirus. These patterns form shapes governing how RNAs interact with other molecules, including proteins, that are the basis of drug therapies. Their project recently received seed grant funding from Iowa State’s Office of the Vice President for Research.

## NEUTRALIZING COVID WITH UV-A LIGHT TECHNOLOGY.

Jacek Koziel, professor of agricultural and biosystems engineering, is leading a team developing a new UV ultraviolet light technology to inactivate airborne viruses like the novel coronavirus. An important benefit of UV-A light is that it is less toxic to people than conventional UV-C light sometimes used as a bactericide. He is testing the technology’s ability to fight the airborne Porcine Reproductive and Respiratory Syndrome (PRRS) virus, a serious threat to swine and

A 3D model of a ScanFold-predicted structure from SARS-CoV-2 viral RNA generated by the Moss Lab at Iowa State University.

potentially related to SARS-CoV-2. Koziel is working on the project with collaborators in veterinary medicine and chemistry. Funders for their project include the National Pork Board.

## SCREENING VACCINES AND THERAPIES WITH MODEL “LUNG”.

Creating a “lung on a chip” is how Donald Sakaguchi describes his effort to develop a prescreening tool for COVID-19 vaccine or drug candidates before human testing. Sakaguchi, Morrill Professor in genetics, development and cell biology, and colleagues from across campus are designing their “human-relevant, 3-dimensional in-vitro model screening platform” from cultured human respiratory system cells. The innovative model could more accurately mimic the respiratory tract than current screening platforms. The project received seed grant funding from the ISU Office of the Vice President for Research. **N**



**Donald Sakaguchi** and colleagues in chemical and biological engineering, veterinary microbiology and preventive medicine are developing a prescreening tool for therapies for COVID-19. Pictured with Sakaguchi are undergrad research assistants **Talía Sylvester**, center, and **Peyton Hamel**, right.

**STORIES EXTRA:** [www.stories.cals.iastate.edu](http://www.stories.cals.iastate.edu)  
Learn more about these ongoing research efforts and find relevant links on STORIES website.



# PREDICT PANDEMICS

Story by Ann Y. Robinson  
Image by Christopher Gannon



“While the paradigm is fairly new, it is based on more than a century of experience and data that show the interconnectedness of human health with animal and environmental health.”

When Nancy Boury introduced the class, Predicting the Next Pandemic, in fall 2019 she had no way to foresee how timely the topic would soon become.

Boury, assistant professor of plant pathology and microbiology at Iowa State University, first envisioned the course several years ago, when her interest was piqued by a presentation at an American Society for Microbiology educators meeting.

“The idea stuck in my mind,” she says.

In 2019, she had the chance to use the idea to create a short, introductory course for students interested in STEM fields. She worked with graduate students, Chloe Wasendorf and Brian Macias-Musco, to plan the half-semester course, Micro 265X. It launched in person last fall. Just a few months later, the class migrated online in response to a real-time, full-blown pandemic spreading over the globe.

## ONE HEALTH PARADIGM

Boury designed her class around the interdisciplinary One Health paradigm endorsed by national and international health organizations, ranging from the American Veterinary Medical Association to the U.S. Centers for Disease Control and Prevention to the World Health Organization.

“The concepts I’m teaching are both new and really old,” Boury says. “While the paradigm is fairly new, it is based on more than a century of experience and data that show the interconnectedness of human health with animal and environmental health.”



The course begins with readings about disease outbreaks and the scientific detective work to identify and overcome them. Students read case studies of different types of viral and bacterial diseases that have plagued humans over time, including Parrot Fever in the 1920s, Q Fever, Lyme Disease and malaria.

## HOW SCIENCE HAPPENS

The trajectory of the course was modified in Spring 2020 to include discussion of a new emerging disease, the novel coronavirus, COVID-19.

“This topic provides excellent opportunities to help students think about how science happens,” Boury says. “Students learn the process of microbiology is not as easy and straightforward as people might think. There is a lot of mystery involved. We talk about how the work of a microbiologist changes in different situations, as scientists go through the steps to identify a disease, look for its means of transmission, develop and test a vaccine and devise other measures for prevention or treatment.”

The course also brings in issues of communications and policy, which are important to the whole process of addressing disease threats and managing risks, according to Boury.

“A lot of the class is focused on thinking about how to systematically and objectively ask good questions,” she says.

## MOST RELEVANT CLASS

Hannah Heit, a senior in animal science, one of the students to take Boury’s Micro 265X, plans to pursue advanced degrees in public health and veterinary medicine.

“The course allowed me to learn more about careers I will be able to pursue with those degrees,” she says. “It was very intriguing because we were able to apply what we learned in class to what was happening in the world. This class showed me how we live in a

One Health world where humans’ actions — from deforestation to eating bush meat — can propagate the spread of new diseases.”

Emily Nejdil, a senior in industrial engineering, says the course was the most relevant class of her entire college career.

“The topics I learned in this class were immediately applicable to life. Although COVID-19 continues to be very serious,” she says, “having a basic understanding of One Health principles allowed me to approach it from a more scientific perspective rather than one solely of fear and anxiety.”

## MORE THAN PANDEMICS

In addition to teaching students how to ask good questions about health and science, Boury has a research interest in how to effectively teach habits that lead to success in college. This shows up in all her courses as lessons in time management, writing and evaluating credible references.

Her last pandemic class assignment requires students to use those skills for a mini-grant proposal, posed as if they were going to research a current health problem and conduct a project that would contribute to a solution.

