

WINTER 2020

KANSAS STATE
UNIVERSITY

College of Agriculture

AgReport

Creating a stronger Kansas
through sustainability



PHOTO DAN DONNERT
LOCATION SOUTH OF DODGE CITY, KANSAS

AgReport

Winter 2020

College of Agriculture and K-State Research and Extension

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ON THE COVER A no-till field located at Ashland Bottoms south of Manhattan, Kansas. College of Agriculture research has been instrumental in developing no-till farming practices that offer both environmental and economic benefits leading to soil richer in organic matter, less runoff and pollution, average fuel savings of two gallons an acre, and, after a few seasons, crop yields equal to conventional fields.

PHOTO DAN DONNERT

Dear Friends,

In this issue of the *AgReport*, we're focusing on the College of Agriculture's commitment to sustainable agriculture. I hope you'll read the stories within, showcasing a few examples of the work being done through the college and K-State Research and Extension to help meet society's food needs today without compromising our children's and grandchildren's ability to meet their own needs in the future.

Like many of you, we subscribe to a holistic approach to sustainability. Creating a healthier environment, improving economic profitability, and ensuring equity within our communities and professions are all essential to having a long-term impact. I am proud of and encouraged by the advances being made by my colleagues, our alumni and friends in all these areas.

After all I've seen, I'm convinced this type of sustainability is key to many of the challenges we face in this state and around the globe, and I have no doubt that the work of our College of Agriculture family will continue to play an essential role in its success.



Ernie Minton, Dean

PHOTO DAN DONNERT
IN THE PHOTO ERNIE MINTON
LOCATION K-STATE BEEF STOCKER
UNIT, MANHATTAN, KANSAS





Our New
Best Friend





Industry leader preps students for expanding pet-food marketplace

In 2012, the College of Agriculture launched the K-State Pet Food Program. It's the first of its kind, offering education and research devoted to improving the nutrition and safety of food for pets, and endangered and captive wild animals.

Greg Aldrich, a research associate professor for the college, helped start and continues to coordinate the program. He's not hard to spot. Aldrich is the one with the silver lab, Lucre, always by his side.

In recent years, pet food has become serious business, especially in Kansas. Pet food manufacturers located within the Kansas City Animal Health Corridor had sales of \$30.6 billion in 2014. This represents 61% of the total pet food sold in the United States and accounts for 49% of global pet food sales, according to the health corridor's 2014 asset survey. The corridor runs from Kansas State

STORY RANDALL KOWALIK
PHOTO DAN DONNERT
IN THE PHOTO GREG ALDRICH AND LUCRE
LOCATION KANSAS STATE UNIVERSITY

“Pet food manufacturers in the Kansas City Animal Health Corridor had sales representing 61% of the total pet food sold in the U.S.”

University in Manhattan to the University of Missouri in Columbia. Between these two research universities are more than 300 companies and organizations focused on animal health and nutrition, including Hill’s Pet Nutrition, Mars Petcare, Nestlé Purina PetCare and Cargill.

At K-State, Aldrich’s focus is on educating students to become leaders in the pet food industry, and providing research to companies to make their pet food safer, more nutritious and have a longer shelf life.

Aldrich spent the majority of his career working in industry. After earning his doctorate from the University of Illinois in animal nutrition, Aldrich joined the Iams Company and then several other manufacturers where he formulated pet diets. From industry, Aldrich moved to consulting, particularly for small startups, that are often short on equipment and research staff. His consulting often brought Aldrich to K-State.

“I was using the extrusion laboratory here on campus to make some of these products, and I started a dialogue with some of the faculty,” he said.

At first, Aldrich was asked to teach one class, then two classes, and the college hired him to be a research associate professor. Aldrich is excited by his new role.

