FALL 2020

KANSAS STATE UNIVERSITY

College of Agriculture

AgReport

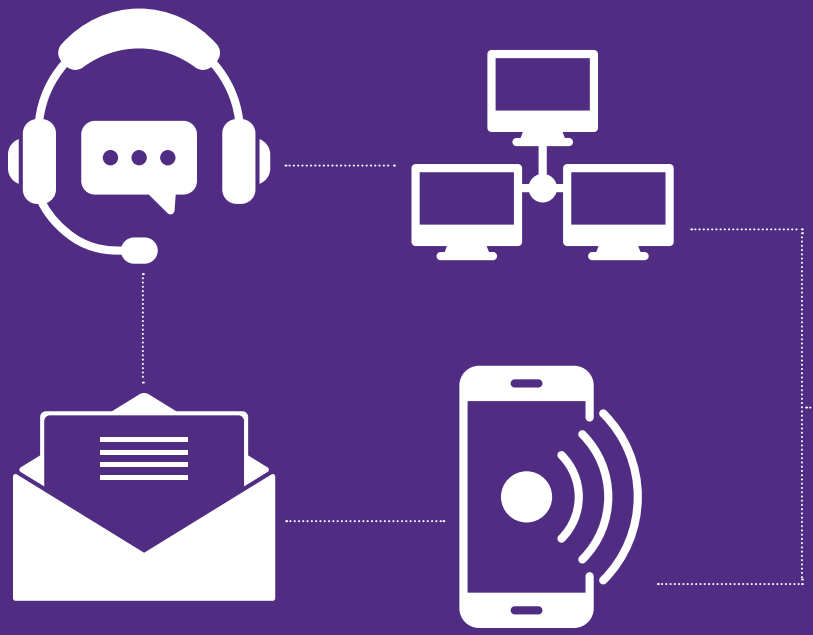
A SPECIAL INSERT

Leading Through the COVID-19 CRISIS

College of Agriculture scientists, economists and community leaders moved quickly to find solutions to COVID-19 related challenges to strengthen our agricultural economy, restore our food supply chain, and help keep our families healthy and strong.

Experts from the College of Agriculture and K-State Research and Extension worked in collaboration with state and national lawmakers and agencies, ag producers and leaders from business and industry to identify and solve problems. K-State responded with a number of ways to share the latest, critical information through websites, media releases, webinars, podcasts, social media, online gatherings, radio programming and fact sheets to keep citizens and other stakeholders informed.

Below are samples of their contributions.



RESTORATION OF BUSINESS

AgManager Website

The Department of Agricultural Economics offers comprehensive information, analysis and decision-making tools for agricultural producers, agribusinesses and policy makers on their AgManager.info website. Updated daily, the site includes "Economics of Agriculture During the COVID-19 Pandemic – A Series of Online Gatherings," (**kstate.ag/agecon-COVID**) and weekly online presentations focused on a different aspect of how COVID-19 is affecting agriculture. So far, faculty have addressed the livestock and grain markets, Kansas land values and the state income report.

"Everyone is adjusting to many things for the first time in their life in many ways. The (meat) supply chain is taxed, and that shows up in the marketplace — and even analysts and folks like me are taxed — so we're doing our best," said Glynn Tonsor, a professor for the Department of Agricultural Economics and a regular presenter for this series. "We focus on providing the latest, best information to help people make good decisions."

National media have relied on Agricultural Economics faculty for information on COVID-19 and its impact on agriculture. Faculty have been consulted and quoted by nearly all major agriculture media and the nation's major media outlets, including the New York Times, Washington Post, Chicago Tribune, "CBS Evening News", TIME magazine, Barron's, The Associated Press and U.S. News & World Report.

Women in Agriculture

When COVID-19 hit, K-State agricultural economists Robin Reid and LaVell Winsor knew immediately what they could do to help. Having developed and co-led the series, "Farm Financial Skills for Kansas Women in Ag" in January and February with nearly 700 participants, the two decided to offer a new version. This time the program was conducted completely online, and addressed concerns related to COVID-19, with topics such as stress relief and mental health issues.

"What surprised me most about the original program and why we thought it was important to offer follow-up support is that the women who participated certainly wanted to learn more about the business aspects of farming, but what they seemed to want most was the chance to meet and network with other women who shared their experiences and struggles," Reid said. "COVID-19 has really heightened the stress level, and we hope we can help women and their families."

The presentations were offered in early April and a recording can be found at **kstate.ag/womeninagCOVID19**.

HUMAN HEALTH

Emergency Call for Research

Food Science Institute faculty quickly responded to an emergency call for research proposals addressing the most pressing needs related to COVID-19 and agriculture. These grants will be funded through the United States Department of Agriculture's National Institute of Food and Agriculture.

The first proposal addresses worker safety in meat and poultry plants. The grant would allow the team to discover new ways to protect workers' health by reducing the spread of the virus within food manufacturing facilities. The proposal is being co-led by Randall Phebus, professor in the Food Science Institute, and Sally Davis, assistant professor within the College of Veterinary Medicine, and includes other Food Science Institute faculty, colleagues from the University of Georgia, and leaders representing the country's largest meat processing plants.

"Keeping meat processing plants free of COVID-19 comes with extra complications," Phebus said. "The workers stand side by side, handling knives and saws, and sending the meat cuts they just touched down a conveyor belt to be handled by many other workers."

Jeanette Thurston, director of the Food Science Institute, and Davis are also submitting another grant proposal to purchase an instrument that will streamline and provide consistent analysis of viral infectivity necessary for research

of known and emerging viruses important to food safety; veterinary medicine; and water, air and soil health.

According to Thurston, "This equipment would be used by researchers across the university and increase the capabilities and breadth of research addressing not only current, but also future global food, health and biosecurity challenges. "

Food Safety Outreach

Karen Blakeslee, extension associate, and other members of the K-State Research and Extension food safety team are delivering critical information to consumers and farmers market providers on food safety issues with their new webpage about food safety and COVID 19, **kstate.ag/foodsafety**. It includes an "ask an expert" link where people can ask specific questions and get answers from K-State experts.

"COVID-19 has dramatically increased the interest in health and food safety issues," Blakeslee said. "We want to provide people with easy access to information to help keep themselves, their families and customers safe."

COSTS AND MARKETS

Impact on Livestock

The closure or reduced capacity of meat processing plants has resulted in a backlog of animals waiting to go to market. This is an obvious problem for the processing industry. For producers, this results in lower market prices, higher feed costs and even possible euthanasia of animals as a result of reduced processing capacity.

"The approach to these challenges by the Animal Sciences and Industry department has been multifaceted," said Michael Day, professor and chair of that department. "On the processing side, efforts have targeted education to increase safety of workers in processing plants to help sustain capacity. On the producer side, education regarding approaches that can be taken to reduce this backlog is one main area of emphasis. For example, information on management alternatives and/or feeding programs that can postpone time of slaughter until more processing capacity is available have been provided."

As some producers are faced with the possibility of needing to euthanize livestock as they run out of room in their facilities, ASI faculty have also provided expertise to help ensure the welfare of animals, the environment and producers.

Department faculty are addressing issues related to feed, as well. The lack of ethanol production is affecting the

availability of key feedstuffs – distillers grains and corn gluten feed. The faculty are focused on developing new rations with alternative feedstuffs and dealing with the important questions related to cost, impact on value — and the possible impact on meat quality.

The COVID-19 restrictions have also created a decrease in the demand and price received for milk. Much like with meat animals, ASI faculty are involved in many facets of how to address this situation. Some examples are reduction of feed costs and in some cases, milk production. Alternative feeds are also an issue with dairy production, since distillers grains and corn gluten feed are key components in total mixed rations. To further increase feed margin, specialists are working with producers to identify lower cost feedstuffs and to improve the efficiency of feed utilization. And, in the instance when milk cannot be processed, information about how to dispose of the unused milk and its use as a feed are being provided.

To help ag producers and industries, ASI faculty have been providing consultation, fact sheets, podcasts, webinars and radio programs throughout Kansas and the nation on how to approach these many COVID-19 related challenges.

TRANSLATING NATIONAL AND STATE COVID-19 POLICY

Helping Citizens and Industry Benefit from the CARES Act

Agricultural Economics faculty worked closely with Kansas lawmakers to quickly translate the U.S. CARES Act and help the Kansas businesses and citizens benefit from it. This $2 trillion relief package includes direct financial assistance to Americans; aid to small businesses and employees; efforts to stabilize the economy and keep people employed; and support for patients, health care providers and hospitals.

Agricultural economics faculty hosted online gatherings and posted articles and videos on their website, **kstate.ag/AGandCARES**, to help people from around the state learn more about the CARES Act, what it offers and how to apply.

The faculty also helped businesses gain financial support through the Payroll Protection Program, which is funded through the CARES Act and provides businesses with 500 employees or less access to short-term loans to finance up to 2.5 months of their employee pay and health care benefits, mortgage loans or rent, utilities and other debts.

KEEPING FAMILIES ACTIVE AND TOGETHER

A 30-Day Challenge

Amid stay-at-home orders, national 4-H leaders quickly developed new programs that allowed members and their families to engage in and focus on new activities virtually. Jill Martinson, 4-H youth development agent in Dickinson County, launched one of those programs in her county. Using Instagram and Facebook, she sent a new challenge to members each day for 30 days. The challenges ranged from caring for an animal, to trying a new style, to playing an instrument. 4-H members then posted photos showing what they did to complete the challenge.