“Someday, one or more of these students could be in a position to make decisions related to a future pandemic, and they will be a little more prepared,” Boury says. “In the meantime, I hope it helps them become better students who are more excited about the nature of science.”

**Nancy Boury** launched her new microbiology class, Predicting the Next Pandemic, in fall 2019. Just a few months later, the class migrated online in response to a real-time, full-blown pandemic spreading over the globe.



Story by Whitney Baxter

# EXCEPTIONAL TIMES INSPIRE EXCEPTIONAL INNOVATION

**With just 10 days advance notice, Iowa State faculty members last spring had to quickly convert their in-person classes to online formats due to the COVID-19 pandemic.**

Innovation in teaching and learning ramped up across campus, and five College of Agriculture and Life Sciences faculty members were recognized for their extraordinary efforts with Spring 2020 Teaching Innovation Awards from the Office of the Senior Vice President and Provost.

## MAINTAINING A TEAM-BASED APPROACH TO CLASS

Kate Gilbert, associate teaching professor, food science and human nutrition, along with Ken Prusa, professor of food science and human nutrition, virtually met with each of the 11 student teams in their food product development course on a weekly basis to discuss the teams' product progress.

"This was a very important component because it allowed us to connect with the students, make sure everyone was doing OK, and make sure they were still able to make progress on their work," Gilbert says.

The students created infographics about their final products and recorded presentations that were shared with industry board members. Students met with board members virtually to receive feedback and answer questions.

## VIRTUALLY BRINGING LAB ACTIVITIES TO STUDENTS

Saxon Ryan, assistant teaching professor, agricultural and biosystems engineering, created first-person laboratory videos to explore the operation of equipment and fluid power circuit development — things his students would normally experience hands-on.

"Students overall had an extremely positive reaction to the lab videos," Ryan says. "Students expressed how they would have rather been there in person, but the videos were the next best thing."

In Jelena Kraft's advanced genetics lab, students used an online research-based lab module to study their gene of interest and its role in fatty acid accumulation in yeast.

Kraft, assistant teaching professor, genetics, development and cell biology, and her teaching assistants compiled research data and projects from 10 previous lab sections to provide students experimental data to analyze.


"Recording videos for each experimental step was crucial to students remaining engaged with their project and understanding how the obtained data was generated," Kraft says.

## ENCOURAGING STUDENTS TO ENJOY SPRINGTIME FLOWERS

Prior to spring break, Cynthia Haynes, associate professor, horticulture, sent her students home with soil, containers and floral foam so they could do lab assignments each week. Students were encouraged to go outside and collect flowers and leaves, or purchase flowers from a store, to practice making flower arrangements. Haynes created several videos showing students how to do the various lab exercises.

"While it was a lot of work modifying each class to encourage virtual learning during the spring, it allowed me to think of new ways to be nimble in my teaching and forced me to engage with more online resources and tools," Haynes says.

## INCORPORATING REAL-WORLD ONE HEALTH CONCEPTS

COVID-19 provided a timely example for Nancy Boury's Predicting the Next Pandemic class. Boury is an assistant professor of plant pathology and microbiology. Read more on page 18. 



Jelena Kraft



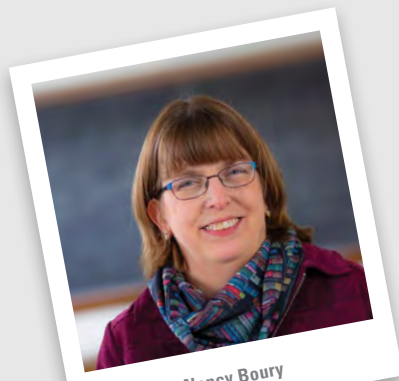
Cynthia Haynes



Kate Gilbert



Saxon Ryan



Nancy Boury

# RESEARCH FARMS CONTINUE ESSENTIAL SERVICES

Story by Whitney Baxter  
Image by Christopher Gannon



Schedules were adjusted to minimize the number of employees at the farms at the same time, and personal protective equipment (PPE) was provided to all employees.

Mike Fiscus, superintendent of the Ag Engineering and Agronomy Farm, says most tasks require staff to be present on the farm, but they do work from home when possible. Even though they're down one full-time employee — five instead of six — he said they've been able to keep up with their usual field work.


"We have very experienced staff," Fiscus says. "We'll get things done and will make it work. We have the ability to complete field operations in quick order when needed."

The Horticulture Research Station had their usual 6.5 full-time employees, but only one intern this summer, instead of two or three.

Several rest stations were set up around the research station for employees to take breaks, rather than in the main office building, says Nick Howell, Horticulture Research Station superintendent. The rest stations and other high-touch areas are sanitized first thing in the morning and throughout the day.

"I have a really good group of young people working for me," Howell says. "Everyone is being really careful and understanding. We're doing our best to keep each other safe."

Regular disinfection of facilities and equipment takes place at all outlying research farms, says manager Tim Goode. And, common protocol is restricting vehicles to single operator use. Farm employees stick with the same vehicle throughout the day and disinfect it before and after use.

Research and Demonstration Farms are usually host to a number of field days throughout the year, but in 2020 field days were either moved online or canceled. (Read more about virtual field days on page 22.) 

As part of COVID-19 mitigation on ISU Research and Demonstration Farms, rest stations were installed at the Horticulture Research Station. Each rest station includes a portable toilet, wash station, hand sanitizer and PPE.