“The pet food industry is going through a very transformative period,” explains Aldrich. “And, the timing couldn’t be better. Last year, there were more than 5,000 new pet food products introduced to the world and 475 of those new products came from the United States. We’re about 50 years behind in what we need to know about companion-animal nutrition, and we have a lot of consumers out there with an appetite for new and better pet food.”

Aldrich believes his new role at the College of Agriculture positions him well to help improve pet nutrition, prepare his students for outstanding careers in this industry, and support the economy of this state by helping Kansas-based pet food companies. ■■■■■





Vector *Detector*



Vector biology lab director leads a team of disease-tracking detectives

Berlin Londono is fascinated with mosquitoes. Yep, those nagging, biting, barbecue-ruining little critters of summer.

And it's a good thing because Londono, an assistant professor of entomology and director of K-State's Vector Biology Laboratory, is on the hunt for ways to prevent the pesky arthropods from spreading disease to humans.

"I'm a microbiologist and infectious disease person that just likes mosquitoes," Londono says. "My previous work was focused on malaria parasites. I thought, 'Hey, something is missing here. Who is giving us the parasite?' So I started working with the mosquito side and that's how I got interested in entomology."

No one likes getting bitten by a mosquito, but other than a little itch, it can be harmless — usually. But when a mosquito bites a person who is already infected with a disease such as malaria, dengue fever or the Zika virus, the mosquito can then transmit that disease to the next human it bites.

"One focus of our laboratory is how to stop the mosquitoes from getting the disease," Londono says. "We are working on transmission blocking vaccines, which don't protect the human from getting the disease, but they do protect the mosquito from getting infected so that, in the long term, it does protect humans."

She explains people tend to believe that mosquitoes only transmit diseases in Africa and regions where poverty is high outside of the United States.

"One focus of our laboratory is how to stop the mosquitoes from getting the disease."

“However, several mosquito-borne diseases are mainly endemic in North America, such as the St. Louis encephalitis virus and Lacrosse encephalitis virus,” Londono says. “And under the right conditions, these diseases may be exported to areas outside of the United States.”

According to Londono, “We don’t have high numbers of malaria cases right now, and we are trying to keep it that way. And, we are trying to decrease the emergence of diseases in other places.”

Londono and her research team are also tracking diseases in humans to identify who is getting bitten, and who is more at risk of getting disease. “That way,” she says, “we can focus our efforts in areas that are hot spots. If we can eliminate the transmission of disease there, we can protect the rest of the community.”

Londono also shares her work with undergraduate and graduate students in a of couple K-State classes: vector biology and forensic entomology.

“I love how pathogens are designed and how organisms work,” she explains. “There are people who really love how cars work; for me, I want to know that about the pathogens and the invertebrates and the arthropod itself. How do they work? How can a pathogen adapt to an arthropod and then also survive in a human?”



“If we as humans go to another planet, we are going to have a hard time surviving. But these pathogens go from one ‘planet’ (or vector, such as a mosquito) to another one and they survive.”

The work is hard and the targets are ever-changing. “These are very, very smart pathogens, and arthropods, too,” she explains. “I want to learn about them; I want to understand them.”


 **LEARN MORE** ABOUT THE VECTOR BIOLOGY LABORATORY AT VECTORBIOKSU.COM

PHOTO DAN DONNERT
IN THE PHOTO BERLIN LONDONO
LOCATION VECTOR BIOLOGY LABORATORY, KANSAS STATE UNIVERSITY

A close-up photograph of two hands cupped together, holding a large amount of dark, rich soil. The left hand is wearing a purple sleeve, while the right hand is bare. The soil is dark brown and appears moist and fertile. The background is a blurred, dark surface, possibly a garden bed or a large pile of soil. The text 'Ground Breaking' is overlaid on the left side of the image.

Ground
Breaking



Nobel Prize-winning soil scientist takes unique path to impactful career

Growing up in the shadow of a huge city is not the typical background for an agronomist, but Chuck Rice is hardly typical.