"I did it with our children, and we quickly began to look forward to finding out the challenge for that day," Martinson said. "It gave us something fun and positive to do together."

Victory Garden Series

Victory Gardens are making a comeback with the help of Rebecca McMahon, the horticulture food crops agent for K-State Research and Extension's Sedgwick County office. In April, McMahon launched Victory Garden 101, a free, eight-week online gardening course to set aspiring gardeners up for success. By the May 5 class, there were 820 people from Kansas and several other states participating.

The concept of a Victory Garden dates back to World War II, when Americans were encouraged to plant a home garden to provide food during a time when many of the country's agricultural products were being used to support the war effort. The class is designed to help people grow some of their own food to add to their community's food security while saving money on their grocery bill.

"Gardening is a great thing anytime, pandemic or not," McMahon said. "I encourage folks to pick up vegetable gardening as a great opportunity for learning with their kids, being active and adding vegetables and healthy food to their diet."

The live weekly sessions are now filled, but recordings of all the lessons are available to watch at **kstate.ag/VictoryGarden101**.

AgReport

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College of Agriculture and K-State Research and Extension

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ON THE COVER PROFESSOR JASON GRIFFIN EXAMINES DRIED HEMP HARVESTED FROM THE VARIOUS HEMP PLANTS HE IS TESTING AT K-STATE'S JOHN C. PAIR HORTICULTURAL CENTER IN HAYESVILLE, KS. DRYING HEMP IS A NECESSARY STEP THAT INCREASES THE CROP'S SHELF LIFE, AIDS IN PROCESSING AND HELPS PREVENT SPOILAGE. (SEE STORY ON PAGE 11.)

PHOTO DAN DONNERT

Dear Friends,

Working from my home office during the shutdown, I was constantly reminded of all the reasons I love my job and how much I missed being on campus. I imagine walking down crowded hallways packed with students and meeting face-to-face with colleagues and alumni. When everyone returns to campus, I will be very happy. When our parking lots are full, I'll be thrilled even when I'm looking for a place to park. I'm even looking forward to wearing a tie on Fridays.

Although we weren't in the same building or maybe even in the same ZIP code, I've constantly been reminded of the strength and goodness of our K-State family.

I've heard many stories of our alumni finding selfless and creative ways to keep their families, communities and businesses safer, more secure. I hear about our students missing being on campus, yet continuing to work hard and not lose sight of their goal to complete their education.

And, I see our faculty, staff and community leaders working tirelessly to discover and share solutions that address the needs of ag producers, businesses and industries across the state and around the world in ways that will sustain us through the pandemic and even help us come back stronger when it ends. In this issue of the AgReport, I want to introduce you to just a few of those individuals who have been leading these efforts today and throughout their careers.

To all K-Staters, I have faith that once again your talents, courage, sheer will and determination will lead the way in moving agriculture forward.

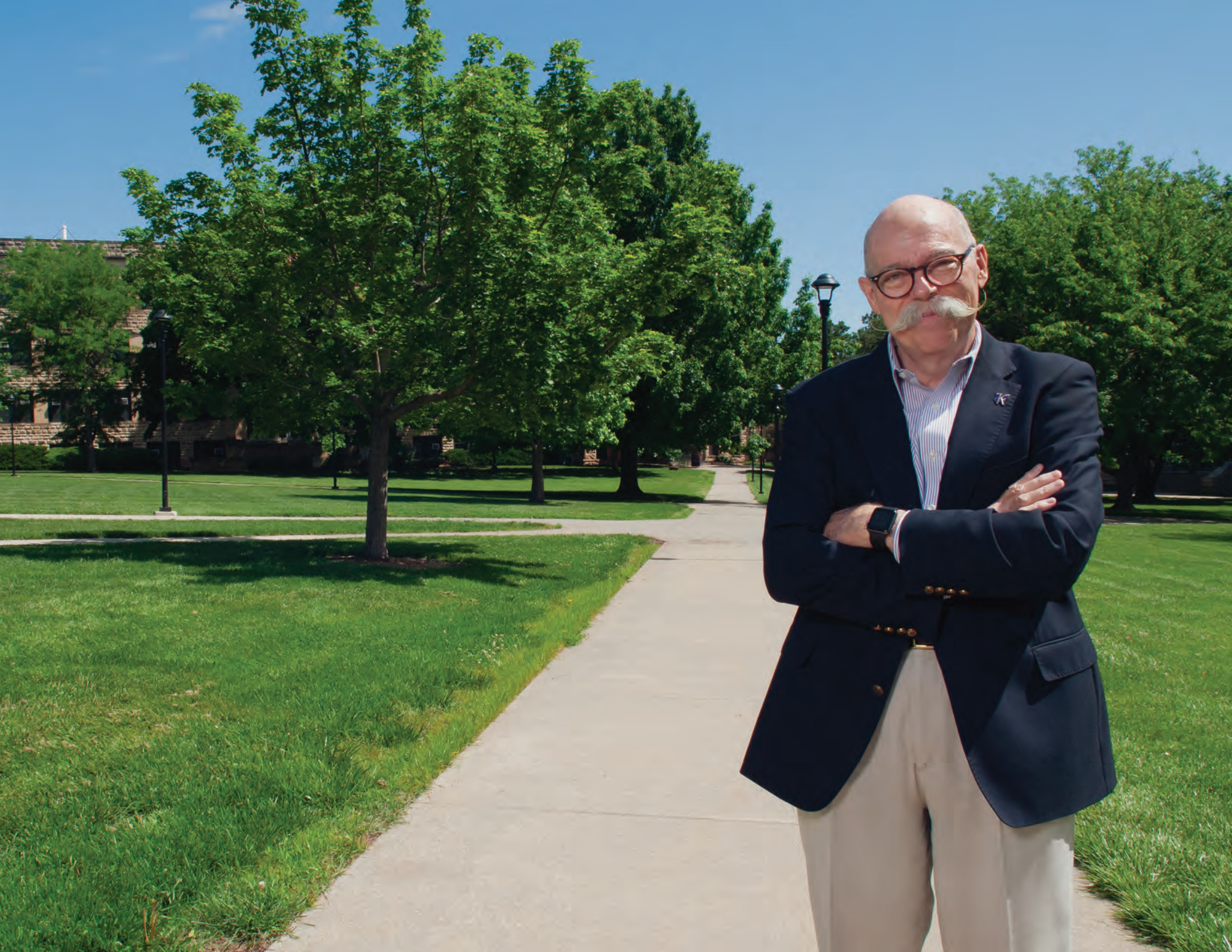
I am back at Waters Hall to plan and prepare for the opening of our labs and the return of our students. It's quiet now, but hopefully that will change soon.