# EXTENSION AND OUTREACH

## CONNECTS IN NEW WAYS

Story by Chris Kick  
Images contributed



Just three days after the World Health Organization declared the novel coronavirus (COVID-19) to be a pandemic, the Centers for Disease Control and Prevention declared a national emergency. In the weeks and months that followed, the agriculture community across Iowa and the nation experienced challenges and setbacks of historic proportions.

Meat processing plants scaled back production and some temporarily closed, supply chain

disruptions caused dairy farmers to drain milk and farmers hungry for information and support were unable to meet in person for fear of becoming infected or infecting others.

Recognizing the need for help, the faculty and staff of Iowa State University Extension and Outreach Agriculture and Natural Resources found new and innovative ways to connect with Iowans and provide answers to problems never before seen.

### VIRTUAL RESEARCH FARM FIELD DAYS

In a normal year, the field days at Iowa State University Research and Demonstration Farms serve as a hub of information and idea sharing. When in-person meetings couldn't happen, the research continued, and the outreach team got creative.

"Instead of people coming to us this year, we went to them with the same information," says Angie Rieck-Hinz, field agronomist, who helped organize a series of online

research farm field days Aug. 31-Sept. 4.

Attendance over the five-day event topped 1,000, with many people logging on multiple days. Topics included water quality, fungicide trials, long-term tillage and nutrient placement.

The virtual field day series reached people who do not traditionally attend field days, such as landowners who live in other states and people who work off the farm.



### UNDERSTANDING FINANCIAL ASSISTANCE

As federal help became available, financial experts worked to interpret and explain the options available. Programs like the Coronavirus Aid, Relief, and Economic Security Act (CARES) and the Coronavirus Food Assistance Program (CFAP) provided much-needed relief, but producers needed clarity about their options and availability.

More than 500 people attended a COVID-19 webinar in April about farm management and ag law issues and 571 attended the CFAP Webinar in May.

"I was proud to see how quickly our team became experts on new options and turned this information around," says Ann Johanns, program specialist. "Attendees were very appreciative of getting to hear how this impacted them."

Extension economists partnered with the Center for Agricultural Law and Taxation to deliver timely answers to questions about available resources, deadlines and eligibility.

### TIMELY INFO ON LIVESTOCK NUTRITION

Faced with supply chain disruptions and a lack of places to send livestock, veterinarians and animal science experts helped find innovative ways to stretch the finishing window for their livestock and avoid the need for mass depopulation. Nearly 400 people attended the live recording of a webinar on slowing the growth of swine, presented by the Iowa Pork Industry Center at Iowa State. And, nearly 800 registered for a four-part series on pork producer recovery in August and September.

### MARKETS AND ECONOMIC OUTREACH

In the initial weeks of the pandemic markets swung wildly and producers turned to crop and livestock economists for insight.

Lee Schulz, associate professor in economics and livestock economist, was contacted by local, national and global media reporters — all looking for an explanation about the impact to animal agriculture and the nation's food supply.

According to one report, more than 1.7 billion readers were reached by Iowa State agricultural economists via national and international media during the pandemic.

Chad Hart, professor in economics and extension grain markets specialist, says the interviews were important for farmers who needed information, and they also provided outreach and education for people unfamiliar with agriculture.

"It became a global story very quickly," says Hart. "Everyone wanted to know what was happening, especially as the meat plant closures were happening."

### INNOVATIVE YOUTH PROGRAMMING

Taking advantage of online education was key to a successful year for Iowa Learning Farms and the youth environmental outreach program Water Rocks!. Iowa Learning Farms moved to weekly webinars — compared to their usual monthly programming — and participation more than doubled to around 100 participants a week.

Water Rocks! offered outdoor school visits across the state this fall. Jacqueline Comito, director of Iowa Learning Farms, says finding new ways of delivery and engagement "was critical" for both programs and



for Iowans who depend on information about the environment and protecting resources.

"We really believe in what we're doing, and we wanted to be out there delivering this important message in creative ways," Comito says. "In a situation like this, you have to see the positive. I think going forward we will continue to see opportunities for online engagement." ■

Left: Extension economists **Lee Schulz** (left) and **Chad Hart** (center) served as sources for numerous local, national and global media — including **Tyne Morgan** (right) with U.S. Farm Report — all looking for an explanation about the impact of COVID-19 on agriculture and the nation's food supply.

Inset above: The youth environmental outreach program Water Rocks! offered outdoor school visits across the state this fall finding new and creative ways to deliver conservation information while keeping youth safely distanced and engaged.

Inset left: **Marshall McDaniel**, assistant professor in agronomy, and **Jacqueline Comito**, director of Iowa Learning Farms, record one of many virtual outreach events produced by Iowa State University Extension and Outreach.

"According to one report, more than 1.7 billion readers were reached by Iowa State agricultural economists via national and international media during the pandemic."



# PIVOTING IN A PANDEMIC

ISU-UGANDA PROGRAM FINDS NEW WAYS TO SERVE

Story by Ann Y. Robinson  
Images courtesy of the Center for  
Sustainable Rural Livelihoods

Some people must walk miles to reach clean water in Uganda. This is more of a hardship than ever, when regularly washing one's hands or face covering can prevent infection from COVID-19.