Rice grew up outside Chicago, not on a farm but in what he describes as a “rural subdivision.” Teachers, family encouragement, and participation in 4-H projects helped hone his interests and abilities.

“My interest was in nature and science,” Rice explains. He credits his parents with nurturing those interests. They had no college education: His dad worked in a factory and his mom held various jobs including as a cook in a local school. But they encouraged their son to delve into the world around him.

And delve he did.

STORY MARY LOU PETER

“My goal is to design agricultural systems that restore soil health, are climate resilient and nutrient efficient, and are profitable for the producer.”

A co-winner of the 2007 Nobel Peace Prize for his work on the United Nations Intergovernmental Panel on Climate Change and a university distinguished professor and internationally renowned soil scientist at Kansas State University, Rice has spent much of his career on groundbreaking studies of climate change and agriculture, soils, and soil carbon sequestration.

He serves as chair of the National Academies Board on Agriculture and Natural Resources and is a Fellow of the Soil Science Society of America, American Society of Agronomy and the American Association for the Advancement of the Sciences.

Simply put, Rice is academic royalty. And, his research is critical. Over the past 150 years, the amount of carbon in the atmosphere has increased about 30%, according to the Ecological Society of America. Most scientists believe there is a direct relationship between increased levels of carbon dioxide in the atmosphere and rising global temperatures.

“My goal is to design agricultural systems that restore soil health, are climate resilient and nutrient efficient, and are profitable for the producer,” Rice says. “As agriculture

continues to face challenges, it is important that my research continues to change. Right now, soil health and utilizing the soil microbiome are frontiers for agriculture.”

He joined K-State’s faculty in 1988 as the first soil microbiologist in the Department of Agronomy. Having the opportunity to conduct research on the Konza Prairie Biological Station and being able to work with Clenton Owensby are what Rice credits for much of his success at K-State. Owensby, an agronomy professor, invited Rice to conduct research on soil microbiology related to the effects of elevated atmospheric carbon dioxide on the growth of the native prairie.

“Kansas is a perfect place for my research,” Rice explains. “I try to understand how the tallgrass prairie functions from its resiliency to climate variations, its efficient use of nutrients, and its storing of carbon.”

PHOTO DAN DONNERT
IN THE PHOTO CHUCK RICE
LOCATION AGRONOMY NORTH
FARM, KANSAS STATE UNIVERSITY







Protecting the *Farm*



Ag economist knows the value of straight talk

When Mykel Rae Taylor set off for college at Montana State University, she wasn't considering a major in agriculture. Luckily, she changed her mind.

Her award-winning work in agricultural economics brings clarity on issues such as farmland values and agricultural leases and informs the public about farm policy, including how legislation affects those who are helping grow the world's food supply.

With wit and an eye on what's important, even if it's an uncomfortable topic, the associate professor of agricultural economics' practical style makes her a popular speaker. She has the rare ability to dig deep into economic analysis and to convey the information in an engaging, understandable way to help keep farmers and ranchers on a financially sustainable path.

Her passion has deeply personal origins. At just 20 years old, Taylor became a landowner when her father passed away.

STORY MARY LOU PETER
PHOTO DAN DONNERT
LOCATION DEEP CREEK ROAD,
MANHATTAN, KANSAS

“It was an overwhelming experience, and I depended heavily on my college professors for help,” she explains. “I have the chance to help people with many of those same issues today.

“It is gratifying to be able to help people make better economic decisions and have more open lines of communication between landowner and tenant.”

Taylor drew on her formative years growing up on a ranch in Montana as she earned bachelor’s and master’s degrees at Montana State and a doctorate degree at North Carolina State University.

“Kids don’t usually learn much about the finances of the farm or ranch when they grow up there, and I wasn’t any different,” she says. “It was a whole new world to learn about agriculture through the lens of an economist.”

