INNOVATION AND RESILIENCY

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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’s with great pleasure and a huge CALSprout 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 Baier 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 healthy environment here on campus.

We look forward to finding new ways to connect, engage and share with you in 2021. We 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
mlreicks@iastate.edu

IOWA STATE UNIVERSITY
College of Agriculture and Life Sciences

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 “arum,” 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 line 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 Deans Chair
College of Agriculture and Life Sciences
robinsond@iastate.edu
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 60,000 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.

STUDENT ACHIEVEMENT

• Cody Accredo (left), senior in animal ecology, received the George Washington Carver Spirit of Innovation and Service Award.
• Matthew Breitzman and Daniel Kohlhase, graduate students in agronomy, received the C.R. Weber Award for Excellence in Plant Breeding.
• Maryk Marek (center), ’18 agriculture and life sciences education) earned the outstanding senior award at National Block and Bridle Convention.
• Graham Redwoik, PhD student in food science and human nutrition, was named a Young Ambassador for the American Society of Microbiology.
• Behnia Rezaezadeh Shirazi (right), senior in biology, was named a Goldwater Scholar.
• Alexis Sime, senior in animal science, was crowned Iowa Miss United States Agriculture.

COLLEGE OF AGRICULTURE AND LIFE SCIENCES AWARDS

CALS Alumnus, 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.

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 Isacson ('06 animal science, '09 MS) 2019 Early Career Award
- Chip Florio ('87 ag journalism) 2019 Meritorious Service in Communication Award

Kramer 2020 International Crop Adviser of the Year

Adam Kramer ('95 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 ('71 fisheries and wildlife biology, ’70 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

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 support herself.

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 80 students receiving critical financial assistance helping to pay for everything from groceries to medicine.

The Iowa State University Meat 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.

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 Beep 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 feeding sites that serve hungry people in our communities.”

The Iowa State University Meat Laboratory’s Food Bank Association. Under probation 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.

“An amazing ray of sunshine I admire as my adviser and professor. I have so much gratitude.”

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.

The Beep Up Iowa program launched in July by former ISU student 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 support herself.

“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.

“If our students have received 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.”

Iowa Beep Up Iowa is supported by a grant from the USDA CARES Act funding.

Beef Up Iowa major donors as of Nov. 1 include: Tyson ($250,000), Conterra ($250,000), Alliant Energy ($100,000) and Iowa Corn ($5,500).

Pass the Pork and Beef Up Iowa. To join their fight against food insecurity in Iowa visit: STORIES 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 Hopkins, Iowa Beef Industry Council; Matt Wengler, Iowa State University; Lisa Croston, Tyson; Terry House, Iowa State University; Steve Stouffer, Tyson; Dr. Dan Thomason (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.

“The 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.

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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.

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 these 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.

**MAKING SENSE OF SOIL VIA BIG DATA**

Story by Zach Clemens
Images by Melea Reicks Licht

“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 the 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 Bursiu and the rest, as they say, is history.”

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 undergraduate Laura Monsen.
I 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 Yanhui 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.

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

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

Dollisso 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.

“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.”

Dollisso earned the 2019 College of Agriculture and Life Sciences Faculty Award for Diversity Enhancement. In the leadership class Dollisso 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.
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 Innovation Challenge. “I just loved Iowa,” she says. “When I found out that Iowa State had a major that combined biochemistry with agriculture, I 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 such much initiative,” says Desirée (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’s great at inspiring and motivating the students in her class. It’s been great! It’s so fascinating to see how people learn.”

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CONTINUE READING

STARTUP FOR SOIL HEALTH

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.

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.
and now serves as a mentor for Jeske. In the spring of 2019, Jeske took Kimle’s Economics in Agriculture course (Econ 374), 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 Saini, 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 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 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 my 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 as 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.

Farms 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.

A

fter spending nearly 13 years as a faculty member in Iowa State’s Department of Sociology, it is with great honor I accepted the position at 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 our 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.

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 515-294-8989.
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, featuring a set of research papers, tables, graphs and maps, interperet 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 corn, soybean and ethanol markets.

SKIPPING MEDICAL LABS? NEW TEST MIGHT 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 project headed by 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 assay monitor to detect the SARS-CoV-2 virus (COVID-19) and other bioterror threats.

EXAMINING COVID’S RURAL IMPACTS
COVID-19’s toll on the health and viability 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 nationally 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-responder 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).

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, 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 RNA interacts 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
Creating a “lung on a chip” is how Donald Sakaguchi describes his effort to develop a process to screen COVID-19 vaccine or drug candidates before human testing. Sakaguchi, Merritt Professor in genetics, development and cell biology and colleagues from across campus are designing their “human-relevant, 3-dimensional 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.