Life-saving water is now more available in the country's Kamuli and Buyende districts, thanks to Iowa State University's Uganda Program, part of the Center for Sustainable Rural Livelihoods in the College of Agriculture and Life Sciences. With leadership from the program, three new boreholes (deep wells) now supply needed water to about 1,660 households, a hospital, schools and a nutrition education center.

To assure the wells are properly managed, Thomas Buyinza, postharvest technology and WASH specialist with the ISU-Uganda Program, coordinates with local user committees. He works with them to operate and maintain the boreholes, conduct sanitation trainings and help set up outdoor dispensers known as "tippy taps."

Expanding the availability of safe water is just one of the emergency initiatives the program has launched in response to the pandemic, reports Dr. Gideon Nadiope, national director for the

ISU-Uganda Program. His staff's new efforts also include organizing special deliveries of grain and fortified flour to help feed vulnerable households, providing educational materials to youth during extended school closures and creating affordable face masks.

## DELIVERING FOOD AND EDUCATION

Since the pandemic hit, the ISU-Uganda Program has been ensuring hunger doesn't get a stronger foothold in their district. As key sectors of the country's economy were locked down to control infection rates, Nadiope and his team worked closely with the Kamuli COVID-19 Task Force to deliver corn flour, rice, soap and seeds to rural areas and health workers in areas with tight food supplies.

While using safe practices, ISU-Uganda Program staff also have been bringing fortified flour door-to-door to vulnerable households, sometimes "over roads and footpaths that are not very accessible, especially during the rainy season," says Carolyn Nambafu, ISU-UP Nutrition Coordinator. In addition, they are making and

distributing a nutrient-dense porridge to low-income breastfeeding mothers and working with schools and village chairpersons to take meals to home-bound students.

Along with food, team members organized a system for delivery of educational supplies to keep youth engaged during extended school closures. ISU-Uganda Program Educational Coordinator Esther Asimo works with the country's Ministry of Education and teachers to distribute lessons and reading materials. They enlisted community leaders to help check on the students and get their lessons to teachers, who correct and send them back, closing the learning loop to let pupils know their education matters.

## OPPORTUNITIES WITHIN A BAD SITUATION

During time away from classes, some students are being trained as tailors. A set of treadle sewing machines were being used to make washable, sanitary pads for older girls, to help keep them in school. Now they also are stitching up face masks.

"Masks have been required in public spaces throughout the country for all citizens over six years

old," says Dr. Nadiope. "They are in high demand, and many Ugandans have a hard time affording them."

The idea to use the machines to make masks originated with the donor who first gifted the machines — Karen Kolschowsky ('08 honorary). The Uganda team conferred with the Ministry of Health and designed a pattern for a reusable, cloth face covering that would meet health guidelines. They purchased supplies with funds that would have been used for a summer internship program, canceled for 2020, and support from donors including the Kolschowsky family.

Six machines were shifted to mask-making at locations that accommodate social distancing, according to Miriam Namata, ISU-Uganda Program Community Innovations Officer. The project's seamstresses have so far made more than 800 masks for low-income households. Some are being sold at a subsidized price, with proceeds to help support families' school fees and a Youth Entrepreneurship Program.

"This effort has been very successful," says Namata. "We are considering the possibility of purchasing more sewing machines



Above: A Ugandan pupil displays a finished face mask made with resources from the ISU-Uganda Program.

Inset: The ISU-Uganda Program director **Dr. Gideon Nadiope** (right) and his team have worked closely with the Kamuli COVID-19 Task Force to deliver corn flour, rice, soap and seeds to rural areas and health workers in areas with tight food supplies.

Below: The ISU-Uganda Program coordinated three new boreholes (deep wells) in recent months. Namasagali Primary School students use one of the well's "tippy taps" (outdoor dispensers) prior to receiving vegetables from the school garden. Staffer **Dennis Lutwama** (red shirt) distributes oranges and amaranth leaves.

and have ideas for using them in the future to make more affordable school uniforms."

These are just a few of the ways the staff of the ISU-Uganda Program continue to serve their communities and find opportunities within a bad situation, Director Nadiope says.

"Even after the pandemic, we believe the groups we are working with will have new knowledge and skills," he says. "This will bring opportunities to better sustain themselves and allow them to serve as great role models in their communities."

CSRL Director David Acker, Associate Dean for Global Engagement, says he has never been more proud of the ISU-Uganda Program staff.

"The aim of CSRL has always been rural development," he says. "However, current circumstances are requiring us to think and act creatively and pivot toward providing more relief services. We deeply appreciate our donors' commitment to support the work of our wonderful team on the ground in Uganda." ■



## »» CONNECT. ENGAGE. SHARE.

Donor funds have been the driving force behind Iowa State University's Uganda Program, part of the Center for Sustainable Rural Livelihoods in the College of Agriculture and Life Sciences. If you're interested in learning how you can offer support contact David Acker, Associate Dean for Global Engagement, Director of the Center for Sustainable Rural Livelihoods, and Raymond and Mary Baker Chair in Global Agriculture at [dacker@iastate.edu](mailto:dacker@iastate.edu) or 515-294-3683.



# KEEPING AG ISSUES IN THE FOREFRONT



Story by Melea Reicks Licht  
Images contributed

DeAnne (McCulloh) Bloomberg, director of issue management for the Illinois Farm Bureau, develops and coordinates messaging for the organization, oversees media relations and social media and conducts media training for Farm Bureau leaders and staff.