Drawing the curtain back on farmland values and agricultural leases has been a focus since she joined the K-State faculty in 2011. Taylor takes voluntarily provided land-sale prices as well as data from the Kansas Property Value Division of the Kansas Department of Revenue as she’s calculating land values. The result is the annual *Kansas Land Values and Trends* book, which shows county-by-county

“Kids don’t usually learn much about the finances of the farm or ranch when they grow up there, and I wasn’t any different.”



values that can be used as a benchmark for determining the value of a given parcel of land – critical to anyone who is buying, selling or leasing farmland in the state, not to mention bankers and assessors.

Taylor and her K-State colleagues also pore through farm-related legislation, including the most recent farm bill passed in 2018, to determine what it means to agricultural producers.

As a farm management extension specialist, Taylor shares her expertise with thousands of people through written articles, media interviews, webinars and in-person presentations across Kansas and the United States. She’s a sought-after expert by regional and national media, in print, on radio and on TV. ■■■■■


 **LEARN MORE ABOUT TAYLOR AND HER WORK AT** kstate.ag/MykelTaylor and agmanager.info

PHOTO DAN DONNERT
IN THE PHOTO MYKEL TAYLOR
LOCATION MKC, POTTAWATOMIE COUNTY, KANSAS



Data-driven Dairy

PHOTO DAN DONNERT
IN THE PHOTO LUIS MENDONÇA
LOCATION DAIRY BARN, KANSAS STATE UNIVERSITY



“In addition to bringing hundreds of jobs to an area, the state’s dairies are adding enrollment to schools and buying materials and supplies in local stores.”

By revitalizing dairies, veterinarian aims to boost rural communities

Luís Mendonça considers himself a lucky guy.

In his job as a dairy extension specialist for K-State Research and Extension, he is in a unique position to serve an industry that, in Kansas, has grown every year since 2008, including 38% growth in cow numbers in just the past six years, according to the National Agricultural Statistics Service.

For Mendonça, who is also an associate professor and veterinarian, this work is more of a privilege than a job.

“We have very progressive, very good dairymen in this state,” he says. “They are open to new information, which makes it really exciting to work with them, provide information and be part of the growth.”

Kansas is currently ranked No. 16 in the United States for milk production, with 162,000 cows and 290 dairy farms. In the past 25 years, the state has doubled its milk production, according to data from NASS.

Mendonça, though, says what’s often not seen in production statistics is the impact that these dairy farms have on their communities. In addition to bringing hundreds of jobs to an area, the state’s dairies are adding enrollment to schools and buying materials and supplies in local stores.

STORY PAT MELGARES

“It helps to revitalize those communities,” he says. “And, it helps to keep people in the rural areas where sometimes we have seen an exodus.”

“The other part of that is that everyone likes ice cream and cheese, right? We’re supporting that. We work with the farmers who produce those foods.”

Mendonça provides updated information in Spanish and English, including opportunities for automation on the farm and implementing new technologies.

“My job,” he says, “includes compiling information and understanding what direction things are going, then providing that information to producers so they can see areas of opportunity and make improvements.”

Mendonça says K-State’s dairy program has continued to evolve with technology for farmers. He and his team of graduate students are conducting research on issues related to cow health, reproduction and heat stress.

“People often don’t realize how much technology we have in the dairy industry,” he says. “We can track information on each individual cow when they go to the (milking) parlor. Sometimes we have more information on the cows than we have on ourselves.”

“Some herds have accelerometers, which would be (a device) similar to a FitBit for a cow, that capture data every hour. These help us track what time we are feeding


the cows, the consistency of feeding practices, and how much they’re eating – so, the whole nine yards in technology – which is changing our industry.”