SCRENNING VACCINES AND THERAPIES WITH MODEL “LUNG”
Creating a “lung on a chip” is how Donald Sakaguchi describes his effort to develop a process to screen COVID-19 vaccine or drug candidates before human testing. Sakaguchi, Merritt Professor in genetics, development and cell biology and colleagues from across campus are designing their “human-relevant, 3-dimensional 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.

A 3F model of a ScanFold-predicted structure from SARS-CoV2 viral RNA presented by the Mark Lab at Iowa State University.

STORIES EXTRA: www.stories.cals.iastate.edu Learn more about these ongoing research efforts and find relevant links on STORIES website.
W hen 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 Voisendorf 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 Nejdl, 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.”

“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.”
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, virtually met with each of the 13 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 fluids 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 of food science and human nutrition, sent her students home with soil, containers and floral foam so they could do lab assignments each work. 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 labs 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.

An early concern was how to handle the workload with reduced staff, especially when some of their student workers remained home mid-March after Iowa State classes moved to a virtual format.

Ben Drescher, director of the Animal Science Farms, says they typically have close to 100 student workers on the farms, but initially they were only able to retain 90.

Staff made adjustments to handle tasks this spring with a reduced labor force, and by this fall they had a total of 85 students back working at the farms.

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 Agonomy 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 says 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 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.

W ith animals and crops to care for, the Iowa State University Research and Demonstration Farms staff acted quickly to ensure the continuation of care and research projects when COVID-19 struck the U.S. in March 2020.

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“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.
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 Back-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 Johanno, 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.

TIME-LY 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.

“In our field there is no one solution, or one thing they can do,” said Carrie Fisk, Iowa State University养猪经济专家，who facilitated the webinar. “Instead we have to be flexible.”

MARKETS AND ECONOMIC OUTREACH

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

Lee Schulz, associate professor in economics and livestock economist, was contacted by local, national and international media — 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.

“A surprising number of people reached out to us. We were able to try to explain what was happening and try to turn this information into good, actionable guidance,” Schulz says. “It 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.”
PIVOTING IN A PANDEMIC
ISU-UGANDA PROGRAM FINDS NEW WAYS TO SERVE

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 maintained, Thomas Buyintina, 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.”

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 accommodating to social distancing,” says Carolyn 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.

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.

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 being used to make washable face masks using local low-income households. Some are being sold at a subsidized price, with proceeds to help support families’ school fees and a Youth Entrepreneurship Program.

The idea to use the machines to make masks originated with the donors who first gifted the machines — Karen Kozakovsky (ISU honorary). The Uganda team conferred with the Ministry of Health and designed a pattern for a reusable, cloth face covering that would merit 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 Kozakovsky 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.

“The effort has been very successful,” says Namata. “We are considering the possibility of purchasing more sewing machines 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 and donors. “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 or 515-294-3683.

Images courtesy of the Center for Sustainable Rural Livelihoods. Below: The ISU-Uganda Program coordinated three new boreholes (deep wells) in recent months. Namata’s Primary School students use one of the wells’ “tippy taps” (outdoor dispensers) prior to receiving vegetables from the school garden. Staffer Dennis Nuhajjeva (red shirt) distributes oranges and amaranth leaves.

Story by Ann Y. Robinson, ISU-UGANDA Program PUBLIC RELATIONS STAFFER. Images courtesy of the Center for Sustainable Rural Livelihoods. 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.

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.
DeAnne (McCullogh) 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 bridge the knowledge gap with national media and 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 Bloomberg 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 contacts,” 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.

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

“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 2013, it has grown to specialize in conservation infrastructure that helps protect Iowa 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.

“The science with practice is a real thing at Iowa State,” says Handsaker. "It’s 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-thinking leader we need to make progress on water quality.

He has a passion for agriculture and is continuously 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 Federations Young Farmer Advisory Council. In 2010, Handsaker was appointed to the U.S. Department of Agriculture’s Advisory Committee on Beginning Farmers and Ranchers. And, he serves as the college’s member of the young alumni initiative, Curtis 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.

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 mentor to create a video about the challenges landowners face in managing wetlands.

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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.
Dewayne Goldmon (b. 1972) 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 National and world “National Black Growers Council.” Goldmon’s work gathering feedback from Black farmers during his time as 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 when 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 role is 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 origins, 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 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 country agritourism 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.

In 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 (’97 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 2010 by the Arkansas Farm Bureau. “I currently grow corn, rice and soybeans on 1,600 acres in southeast Arkansas,” he says. “The 2020 season was my 23rd crop.”

In 2019 Goldmon inspired a paradigm change in the national agriculture, and dedication to creating a better, more inclusive environment in the national agricultural community, 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. “I’ve always been a farmer first. 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.”

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.
"Our staff have a real connection to clients and stakeholders. If our stakeholders feel pain, our staff feel the same."
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 (8), 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.

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.

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.

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

Stories Online E-newsletter

Get updates, news from campus, class notes and invites to CALS events sent directly to your inbox between issues of STORIES magazine by subscribing to the monthly STORIES Online E-newsletter.

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