"I enjoy sharing the incredible story of today's farming successes and challenges," Bloomberg says. "If I can help bridge the knowledge gap with national media and they keep coming back to us for more story ideas — that's extremely rewarding," she says.

Bloomberg ('90 public service and administration in agriculture), a native of DeWitt, Iowa, joined the Illinois Farm Bureau as a county manager following her graduation from Iowa State. She served in a few different counties before landing in Rock Island where she led for nearly

20 years before taking on her current role in 2018.

She says her organization's response to COVID-19 this March was quick and intense as they assembled and distributed resources to their members. In one interview with the Brownfield Network in March, Bloomberg described the organization's early response to the COVID-19 pandemic.

"The biggest item was we wanted to keep our supply chain moving — ag is essential — and to support our farmers, including their mental health," Bloomberg reported. "We knew farmers were stressed. We know farmers are resilient and have a strong faith, but we also want to make sure no one is afraid to ask for help."

Bloomberg says top issues for the bureau remain building demand for Illinois crops and

products, reducing the regulatory burden on family farms and a major perennial issue — taxes.

As she looks back on her time at Iowa State, including serving as Student Alumni Association Senior Class Vice President, Bloomberg says her time on campus helped her develop the skills necessary to thrive.

"Iowa State helps you develop your strengths — inside and outside the classroom. For me it was living with 88 girls in the Delta Zeta house with lots of different backgrounds, serving on VEISHEA Central and building lifelong friendships and getting to meet so many phenomenal people with varied interest and talents," she says.

Bloomberg enjoys cheering on the Cyclones and advocating for Iowa State and the College of Agriculture and Life Sciences via social media.



"Twitter helps me promote my CALS pride which leads to building other Iowa State connections. As soon as I meet an Iowa Stater I offer help to build those connections. I want every student to be given the same level of service I received at Iowa State," she says.

Bloomberg and her husband, Brent, live on his fourth generation family farm in Orion, Illinois, and boast a number of Cyclones among their family including her mom, five siblings and 11 nieces and nephews. **N**

In **DeAnne Bloomberg's** work with the Illinois Farm Bureau, she shines the light on agriculture and helps advance policy to benefit farmers. Here she works with a member to create a video about the challenges landowners face in managing wetlands.

# DIGGING DEEP

## A HANDS-ON PATH TO LEADERSHIP



Story by Haley Cook  
Image by Christopher Gannon

Jacob Handsaker's earliest memories include carpet farming on the living room floor of his childhood home near Radcliffe, Iowa. As co-owner of Hands-On Excavating and a family farm operation, Handsaker ('04 agricultural studies) has significantly scaled up the size of his toys.

"Farming with my family was my goal all along," says Handsaker. "The excavation company was created because we saw a need in the community and had the motivation to meet it."

Since the company was founded in 2010, it has grown to specialize in conservation infrastructure that helps protect Iowa's land and water like bioreactors, wetlands and saturated buffers.

Together with his father and two brothers, he and his wife Mindy, a fellow Iowa Stater, raise corn, soybeans, peas and pigs in northcentral Iowa.

Handsaker, a regular attendee of Iowa State University Extension and Outreach field days and education programs, is driven to innovate by improving conservation efforts on his own farm and for the benefit of his Hands-On Excavating clients.

"We need to implement a system where we are able to use technology and adaptive systems to improve our operations. Iowa State's research focuses on cutting edge technology that not only benefits farmers, but also protects our natural resources. I've found that science with practice is a real thing at Iowa State," says Handsaker.

His expertise, collaborative nature and willingness to adopt new technologies has led to a partnership with College of Agriculture and Life Sciences researchers.

"I've had the pleasure of working with Jacob on a number of occasions in the design and installation of a bioreactor. He is the type of forward-looking leader we need to make progress on water quality.

He has a passion for agriculture and is continually looking for ways to incorporate conservation practices within the drainage systems," says Matt Helmers, Dean's Professor in the College of Agriculture and Life Sciences and director of the Iowa Nutrient Research Center.

Handsaker's commitment to agriculture and community is demonstrated through involvement at the local, state and national levels. He serves as an emergency medical technician and member of the Radcliffe Fire Department. He is a past board member of the Hardin County Farm Bureau and former chair of the Iowa Farm Bureau Federation's Young Farmer Advisory Council. In 2019, Handsaker was appointed to the U.S. Department of Agriculture's Advisory Committee on Beginning Farmers and Ranchers. And, he serves the college as member of the young alumni initiative, Curtiss League.

For this record of engaged service to agriculture and Iowa State University, Handsaker was honored with the college's Emerging Iowa Leader Award in 2020.

Handsaker's four children now operate an expansive carpet farming operation of their own, with a few notable additions like miniature bulldozers, dump trucks and excavators.

"All that we do is a step toward the goal of protecting our water for generations to come. I hope our work will inspire my children to be the sixth generation to farm and protect the legacy of this land," says Handsaker. **N**

**Jacob Handsaker** was named the college's 2020 Emerging Iowa Leader Award in recognition of his community service, leadership in agriculture and engagement with Iowa State University.





# AG-VOCATING

## FOR INCLUSIVE AGRICULTURE

**Ag-vocate (n.) — one who supports or promotes the interests of farmers, agricultural issues and the agriculture industry as a whole.**

Story by Kate Tindall and Melea Reicks Licht  
Images contributed

Dewayne Goldmon ('91 PhD agronomy) is one of the biggest ag-vocates out there. As executive director of the National Black Growers Council and an appointee to the U.S. Department of Agriculture's Advisory Committee on Minority Farmers, he represents the needs and concerns of underrepresented populations, especially Black row-crop farmers.