Until then, stay strong,

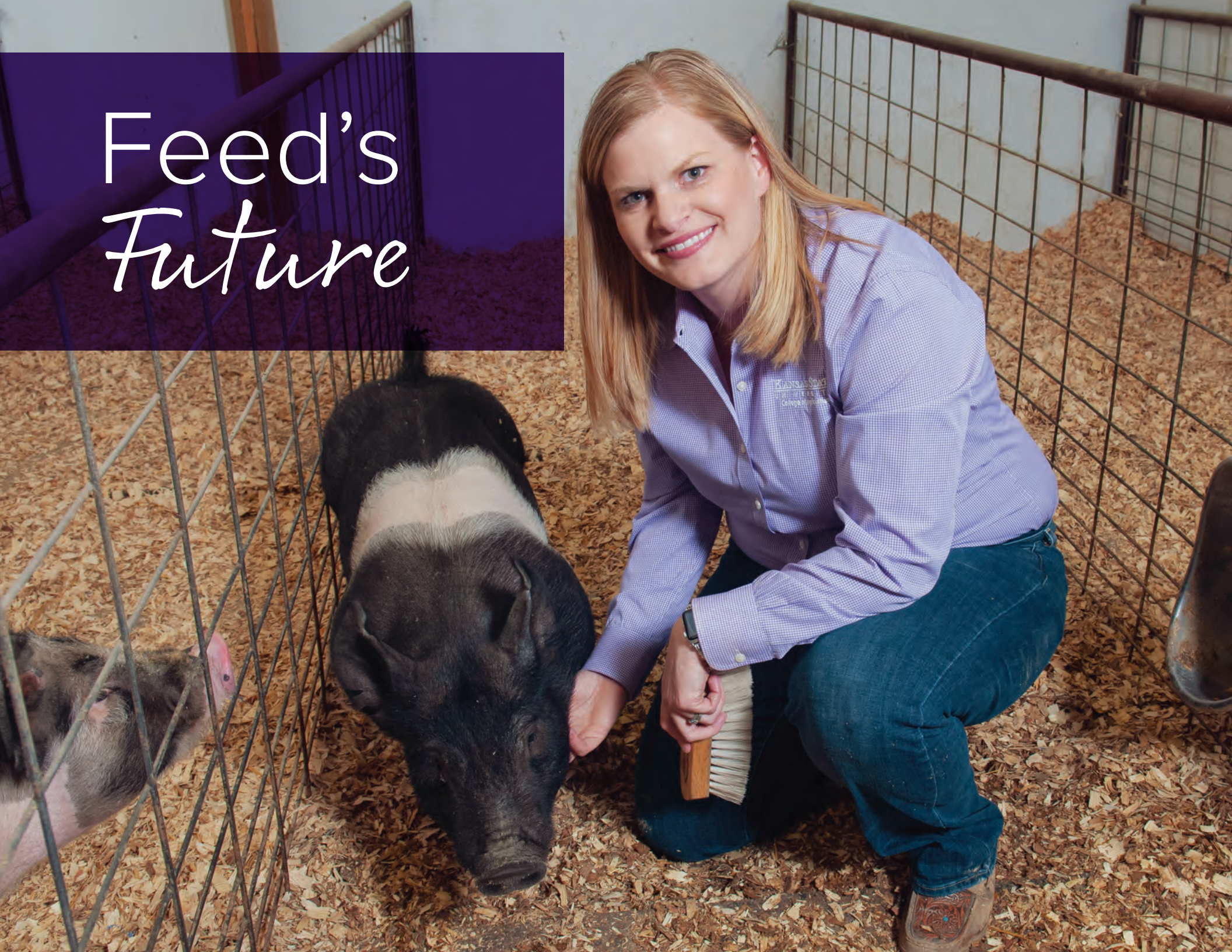
J. Ernest Minton

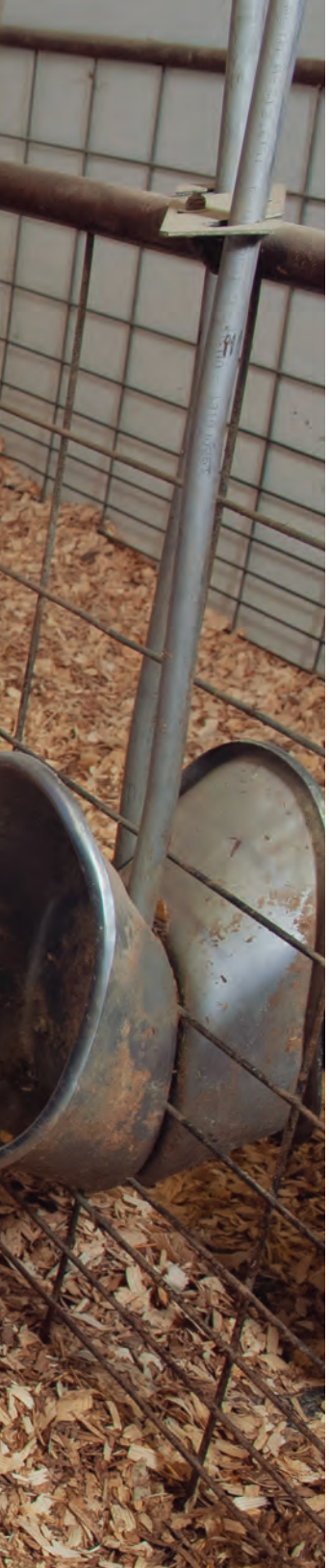
Ernie Minton, Dean

PHOTO DAN DONNERT
IN THE PHOTO ERNIE MINTON
LOCATION THE QUAD AND WATERS HALL, KANSAS STATE UNIVERSITY, MANHATTAN, KANSAS



Feed's *Future*





Jones combines inspiration and aspiration to prepare new feed scientists for more breakthroughs

One could easily believe Cassie Jones' energy comes from her vibrant research program.

In 2013, she was part of a K-State team that made a breakthrough discovery that has huge implications for animal agriculture: viruses and bacteria could be transmitted through feed and feed ingredients.

"Seven years ago, we had no scientific knowledge that a virus could survive in feed or an ingredient," said Jones, an associate professor of animal sciences and industry. "Understanding that has helped us prevent the transmission of such diseases as African Swine Fever virus, which continues to circulate around our global trading partners but has yet to enter the U.S."

STORY PAT MELGARES
PHOTO DAN DONNERT
IN THE PHOTO CASSIE JONES
LOCATION JOEL DEROUCHEY FARM, MANHATTAN, KANSAS

> ***"This group of students is going to have to solve some critical challenges , so we need them to be able to think critically and use science-based reasoning."***

Yet, talk for any length of time with Jones and it's quite evident that the hype machine runs much hotter when she's working with students.

"My true passion is working with students," she said. As coordinator of undergraduate research in the Department of Animal Sciences and Industry, Jones is exposing undergraduate students to research – often for the first time in their young careers.

One class, Jones said, is particularly popular with students because they get hands-on experience with pigs. "The project they are working on is really cool," she said. "We are evaluating alternatives for antimicrobials, which are designed to prevent the spread of bacteria, fungi and some viruses. We know that there is consumer demand for reducing the reliance of the swine industry on feed-grade antibiotics. So, as a class, these 20 students are in charge of 360 pigs for six weeks, and they're doing all of the chores, weighing the pigs and how much feed they're getting so that we can calculate their feed efficiency."

Some students also have an opportunity to assist K-State faculty with research in the college's Cargill Feed Safety Research Center, which Jones says is the only biosafety level 2 facility in the country that has feed manufacturing capabilities. She also conducts research in another highly secure campus facility – the Biosecurity Research Institute, a biosafety level 3 research facility which is home to comprehensive infectious-disease research addressing threats to agriculture and public health.

"In this case, we set up the feed mill inside the BRI and intentionally contaminate feed with African Swine Fever virus to learn how it may spread or be distributed in a feed mill environment," Jones said. "Then, we can determine the things we can do to eradicate it in different feeds, how infectious it is to pigs, and how much of a dose they need to consume before they get sick."

Because Jones' work involves K-State faculty in veterinary medicine, animal

science, and grain science, students are exposed to multiple disciplines.

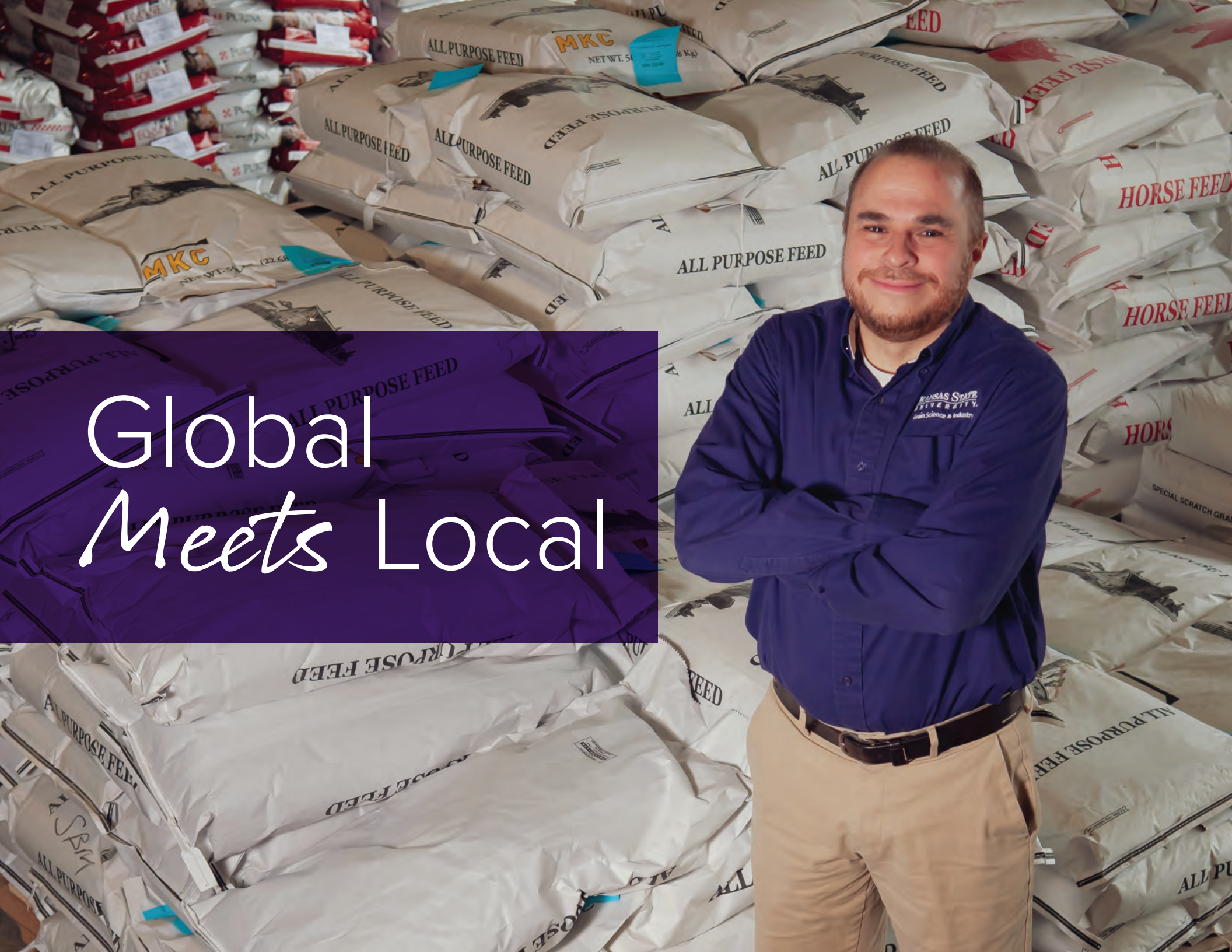
"It really takes that type of collaborative effort to understand the complexity of an issue," she said. "As we continue to evaluate the potential routes and ways to minimize the transmission of viruses or bacteria through animal feed and feed ingredients, it's a unique collaboration that is made possible because we have the facilities to work in that area."

Those opportunities, Jones adds, provide students quite a boost toward a career in agriculture.