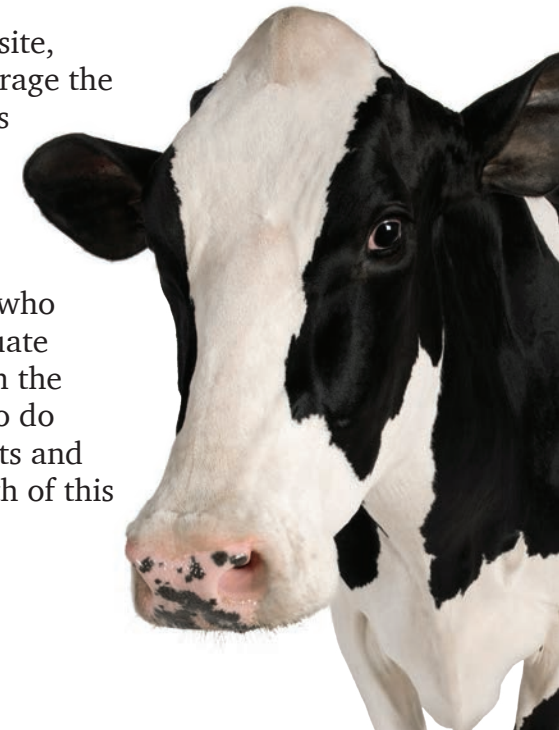
Mendonça uses website technology to support his work, as well.

The Dairy Records Intelligence Network is a site that tracks performance benchmarks so producers can see how their farm is doing compared to others. The site is located at *drinkdairy.com*.

Dairy Leaders of the Future’s site, *dairyleaders.com*, helps encourage the current generation of students to consider careers in dairy.

“There is so much growth in this industry, and so much to be done,” says Mendonça, who also helps K-State undergraduate students land internships with the state’s dairies. “We’re trying to do as much as we can for students and provide support for the growth of this industry.”

 **LEARN MORE**
ABOUT DAIRY
RECORDS
INTELLIGENCE
NETWORK
DRINKDAIRY.COM





Fount of
Knowledge



STORY PAT MELGARES
PHOTO DAN DONNERT
IN THE PHOTO GAEA HOCK AND K-STATE AGRICULTURAL
EDUCATION STUDENTS
LOCATION UMBERGER HALL, KANSAS STATE UNIVERSITY

Ag educator connects students to science via next-gen problem solving

In 2017, Gaea Hock was inspired by a talk by FFA member Grace Roth, then a high school freshman, at a professional conference. Roth gave an impassioned speech to the audience of mostly adults about involving more young people in water-related work.

Hock, an associate professor in K-State's Department of Communications and Agriculture Education, remembers, "I talked to her afterwards because I wanted to recruit her to K-State, thinking she was a senior," Hock remembers. "Well, she was just a freshman in high school."

But the two did make an instant connection, and within weeks Roth was traveling to Manhattan to work with Hock in designing the Kansas Youth Water Advocates Conference.

“It’s about the growth of students and getting them engaged with water issues,” according to Hock. “We try to get the students to recognize that there are issues with water more than that it is depleting. We are working on getting them to recognize what is going on all around the state.”

The results are inspiring, she says.

“I think often we don’t give youth enough credit,” she explains, “because if you can tap into something they like, get them excited about it, then build them up and support them, they are going to achieve things that maybe they didn’t think they could before.”

“My experience in working with youth is if you can educate them in a way that makes them more aware of something, they’ll go after it. But they need adult mentors to help them along the way.”

“Educators must encourage students to find solutions.”

PHOTO DAN DONNERT
LOCATION COLBY, KANSAS



The fourth Kansas Youth Water Advocates Conference was held in November in Wichita during the Governor’s Conference on the Future of Water in Kansas.

Hock, who earned bachelor’s and master’s degrees from K-State, currently teaches introduction to agricultural education and a teaching methods course for seniors.

In 2017, she formed a partnership with colleagues at North Carolina State University and the University of Idaho to pair research-station scientists with area high school agriculture teachers and their students, who propose a research project and are mentored by the scientists.