His efforts earned him the ISU College of Agriculture and Life Sciences 2020 George Washington Carver Distinguished Service Award.

"National and world population demographics dictate that agriculture be more efficient and productive as farmers strive to produce sufficient food, feed, fuel and clothing," Goldmon says. "This production must be done on farms that conserve natural resources in a sustainable fashion, for all farmers. Minority farmers, and especially Black farmers, have played a pivotal role in meeting these challenges."

### IGNITING AN ASSOCIATION

Goldmon inspired a paradigm shift for Black agriculturalists, says P.J. Haynie, Virginia farmer and chair of the Board of Directors for the National Black Growers Council. Goldmon's work gathering feedback from Black farmers during his time at Monsanto inspired the creation of their 12-year-old organization.

"An invitation from Dewayne changed my life. By participating in Monsanto's initial meeting to form a Black grower advisory council, I had my first opportunity to shake the hand of another Black farmer walking the same walk, and facing the same challenges — discrimination, racism," says Haynie. "After that meeting, we continued to exchange thoughts and ideas. We realized we had something to offer for the greater good of agriculture. It was then we laid out the structure for the National Black Growers Council."

Haynie says Goldmon is, "the catalyst and the real engine" of the organization.

"We want to make sure Black farmers have the same tools in their toolbox as their neighbors," Haynie says. "We hold field days around the country — one on Dewayne's farm every year — showcasing the latest technology and management practices."

### LIFTING UP VOICES

The USDA's Advisory Committee on Minority Farmers was created in accordance with Section 5 of the Agricultural Credit Improvement Act of 1992. Its primary roles are to advise the U.S. Secretary of Agriculture on the implementation of outreach funds for minority farmers, as well as advising the USDA on ways to maximize these farmers' participation in various USDA programs and implementing civil rights activities.

2020 marks Goldmon's third consecutive term serving on this committee. He says diversity and inclusion are important in all areas, and certainly in agriculture.

"The goal of having all producers — regardless of race, operation size,

products produced or location — operate at peak productivity and efficiency is a requirement for human sustainability. Diet preferences are changing, and consumers increasingly demand more information on the origin, safety and quality of their food. Maintaining a rich source of diverse producers is critical to meet these demands and maintain confidence in our agricultural system."

### DEEP ROOTS

The story of Goldmon's interest in agriculture, and dedication to creating a better, more inclusive environment in the national agricultural community, has deep roots. Goldmon grew up on a small farm in southeast Arkansas where he — along with his parents and 10 brothers and sisters — took part in the production of cotton, soybeans and fresh market vegetables. By the time he reached high school, Goldmon's curiosity had blossomed to a keen interest in agricultural science.

He graduated from the University of Arkansas with his bachelor's degree and then spent a summer as a county agent intern. It was during this time that Goldmon realized the value of an advanced degree — a decision that would lead him first to attain his master's degree and then head to Iowa State to earn his doctorate.

At Iowa State he studied under professor Keith Whigham ('66 agronomy, '69 MS, '71 PhD), and his research focused on the genetic and environmental factors of intercropping soybeans into winter wheat. Goldmon also worked with the minority programs office in the College of Agriculture and Life Sciences and was one of the founding members of the ISU chapter of Minorities in Agriculture, Natural Resources, and Related Sciences (MANRRS).

"My experiences at Iowa State honed my skills as an agronomist, but also made me more comfortable advocating for and securing resources to address the needs of underrepresented students in agriculture," Goldmon says. "In my professional career, these skills remained useful as I spent considerable time trying to do the same for minority farmers across the country."

Goldmon went on to build a 25-year career with Bayer Crop Sciences in technology and product development, government affairs and outreach while farming "part time." He retired as Outreach Lead in December 2019 before taking on his role with the National Black Growers Council earlier this year.

His family has many Cyclones, including his brother, Moses ('87 MS health physical education and recreation), wife, Debra ('90 MS hotel restaurant and institutional management), and son, Dewayne II ('18 landscape architecture).

Sticking to the passion that started his journey to ag-vocate, Goldmon finds time each year to do tilling, planting and harvesting on his own Dell-Cam Farm, Inc. They were named the Southeast District and Jefferson County Farm Family of the Year in 2019 by the Arkansas Farm Bureau.

"I currently grow corn, rice and soybeans on 1,400 acres in southeast Arkansas," he says. "The 2020 season was my 23rd crop."

Goldmon continues working to improve the efficiency, productivity and sustainability of Black row-crop farmers and lifting up the voices of minority farmers in his work with the U.S. Department of Agriculture. **N**

**STORIES EXTRA:** [www.stories.cals.iastate.edu](http://www.stories.cals.iastate.edu)  
Access the Exploring Racial Equity, Advocacy, and Social Justice in American Agriculture webinar hosted by Minorities in Agriculture, Natural Resources, and Related Sciences featuring agronomy grad Dewayne Goldmon.

Left: **Dewayne Goldmon** (second from left) is this year's recipient of the college's George Washington Carver Distinguished Service Award. Goldmon farms with his family in Arkansas — wife, **Debra** (second from right); son, **Dewayne II**; and daughter, **Camille**.