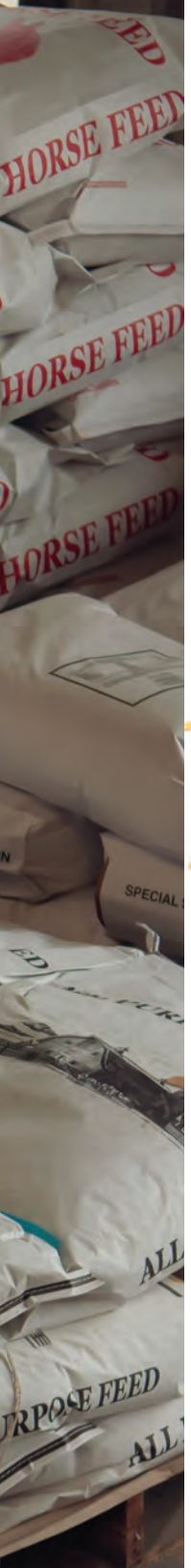
"Agriculture is very science-based, and we're a very progressive industry," she said.

"This generation of students is going to have to solve some critical challenges, so we need them to be able to think critically and use science-based reasoning. We want them to be trained on how to evaluate good science, and use science to make the best decisions."

LEARN MORE ABOUT THE COLLEGE'S TEACHING AND RESEARCH FACILITIES, VISIT **KSTATE.AG/FACILITIES**



Global *Meets* Local



STORY LISA MOSER
PHOTO DAN DONNERT
IN THE PHOTO CARLOS CAMPABADAL
LOCATION K-STATE INTERNATIONAL GRAINS PROGRAM, MANHATTAN, KANSAS

Campabadal shares grain industry expertise with international guests, helps improve domestic market

Hola, Bonjour, Hallo, Ni Hao, Hello — Spanish, French, German, Chinese and English are just some of languages spoken by the more than 4,000 global grain industry professionals who engage with Kansas State IGP (International Grains Program) Institute faculty each year.

Hundreds of those industry professionals travel to K-State each year for training in three curriculum areas: feed manufacturing and grain quality management, flour milling and grain processing, and grain merchandising and risk management.

Carlos Campabadal leads the educational efforts for the feed manufacturing and grain quality management curriculum. Being able to speak two languages and read an additional two makes him the right person in the right place.

Campabadal grew up in Costa Rica, where his family ran a feed-manufacturing and farm-operation business. His experience and interest in grain storage led him to pursue degrees in mechanical engineering, and agricultural and biological engineering before joining the College of Agriculture's Department of Grain Science and Industry in 2010.

Today, Campabadal is one of three curriculum managers and a host of faculty members and adjunct instructors, who in 2019 delivered 39 on-site courses for 795 participants, 43 distance trainings for 702 participants and reached an additional 2,708 professionals through workshops, research and presentations. Those who participated in the trainings and outreach represented 58 countries.

These trainings are developed for companies as well as government officials who are creating policies for their respective countries.

The institute is funded by Kansas soybean, corn, wheat and grain sorghum farmers through grants provided by the respective commissions.

They continue to support the program and the building with the technology and building enhancements that keep it state-of-the-art. The most recent upgrade was a $160,000 audio/visual upgrade completed in 2019 with the support from the Kansas Soybean Commission.

“With this donation, we are now operating with a digital system that enables us to reach further globally with better connectivity and the new equipment allows us to do simultaneous translation for up to 100 people at a time,” Campabadal said.

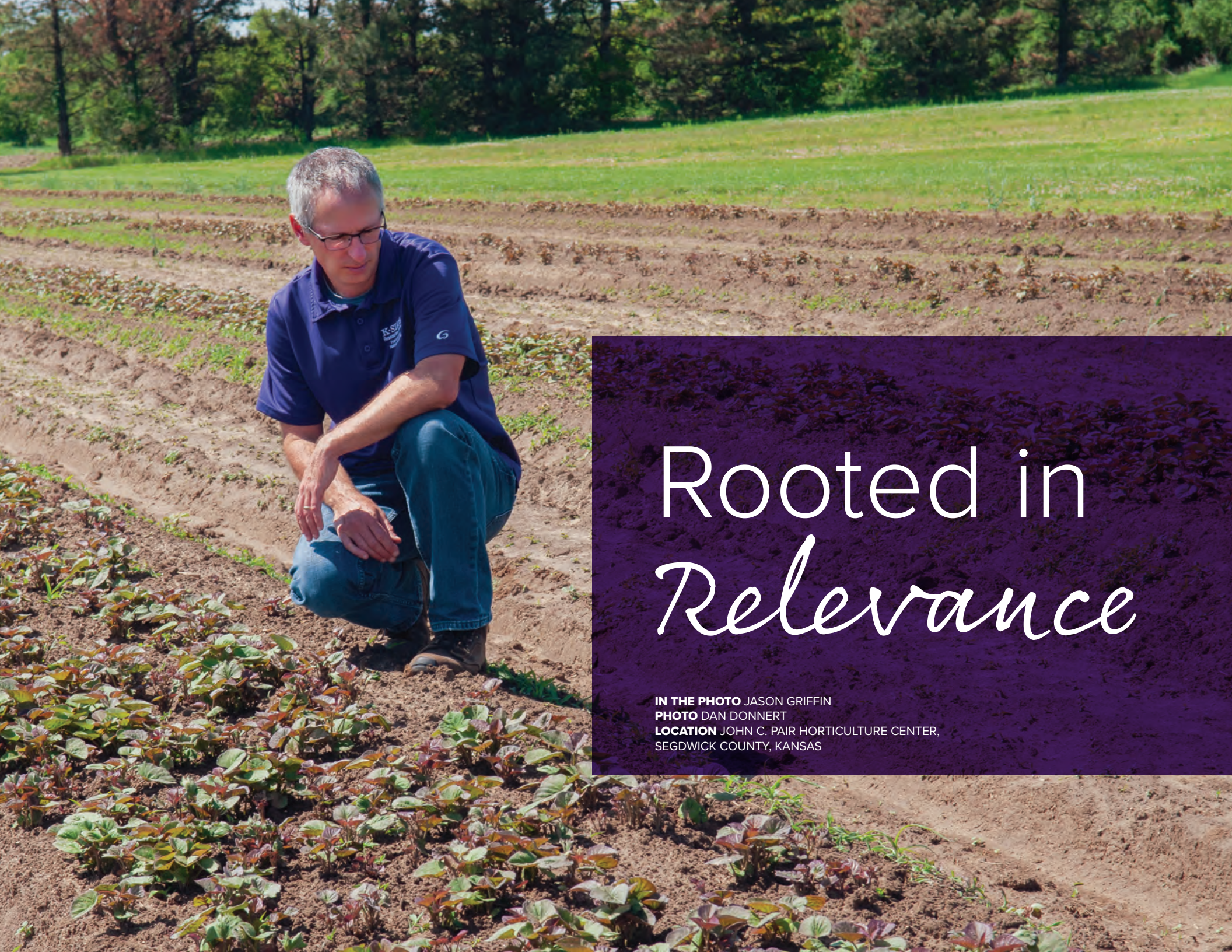
Along with the training in the conference center, Campabadal also leads a lot of hands-on learning in the O.H. Kruse Feed Innovation Center, which was built in 2013 with the financial support of several donors.

Because the equipment in the feed mill is full scale, participants can practice the techniques taught in the classroom to apply their learning. This education is also supplemented with field trips to farms and grain elevators as well as grain export facilities.

In addition to teaching, Campabadal is active in research. Most recently he wrapped up a trial in Malaysia where he was testing various strategies for preserving U.S. corn.

“Eight different storage strategies were tested, and we learned that U.S. corn could be stored up to 10 weeks in tropical environments without losing quality,” Campabadal said.

Through the teaching, outreach and research, Campabadal shared what he enjoys most about his work at the IGP Institute. “People who come to our trainings have a great desire to learn about ways to improve their production practices. And, seeing how they are able to apply that knowledge in Kansas and throughout the world makes my work fulfilling.”



Rooted in *Relevance*

IN THE PHOTO JASON GRIFFIN
PHOTO DAN DONNERT
LOCATION JOHN C. PAIR HORTICULTURE CENTER, SEGDWICK COUNTY, KANSAS

Pair Center leads the way for Kansas hemp just as it has for many other crops

On any given day, Jason Griffin can be found troubleshooting an irrigation problem, collecting data for hemp plant research, or checking sweet potato slips on their way to a grower.

Griffin, professor and director of Kansas State University's John C. Pair Horticulture Center in Haysville near Wichita, oversees 120 acres, most of them dedicated to research on a range of plants, including trees, food and ornamental crops, plus a new focus on industrial hemp, which some believe could be a big crop for Kansas farmers.

"Eighteen months ago, we began our research on hemp. We had to work very quickly to get the testing started if we were going to help Kansas farmers be competitive," Griffin said. "Fortunately, this is the kind of research the Pair Center was designed to handle. Almost immediately, we were set up and got going."

Griffin and his staff began by looking for the best varieties and ways to grow hemp for fiber, grain and CBD products – a total of 24 varieties.

> *"Our goal is to find the variety winners and losers, so Kansas farmers don't have to waste time and resources identifying the losers."*

"During our first season, we found our fiber and grain yields were as good as any in the nation," Griffin said. "The CBD hemp was also a success. It is a more labor-intensive crop and the success and failure can depend greatly on farming practices.

"Our goal," he added, "is to find the variety winners and losers, so Kansas farmers don't have to waste time and resources identifying the losers."