“Along with the water work and the youth advocacy, we need to do a better job of preparing scientists,” Hock insists. “Our agriculture teachers are one of the best routes for doing that because they have those kids in class, they are teaching inquiry-based lessons and they have access to resources.”



Firmly *Planted*

PHOTO DAN DONNERT
IN THE PHOTO KAREN SCHNECK
LOCATION THROCKMORTON HALL
GREENHOUSE, KANSAS STATE UNIVERSITY



Experiences and people make all the difference for horticulture student

A life and passion involving plants is what brought Karen Schneck to Kansas State University and the College of Agriculture. Growing up, Schneck was active in 4-H and FFA where she took her love of plants and competed in the state horticulture judging contest at K-State. She went on to earn a bachelor's degree in horticulture from the university before going on to pursue her master's degree.

“Those early experiences in 4-H and FFA allowed me to get the word ‘horticulture’ in my mind,” Schneck says. “That love for plants has always been with me, choosing K-State felt like a natural fit and I’ve met some amazing people along the way.”

Influential role models have been a large part of Schneck's experience and success at K-State. It started with her undergraduate adviser, professor of horticulture and natural resources, Cathie Lavis. Schneck explains that Lavis has had a dramatic impact on her future by always pushing her to be her best and finding ways she could continue classes while taking advantage

Influential role models have been a large part of Schneck's experience and success at K-State.

of valuable internship experiences. Associate professor of horticulture and natural resources Chad Miller and horticulture and natural resources professor Kim Williams, who both now serve as Schneck's graduate advisers, not only encouraged her to apply for a top internship but also helped her decide to accept it.

With Miller's and William's encouragement, Schneck applied for the Vic and Margaret Ball Internship through the American Floral Endowment. This competitive program places students in internships ranging from three to six months outside of their home state. Schneck was awarded a six-month internship that came with a scholarship. Schneck says after being told she had been selected, she was unsure about moving far from her family and taking a semester off from college, which meant she would not be graduating in four years.

"Each of my mentors let me see the immense learning experience this internship would provide," Schneck explains. "They helped me realize that not graduating in four years wasn't a big deal at all, and they guided me in picking a location. And the more we talked about it, the more excited I became."

Schneck accepted an internship with Skagit Gardens, a large commercial greenhouse, in Mount Vernon, Washington. While she was away, Schneck describes how Professor Lavis arranged her classes to ensure Schneck would not lose her other scholarships. All three of Schneck's mentors checked in

on her repeatedly, asking how she was doing and making her still feel connected to K-State.

"Professor Miller was able to visit me during my internship, because he served as my recommending adviser for the program," Schneck says. "Having that visit meant a lot to me and helped me stay inspired for the rest of my internship."

Throughout both her undergraduate and graduate experiences, Schneck says her advisers have encouraged her to try new things in her clubs and internships, and apply for scholarships and honors, and they have connected her with contacts at industry events.

"All of this has culminated into my being firmly situated in horticulture as a career and forming the structure I plan to build the rest of my life," Schneck explains.

"They each are more to me than just academic advisers," Schneck says. "They are people I know I can trust, look up to, aspire to be and share a passion with. These are bonds I have formed that I know I will cherish for the rest of my life." ■■■■■



ALLISON WAKEFIELD is a fourth-year student majoring in Agricultural Communications and Journalism. She is co-editor for the *Agriculturist*, the Communication and Agricultural Education department's award-winning student magazine.



A World in *Balance*

Livestock sustainability conference attracts international visitors

No exaggeration here: When it comes to sustainability of food systems across the globe, livestock producers hold many of the keys to humanity's future.

Kansas State University hosted a week's worth of high-level discussions in September 2019 when the College of Agriculture hosted nearly 300 guests from 33 countries.

Every year, the Global Agenda for Sustainable Livestock (GASL) brings together representatives from the livestock industry, agricultural research, global nonprofits and governments to discuss their visions for the future and work toward sustainability for this critical industry.