Below: Dewayne Goldmon is the executive director of the National Black Growers Council (NBGC) and serves on the USDA Advisory Committee on Minority Farmers. He is pictured here with farmers attending the 2019 Model Farm tour at his Arkansas farm. Left to right: Goldmon, **Lawrence Conyer**, NBGC Board member from Pine Bluff, Arkansas; **Ray Sneed**, NBGC Board member from Millington, Tennessee; and **Loston Rowe**, Memphis, Tennessee.

"The goal of having all producers - regardless of race, operation size, products produced or location - operate at peak productivity and efficiency is a requirement for human sustainability."





# ‘DERECHO’ MEANT ‘TEAMWORK’

## FOR EXTENSION AND STATE LEADERS

Story by Chris Kick  
Images by Meaghan Anderson  
and Iowa Department of  
Agriculture and Land Stewardship

“Our staff have a real connection to clients and stakeholders. If our stakeholders feel pain, our staff feel the same.”



In a matter of minutes, farmers across Iowa experienced one of the most widespread and devastating storms ever recorded in the Corn Belt.

Millions of acres of corn were damaged with some fields completely flattened and others barely harvestable. Grain bins were mangled. Roofs were blown off machinery sheds. Treetops and forests were shredded.

The derecho — a windstorm with high speeds topping 140 miles per hour — swept its way across Iowa and the Midwest on Aug. 10 instantly changing the growing season at a time when farmers were already dealing with drought and the COVID-19 pandemic.

During this trio of challenges, farmers and landowners turned to the Agriculture and Natural Resources experts with Iowa State University Extension and Outreach for help.

“There was a wide range of responses — obviously disappointment and frustrations were two big ones, but many farmers were also resolved to finish the season as best they could,” says Meaghan Anderson (’12 agronomy, ’14 MS crop production and physiology), field agronomist. “It was important for extension to be a calm voice as we talked through management decisions.”

Outreach started the same day. Extension agronomists talked with state agriculture leaders and members of the media, visited farmers’ fields and captured video and photographs to educate farmers across the state.

Anderson reviewed the damage from the ground and from above — joining the Iowa Department of Agriculture and Land Stewardship for an aerial assessment in August, and a second flight, with U.S. Secretary of Agriculture Sonny Perdue, in September.

“As soon as we began hearing reports of widespread damage to crops and grain bins, I knew I had to get out and see it first-hand,”

says Iowa Secretary of Agriculture Mike Naig. “The ISU Extension and Outreach specialists were great resources for farmers impacted by the storm. I appreciated being able to call on their expertise during conversations with farmers and the USDA.”

When the pandemic began, the Iowa Department of Agriculture and Land Stewardship initiated weekly calls with crop and livestock stakeholder groups to get first-hand reports of the challenges happening in the field. Dan Grooms, the Dr. Stephen G. Juelsgaard Dean of Veterinary Medicine at Iowa State, Daniel J. Robison, holder of the Endowed Dean’s Chair in the ISU College of Agriculture and Life Sciences, and several Iowa State University ag economists were core participants. These briefings continued after the derecho and were essential to helping the state evaluate crop and grain bin damage.

The storm required statewide cooperation, as specialists worked closely with state and national leaders, to deliver the kind of help and assistance Iowans needed.

Jay Harmon, associate dean in the College of Agriculture and Life Sciences and director for Agriculture and Natural Resources Extension, says the quick response was characteristic of the extension team.

“Extension seems to have a talent for mobilizing when there’s an emergency,” says Harmon. “Whether it be COVID-19, a flood or whatever, our staff have a real connection to clients and stakeholders. If our stakeholders feel pain, our staff feel the same.”

- One of the first major outreach projects was a webinar with extension agronomists outlining options for harvesting damaged corn, tillage and residue management.
- The Department of Agricultural and Biosystems Engineering demonstrated the effectiveness of different tillage tools to prevent clogging and increase soil contact.



- Extension specialists created videos and blog posts on the issue of volunteer corn, which is of greater concern this fall and next spring, because of the number of ears and kernels left in the field.
- Agronomists shared options for integrating cover crops into the cropping system despite damage.
- The Crops Team and the Iowa Grain Quality Initiative provided resources related to damaged grain bins, alternative storage and moisture management.
- Beef and forage specialists provided resources related to silage and forage production.
- Extension economists and farm management specialists kept farmers in the loop about the changing markets, alternative options and whole farm decision-making.
- Forestry and natural resource specialists held webinars and posted timely updates helping rural and urban landowners make good decisions about tree cleanup and removal.

Jamie Benning (’01 agronomy, ’03 MS soil science), assistant director of Agriculture and Natural Resources Extension, led regular webinars with staff and specialists that resulted in a cross-disciplinary team of crops, beef, dairy, swine, farm management, agricultural engineering, horticulture and many others working together to

serve Iowans. A Storm Damages Resources page was created on the Integrated Crop Management Website with timely updates in the days and weeks following the storm.

“Agriculture and natural resource specialists have provided recommendations for high wind and derecho events in the past, so when the derecho hit on Aug. 10, they were able to quickly update resources and create new ones relative to the severity of this storm,” says Benning. “The team will meet again later this year to evaluate our response, so we are prepared to help Iowans face future weather events.”

Wind gusts over 140 miles per hour toppled grain bins and devastated crops at a time when farmers were already dealing with drought and the COVID-19 pandemic. ISU Extension and Outreach was quick to mobilize education on dealing with downed corn, grain storage options and more.