The center, named for renowned horticulturist and former center director John C. Pair, is a field research station for the university's Department of Horticulture and Natural Resources and the College of Agriculture. It is open to the public, but don't expect a red carpet. It is a working research farm.

"As such, there is no high-tech lab filled with equipment," Griffin said, "but there is field space, equipment to cultivate that space, and the ability to harvest crops and collect data."

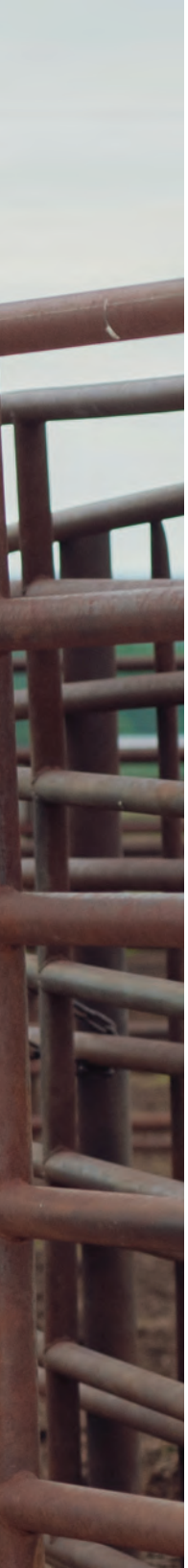
Current studies focus on landscape substitutes for boxwood shrubs because of a blight disease, improved river birch trees that can resist pine wilt disease, and magnolias that will flower late enough to avoid the last freeze.

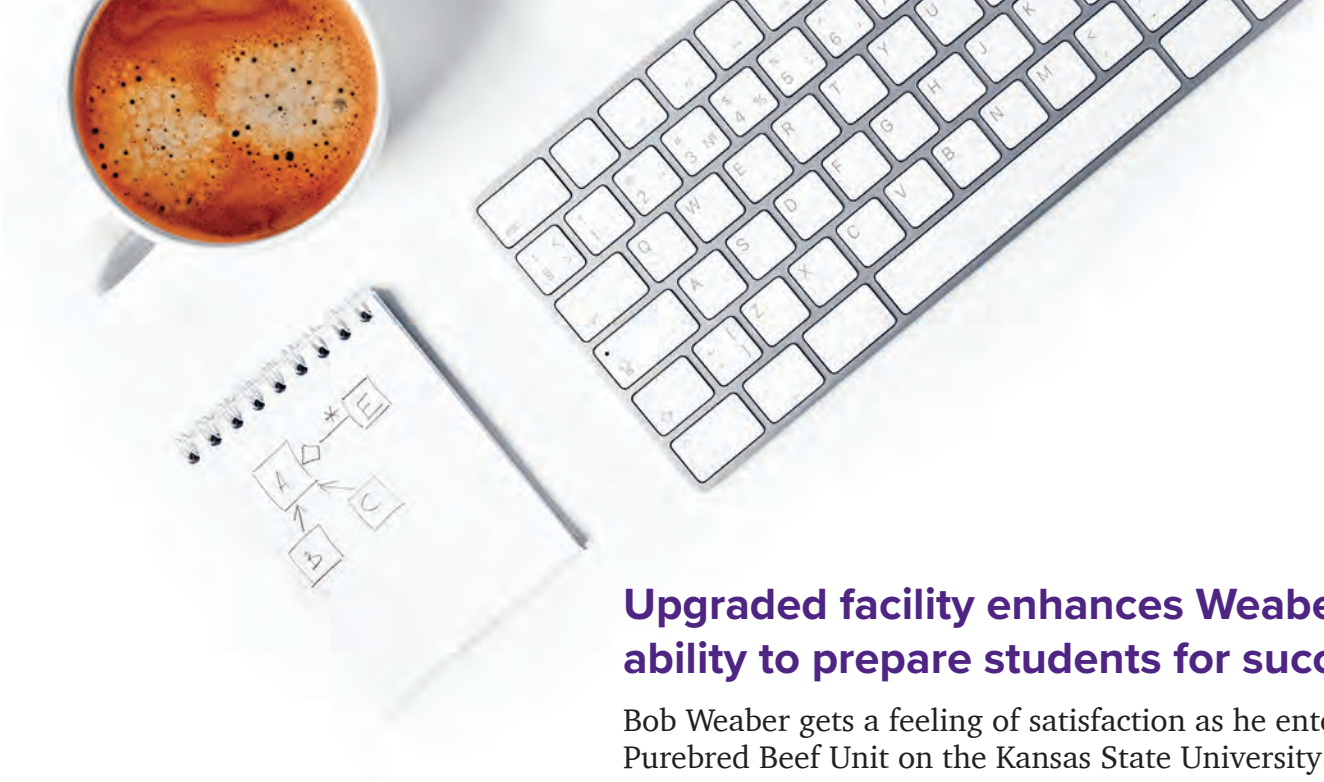
"We are also the largest supplier of certified organic sweet potato slips in the region, providing growers with locally produced, high quality plant material," Griffin added. The revenue from those sales helps offset the center's cost of operation.

To convey research results to the public, he routinely gives presentations, reaching more than 2,000 people last year on hemp research alone, including a session specifically for law enforcement.

"We like to think we have had an impact on the lives of every Kansan," Griffin said. "Whether it's the fresh fruits and veggies on your table, the green grass in your yard, the beautiful shrub in your landscape, the towering tree whose shade your family gathers under for a hot July 4th picnic, or the CBD you use to treat your pain or anxiety … we have had a role in that."

Industry *Impact*





STORY PAT MELGARES
PHOTO DAN DONNERT
IN THE PHOTO BOB WEABER
LOCATION K-STATE PUREBRED BEEF UNIT, MANHATTAN, KANSAS

Upgraded facility enhances Weaber's ability to prepare students for success

Bob Weaber gets a feeling of satisfaction as he enters the Purebred Beef Unit on the Kansas State University campus.

The building, just three years old, serves as something of a spark for Weaber, a professor in Animal Sciences and Industry, and the faculty coordinator at the unit. Here he has the opportunity to carry out a vigorous research program, while also helping to mold students who are training for careers in the beef cattle industry.

"My research focuses primarily on beef cattle genetics as well as my special interest in new trait development, such as feet and leg structure in cows, male fertility, feed intake and feed efficiency," he said. Weaber and other faculty in the Department of Animal Sciences and Industry work with colleagues in the College of Veterinary Medicine on studies related to vaccines and immune responses in cattle.

"What we are trying to do is build new selection tools and management methods for improving beef cattle production in the United States."

In 2017, K-State opened the current Purebred Beef Unit off Denison Avenue. It includes the calving and maternity barn, multipurpose and office spaces, and an apartment for student workers. Animal holding pens, pasture space, processing and feed storage are adjacent to the unit.

"Our old facility was built in the late 1950s," Weaber said. "At the time, it was a state-of-the-art facility, but was built under a seedstock production model that is quite different from what we experience today.

The new facility features contemporary livestock handling spaces that are designed around a concept called a "Bud Box," which gives us the ability to handle animals in a way that is much safer for the animals and the student workers. Plus, the new facility is much more labor-efficient. One or two people can do most of the operations here on a daily basis.

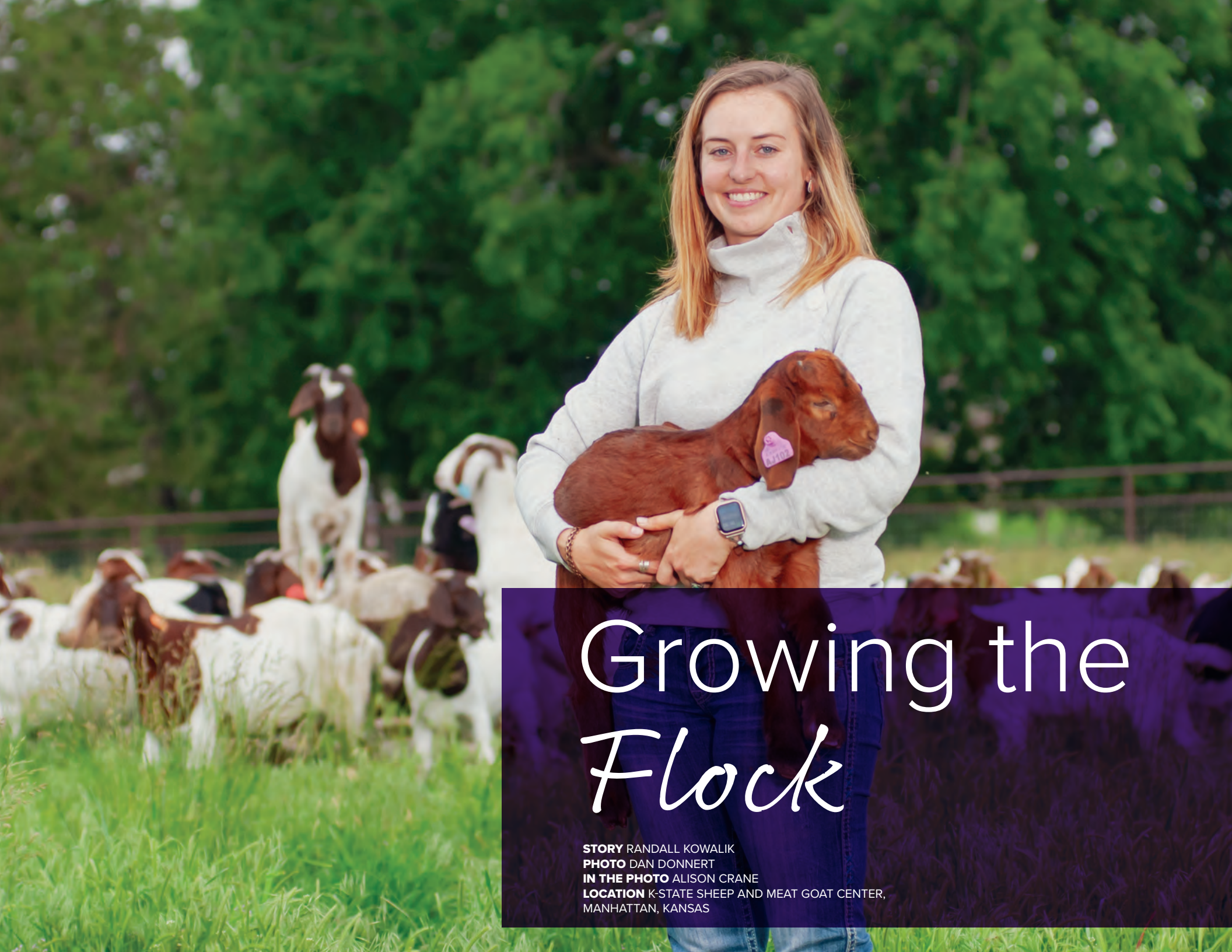
For students, having a modern facility gives them a head start on a career in the cattle business.