Inset: Field agronomist **Meaghan Anderson**, right, joined state and national leaders including Iowa Secretary of Agriculture **Mike Naig** (center) in assessing damage from the record-setting windstorm that leveled crops across central and eastern Iowa in August.



## CALS RANKS HIGH WORLDWIDE



The 2020 QS World University Rankings of agricultural and forestry programs ranked Iowa State University in the top 4% worldwide — 16 out of 401 institutions in 2020. Iowa State University's agricultural programs remain in the top 10 among U.S. universities (6), up one place from a year ago.

## HAMILTON POULTRY TEACHING AND RESEARCH FARM ESTABLISHED

The new Robert T. Hamilton Poultry Teaching and Research Farm, located south of Ames, was dedicated in March. The facility features spaces for teaching and research, as well as a welcome area where visitors can see first-hand examples of Iowa egg production systems. The nearly \$7 million facility was made possible solely through private funding. Shortly after COVID-19 was declared a global pandemic this March, 8,000 layer chicks were moved into the new facility in less than an hour.



## AGRICULTURAL AND BIOSYSTEMS ENGINEERING #1, #2 IN U.S.

#1

U.S. News and World Report magazine declared Iowa State's department of agricultural and biosystems engineering graduate programs No. 1 in the nation. And, for the second year in a row, Iowa State's agricultural and biosystems undergraduate program was ranked No. 2 among all national public universities (tying two other universities) by U.S. News and World Report.

## SHARING AN ABUNDANT HARVEST



The Horticulture Research Station and outlying ISU Research and Demonstration Farms have donated nearly 9,000 pounds of fresh produce to the Iowa Food Bank and Food at First food bank in Ames, Iowa, throughout 2020.

## GOLDEN LEARNING OPPORTUNITIES

Bees have taken up residence in 20 Cyclone-colored hives at the ISU Horticulture Research Station north of Ames. The bees provide hands-on learning opportunities for students, and their first batch of honey was sold through the research station's produce sales. Future batches may be available for purchase at the ISU Bookstore and ISU Alumni Center.



## CALS ENROLLMENT SNAPSHOT



- 4,534 students – 3,954 undergraduates, 580 graduate students – Fall 2020
- 92% retention of first-year students (top percentage on campus)
- 10.7% multicultural CALS undergrads (college record), 17% multicultural ISU undergrads
- 57% women CALS undergrads, 43% women ISU undergrads
- Largest enrollment by major (together these total 72% of CALS undergrad enrollment): animal science, animal ecology, agricultural business, agronomy, agricultural studies, industrial technology and biology

## SWEET SUCCESS: ISU CREAMERY OPENS DOORS

After a 50-year hiatus, the ISU Creamery opened for business in August and has been scooping ice cream for campus and community customers ever since. Six traditional flavors were initially offered, and later this fall eight flavors were added to the menu to represent Iowa State's seven colleges and the graduate college. The Creamery serves to educate and prepare students for careers in the dairy industry. Located in 2953 Food Sciences, the Creamery is open Monday, Tuesday, Thursday and Friday from 11 a.m. to 3 p.m.



## HEARTY HELLOS

- David Acker, associate dean, global engagement
- Carmen Bain, associate dean, academic innovation
- Gwen Beattie, interim professor and chair, Department of Plant Pathology and Microbiology, Robert Earle Buchanan Distinguished Professor of Bacteriology
- Jamie Benning ('01 agronomy, '03 MS soil science), assistant director, ag and natural resources extension and outreach
- Jodi Cornell, director, CALS Study Abroad
- John Crespi, director, Center for Agricultural and Rural Development
- Richard Gates, director, Egg Industry Center
- Jay Harmon, associate dean, extension and outreach programs
- Terry Houser ('01 MS animal science, meat science/food science and technology, '04 PhD), professor-in-charge, ISU Meats Laboratory, Smithfield Foods Chair in Meat Science Extension
- Ray Klein, director, CALS Office of Partnerships
- Melea Reicks Licht ('00 public service and administration in ag, '05 MS ag and life sciences education), interim director, CALS College Relations
- Skyler Rinker, James and Clare Frevert Ag 450 Professor
- Shelley Taylor, director, CALS Global Programs
- Daniel Thomson ('90 animal science, '00 DVM), professor and chair, Department of Animal Science
- Curtiss Youngs, Ensminger Endowed Chair of International Animal Agriculture

## FOND FAREWELLS

- Don Beermann ('71 animal science), professor and chair of the Department of Animal Science, retired in January.
- Denise Bjelland, director of the college's Global Agriculture Programs, retired in April.
- Joe Cordray ('71 animal science), ISU Extension and Outreach meats science specialist and director of the ISU Meats Laboratory, retired in January.
- Matthew Ellinwood, associate professor of animal science, retired in June.
- Richard Jauron ('79 horticulture), ISU Extension and Outreach horticulturalist, retired in September.
- Robert Martin, professor and past chair of agricultural education and studies, retired in December 2019.
- Max Rothschild, C.F. Curtiss Distinguished Professor in Agriculture and Life Sciences, retired in June.
- Marshall Ruble ('78 animal science), manager of the Hansen Agriculture Student Learning Center and beef teaching farm manager, retired in May.
- Charles Schwab, professor of agricultural and biosystems engineering and ISU Extension and Outreach safety specialist, retired in October.
- Leo Timms, Morrill Professor and ISU Extension and Outreach dairy specialist, retired in September 2019.
- Lester Wilson, university professor in food science and human nutrition, retired in November.

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