"All of the labor here is provided by undergraduate students," Weaber said. "The experience they get is directly applicable when they go out into the industry. That aspect really has made our facility representative of what students will experience when they get out into the industry."

Weaber said K-State faculty working with the Purebred Beef Unit are studying such sustainability issues as methane and carbon dioxide emissions from beef cattle grazing on a range. They're also looking at vaccination strategies for newborn calves. "Our unit is used for much more than teaching. It's got a broad industry impact."

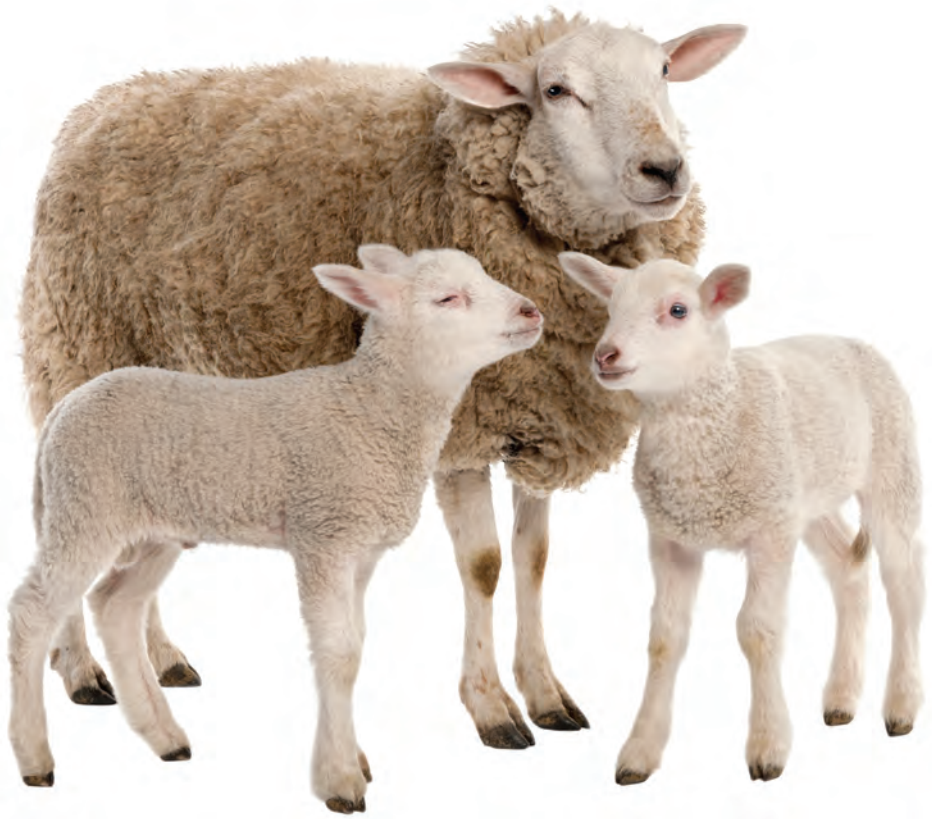
Each March, students in a seedstock marketing class help conduct the university's Legacy Sale, with the proceeds going to support the operations of the Purebred Beef Unit. Animals from the unit are used for a wide range of teaching activities, including animal reproduction labs and evaluation courses.

"One of the most rewarding things for me is working not only with the current students, but also with many of our alumni," Weaber said. "We think about the K-State family as largely associated with athletics, but that same philosophy and feeling exists here in our animal science department. It's great to have those folks come back, support the sale and donate to the unit to help make our resources better for students."



Growing the *Flock*

STORY RANDALL KOWALIK
PHOTO DAN DONNERT
IN THE PHOTO ALISON CRANE
LOCATION K-STATE SHEEP AND MEAT GOAT CENTER, MANHATTAN, KANSAS



Crane ushers in new era of sheep and meat goat production prominence

Peruse the menu of most casual dining or fast food outlets in the country, and you'll see the standard "trinity" of American meat: beef, pork and poultry. Typically, only in specialty or ethnic restaurants will you find sheep and goat meat offered.

This is changing, though. An increasingly diverse population and palate have positioned Kansas State University's Sheep and Meat Goat Center on the leading edge of this wave.

Alison Crane is an assistant professor in the Department of Animal Sciences and Industry and a sheep and meat goat specialist for K-State Research and Extension. She also serves as the director for its Sheep and Meat Goat Center.

When she arrived at K-State in 2017, she found the center was clean and new, but without many animals. So, her first challenge was growing the flock.

"There were fewer than 100 animals when I arrived," Crane said. "We purchased some sheep from the University of Wisconsin and South Dakota State University. Right now, we're between 200 and 250 head, between the sheep and the goats."

Crane explained she focused on Polypay sheep — a composite breed of sheep known for its productivity. Polypay ewes frequently give birth to twins and triplets and demonstrate strong maternal instincts.

Perhaps the biggest feature of the center is the proximity of the animals to the classroom. “It’s the only sheep and goat center I know of in the country that’s got the research going on just one door away from the main classroom,” she said.

Surgery suites located within the facility allow for on-site treatments. Students and instructors from K-State’s College of Veterinary Medicine can observe or even lead procedures.

The center also hosts producer meetings and programs. In September, when K-State hosted the annual meeting of the Global Agenda for Sustainable Livestock, Crane said conference attendees made a point to visit the Sheep and Meat Goat Center.

“It makes sense, especially on the goat side,” Crane said, “because when you look at global red-meat population, 70% of that is goat meat. The United States is one of those rare countries where sheep, lamb and goat meat just don’t appear on many dining-room tables.”

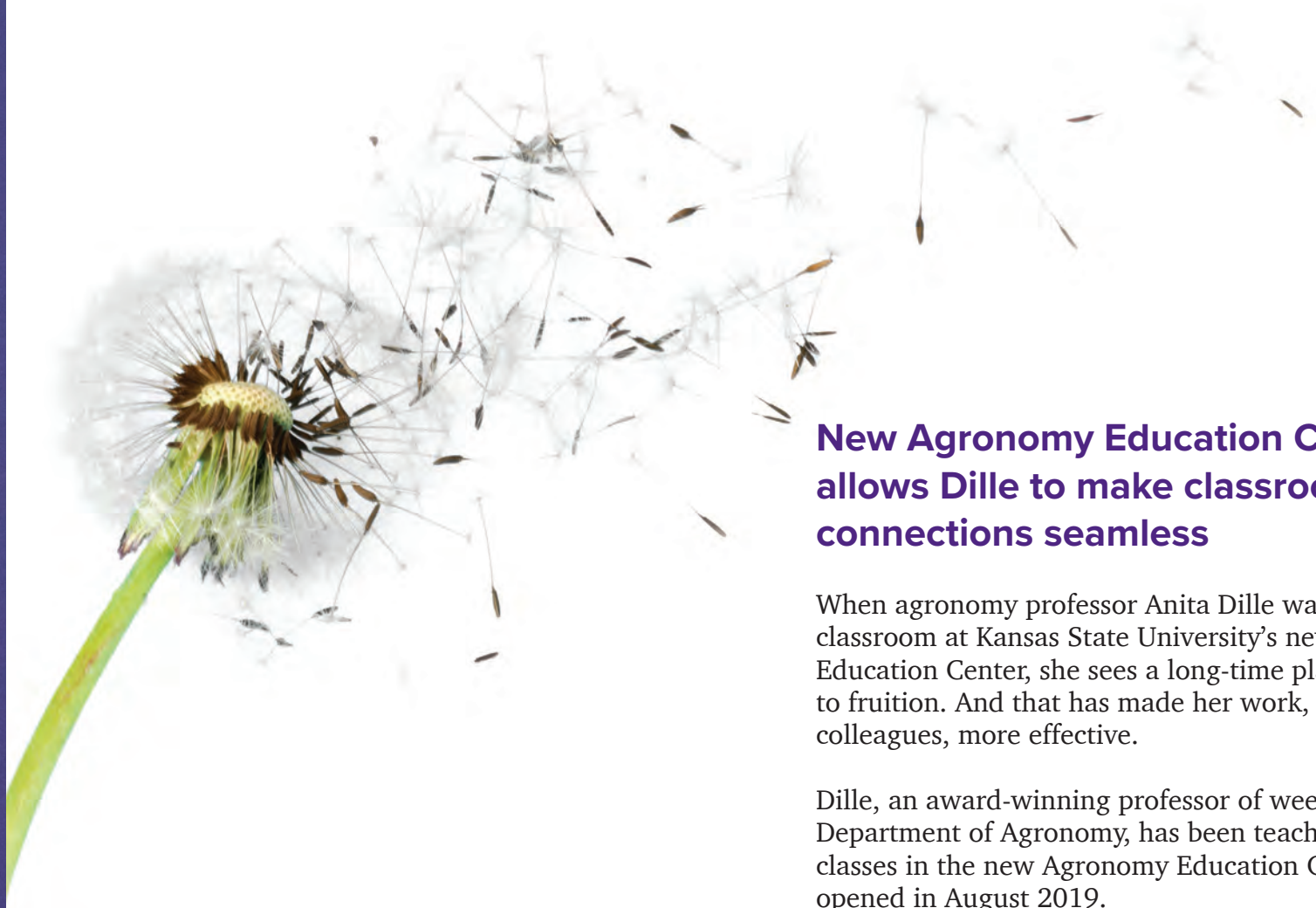
The most-popular explanation for this goes back to World War II. Canned mutton was plentiful and accessible to American soldiers. While nutritious, Crane said the taste was not very appetizing.

“The soldiers all came back and pretty much told their wives that they’d divorce them if they ever served that,” Crane said. “So, we have this whole generation raised without lamb or goat meat as part of their diet.”

Crane said that was the case for her own grandparents. Her grandfather came back from the war, set the edict in his own home, and it wasn’t until Crane herself prepared lamb, that her grandmother returned to a flavor from her youth.

Little by little, this decades-long American avoidance of a global dietary staple may be coming to an end, Crane said. Millennials, in particular, seem open to exploring the culinary frontiers shunned by their parents and grandparents. Add to that a growing immigrant population, and you have a time of exciting opportunities for sheep and meat goat producers.

Entrance to *Excellence*



New Agronomy Education Center allows Dille to make classroom-to-field connections seamless

When agronomy professor Anita Dille walks into the classroom at Kansas State University's new Agronomy Education Center, she sees a long-time plan that came to fruition. And that has made her work, and that of her colleagues, more effective.

Dille, an award-winning professor of weed ecology in the Department of Agronomy, has been teaching some of her classes in the new Agronomy Education Center since it opened in August 2019.

"It provides us insurance in inclement weather," she said. "Whether it's raining, or really hot or cold outdoors, we are no longer at the whims of nature. It's a vast improvement over standing in a 102-degree machine shed with poor lighting and trying to show a group of students the proper ways to identify plants or how to adjust or maintain equipment."

STORY MARY LOU PETER
PHOTO DAN DONNERT
IN THE PHOTO ANITA DILLE
LOCATION K-STATE AGRONOMY EDUCATION CENTER, MANHATTAN, KANSAS

> *"One of the ways to enhance education in the field is to have this learning center right next door."*

The new center not only enhances the university's classroom teaching with students, but also its connection to the community, state and beyond by providing indoor space to host extension field days and workshops for farmers in a climate-controlled, well-lit setting. In addition, the building is typically used during the annual "Kid's Field Day on the Agronomy Farm," when K-State hosts more than 600 fourth-graders who come with their teachers to learn about agronomic and horticulture crops, livestock, soils, insects, water quality and more.

The 5,750-square-foot building includes two classrooms and an exhibition hall plus a foyer, restrooms and large windows that look out over the Agronomy Farm fields.

Dille, who serves as the agronomy department's assistant head for teaching, said she's now able to bring equipment into the exhibition area to show students the proper way to calibrate sprayers, for example – a huge improvement to standing outside in brutal heat or driving rain.

"One of the ways to enhance education in the field is to have this learning center right next door," Dille said. "We placed it at the Agronomy Farm so we can just step outside and be right out there in our own fields."

And that means students and professors can discuss something in class about a problem in wheat, for instance, and walk right outside to a wheat field to see firsthand what the discussion is about. Also, next door are teaching gardens for weeds, forages and crops, and other demonstration plots.

Prior to the center's construction, the Agronomy Farm was already hosting more than 3,000 people a year through formal classes, workshops, visits and tours. The new center increases the university's ability to offer those programs and activities.

Dille is no stranger to challenging weather. She grew up on a farm in southern Ontario, Canada, where her mother had a large garden.

"My mom always said I had an interest for weeds," Dille said with a smile. She took that interest off to college at the University of Guelph in Ontario to earn bachelor's and master's degrees in crop science and then a doctorate in agronomy/weed ecology at the University of Nebraska.

Since joining K-State's faculty in 1999, Dille has earned numerous awards, including the Commerce Bank Outstanding Undergraduate Teaching Award and the North American Colleges and Teachers of Agriculture Teacher Fellow Award.

Dille takes her engagement with students even further by now coaching award-winning Collegiate Weed Science teams.

Research in *Residence*

STORY SUSAN SCHIFF
PHOTO DAN DONNERT
IN THE PHOTO MORGAN SCILACCI
LOCATION K-STATE BEEF STOCKER UNIT, MANHATTAN, KANSAS

Graduate student lives and learns at Beef Stocker Unit apartment

These days, graduate student Morgan Scilacci never strays far from work. As the first resident of the newly built student apartment at K-State's Beef Stocker Unit, Scilacci is just steps from where he conducts the majority of his research to find the optimal diet for young beef cattle.

"It's a huge privilege to be able to live here," said Scilacci, explaining that by working and living at the unit he is much more aware of anything that would affect the growing calves he studies.

Scillaci, who is pursuing a master's degree, is comparing outcomes of a high-roughage diet to a high-energy diet for growing calves. The high-roughage diet mainly consists of hay, while the high-energy diet mostly consists of corn and corn byproducts. His goal is to learn how to improve feed efficiency, carcass merit – which is determined by the weight of the animal and the quality and quantity of its lean meat yield – and the environmental impact of raising cattle in an economic manner.

A year into the study, Scilacci said the results are promising. Using the high-energy diet has led to a 28% increase in feed efficiency and a 45% reduction in the amount of manure the calves produce. Manure, if mismanaged, can lead to potential environmental problems.

Scilacci began working at the stocker unit as a freshman and continued for the next four years, helping care for the animals and performing chores around the barn. “I even helped pour the foundation and [helped] with the framing of the apartment building,” he said.

The apartment looks like a small house with a common living area, kitchen, two bedrooms and two bathrooms. It has granite countertops, energy-efficient radiant floors, and new kitchen and laundry appliances. A second student will move in eventually, but for now Scilacci claims he’s not lonely. “I have 400 four-legged roommates,” he said with a laugh.

The faculty coordinator for the stocker unit is Dale Blasi, an animal science professor and K-State Research and Extension beef cattle specialist. He is also Scilacci’s advisor.

“The students who live here have to be exceptional and very mature. I tell them that it’s a seven-day-a-week job,” Blasi said.

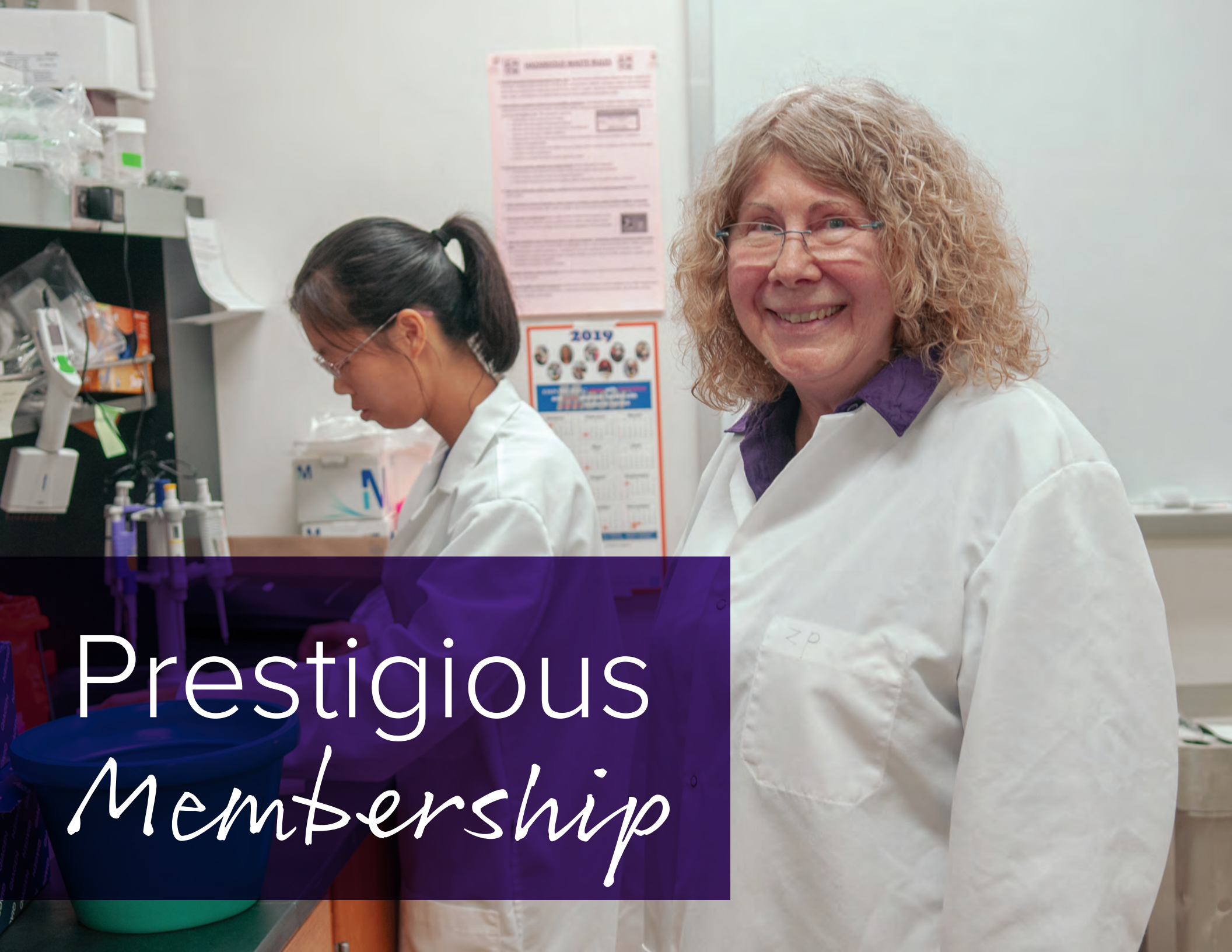
There is also the added security of having someone live on the property, Blasi said, noting that there have not been any incidents in which animals were harmed or taken.

Other student apartments are found at K-State’s purebred beef, sheep and swine units.

Scilacci said he is responsible for data collection for all research at the stocker unit, helping manage its student workers and filling in when student workers aren’t available to do the chores.

After completing a master’s degree, Scilacci said he is “open to just about anything,” including returning to work on his family’s ranch in eastern Oregon or working in an agriculture-related business or industry.

“All I know is that I want to do work that helps producers and agribusiness,” he said. “I believe the research I’m doing in beef cattle nutrition could benefit a lot of people, and for me that’s very satisfying.”



Prestigious *Membership*

STORY PAT MELGARES
PHOTO DAN DONNERT
IN THE PHOTO BARBARA VALENT
LOCATION THROCKMORTON PLANT SCIENCES CENTER
KANSAS STATE UNIVERSITY, MANHATTAN, KANSAS

World-renowned blast researcher named to National Academy of Sciences

Kansas State University plant pathologist Barbara Valent has earned membership in the prestigious National Academy of Sciences, considered to be the country's leading authority on matters related to science and technology. As a member, Valent, a university distinguished professor, joins a group of scholars that is often sought out to provide independent, objective advice to national leaders on problems where scientific insights are critical.

"Even as a graduate student, you realize that being a member of the NAS is one of the highest honors a scientist can receive. It's something that always stands out there as a goal," said Valent.

Valent has worked on understanding blast disease, caused by a fungus known to scientists as *Magnaporthe oryzae*, for more than 40 years. In the last decade, her work has focused on wheat blast, a dangerous new disease in which the fungus is capable of taking out entire wheat fields. Valent has led a research team that is driving the world's most comprehensive studies on wheat blast to keep it out of the United States.

> *"Being elected to the NAS is the ultimate recognition of scientific excellence, expertise and achievement in the U.S."*

"When I came to K-State in 2001, I began new research on how the blast fungus hijacks and feeds on live plant cells to grow and cause disease," Valent said. "We have learned how the fungus floods surrounding cells with small proteins, or effectors, that turn off the plant's defenses and how the fungus moves from cell to cell. Understanding details of the infection process is aimed at developing novel strategies for controlling disease on rice, wheat and other cereal crops."

According to the International Maize and Wheat Improvement Center in Mexico, wheat is grown on nearly 531 million acres worldwide, or an area equivalent to that of Greenland. Nearly $50 billion is traded globally each year, and wheat-based food is eaten by an estimated 2.5 billion people in 89 countries. It surpasses maize and rice as a source of protein in low- and middle-income countries and is second only to rice as a source of calories in the human diet.

While Valent has been in the center of international work, her team has also helped keep the fungus from infecting U.S. wheat fields. Working in K-State's Biosecurity Research Institute, a biosafety level 3 agriculture facility, the researchers were the first to discover a resistance gene called 2NS for wheat blast disease.

"Her research is truly transformative, both in terms of basic understanding of plants and microbes but also with the potential to save wheat and rice yields worldwide," said Megan Kennelly, professor and interim department head for plant pathology.

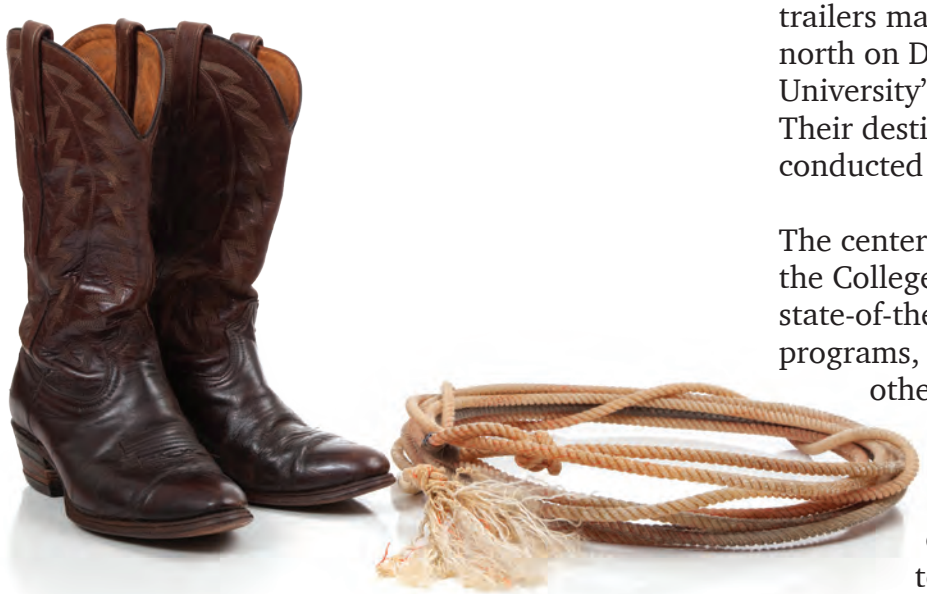
Kennelly noted that Valent and her group pioneered sophisticated microscopic techniques that allow them to watch and record how disease develops cell by cell and hour by hour in amazing detail.

"Her work has truly opened our eyes to the intricate interplay of plants and fungi in a completely new way," Kennelly said.

Valent was awarded K-State's highest academic ranking of university distinguished professor in 2002.

A Stout *Legacy*

STORY MEG DRAKE
PHOTO DAN DONNERT
LOCATION STANLEY STOUT CENTER, MANHATTAN, KANSAS



High-tech multipurpose center quickly, fittingly becomes a destination for Kansas agriculture

It's a crisp March afternoon as trucks with livestock trailers make their way across campus, headed north on Denison Avenue toward Kansas State University's agricultural farms and livestock units. Their destination is the 43rd Annual Legacy Sale conducted at the Stanley Stout Center.

The center was built in 2013 after leaders within the College of Agriculture recognized a need for a state-of-the-art facility to help market their breeding programs, provide space to host classes and allow other groups and organizations to rent the facility for conferences and workshops.

"Prior to this building, we hosted our Legacy Sale beneath a tent next to the old purebred unit," said Dave Nichols, professor and teaching coordinator for the Department of Animal Sciences and Industry. "We knew we needed a large, multipurpose space with high-tech capabilities that could serve students and other agricultural organizations across the state."

Today, many events take place at the 10,000-square-foot center, including 4-H and FFA competitions, sheep, cattle and swine producer days and the annual K-State Purebred Unit Legacy Sale. The audio visual technology and sound system, ample seating, room to congregate and spacious indoor sale arena have made the Stanley Stout Center a popular venue to connect with stakeholders, host statewide events and welcome alumni back to campus every October during the Animal Sciences and Industry Family and Friends Reunion.

However, the Legacy Sale, which is led and marketed by College of Agriculture students and faculty, remains one of the pinnacle events conducted at the facility each year.

Nichols said Stout was "undoubtedly one of the best auctioneers in the country."

Passionate about K-State's College of Agriculture and helping its students, Stout auctioneered the Legacy Sale for many years. Those involved in the building project believed it was appropriate to name the facility after a Kansas rancher and past K-State student who had provided so much to the industry.

"I thought it would be great to fund a building at K-State when I retired or died," said Kansas agricultural producer and K-State alumnus, Rich Porter, who funded more than half of the project. "When I heard about the desire to build a multi-use building in honor of Stanley Stout, I decided this was it. Sure, I hadn't retired or died yet, but I thought there would probably never be a better and more cost-effective building than this."

Thus, the Stanley Stout Center was brought into existence.

And this March – as will be the case for many Marches to come – the sights and sounds of the Legacy Sale help carry an industry forward. The cries of the ringmen can be heard above the auctioneer as the bidding on lot 20 climbs higher and higher. In the end, $20,000 seals the deal and the young Simmental show heifer prospect, bred at the K-State Purebred Unit, is on her way to her new home.

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