As part of the United Nations' Food and Agriculture Organization, GASL annually convenes its conferences in a different country. This year was not only the first time the international meeting took place in the United States but was also the first time it was hosted by a university.

GASL Chair Fritz Schneider credited K-State's global reputation for research, teaching and outreach as a critical component in the choice to bring the meeting to Manhattan.

GASL aligns its work with four overarching and interlocking themes:

- Food and nutrition security.
- Livelihoods and economic growth.
- Animal health and welfare.
- Climate and natural resource use.

STORY/PHOTOS COLLEGE OF AGRICULTURE STAFF
LOCATION [LEFT] K-STATE STUDENT UNION

Each of these four topics was the focus of a series of expert presentations, which were followed by breakout sessions and panel discussions. On the third day of the conference, attendees had their choice of four field tours. Visitors toured biosecurity labs, farm-to-fork operations, veterinary facilities, cattle and bison ranches, a local sale barn, the Konza Prairie Biological Station and the Kansas State Fair.

During the conference, Schneider explained innovation is crucial for a sustainable food system and that a central tenet for GASL is to support and magnify the work of its partners with a multi-stakeholder approach. "We advocate for conversation and change," he said.



LOCATION PLUMLEE BUFFALO RANCH, ALMA, KANSAS

The meaning and application of the word “innovation” proved as varied as the attendees:

Environmental stewardship: Reducing livestock agriculture’s carbon footprint “is something that farmers and ranchers wake up every day and think about,” said John Niemann, the president for Protein Ingredients and International at Cargill North America. “It’s good business for these farmers and ranchers to take care of their animals, and it’s good business to take care of the land.”

Gender equity: Shirley Tarawali of the International Livestock Research Institute, in Kenya, recounted two trips to Nigeria when she and her colleagues saw firsthand the economic impact of livestock production for the nation’s women. “We were not allowed to meet with them privately [on the first visit],” she said. “Two years later, those women were raising animals, growing feed for animals, and they



IN THE PHOTO GARETH SALMON, SEBI, UNIVERSITY OF EDINBURGH, SCOTLAND AND MOHAMMED ABUBAKAR, NIGERIA
LOCATION KANSAS STATE FAIR, HUTCHINSON, KANSAS

could meet with any visitors that we would bring along.”

Animal Welfare: Jim Mulhern, president and chief executive officer of the National Milk Producers Federation, described the 10-year history and impact of Farmers Assuring Responsible Management (FARM). The grassroots initiative provides a framework for on-farm animal care, fosters continuous improvement, and focuses on science-based outcomes. “We are raising the bar and industry has responded.”

Trade: Marcelo Gonzalez, vice minister of livestock for Paraguay, said transparency and consumer education are important. “Some car companies have said they won’t use leather because they don’t want to support an industry that’s not sustainable. They don’t realize they’re hurting farmers who are trying to produce in more sustainable ways.”

Jean-Phillipe Dop, World Organization for Animal Health, said different perspectives do not mean disagreement. It’s important to reach consensus. “Sustainability is a journey rather than a destination,” he said. ■■■■

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ABOUT K-STATE’S
INVOLVEMENT IN
THE CONFERENCE
kstate.ag/GASL2019



The Start of a New Era

New building expands opportunities for grain science

Jon Faubion vividly remembers the fire that took down the Waters II building where Shellenberger Hall now stands. Sitting on his father's shoulders that night in 1958, he watched as the building became engulfed in flames. Waters II was home to the Grain Science and Management Department, and for years, flour seeped into the walls and floors creating conditions that caused them to ignite almost instantly and burn with fury. Nothing could be done to save the building.

“We really haven’t had a fully functioning building for several years, and yet we’ve stayed at the head of the pack in grain science education and research.”



PHOTO RENDERING FOR GLOBAL CENTER FOR GRAIN AND FOOD INNOVATION, PGAV ARCHITECTS

Shellenberger Hall opened two years later, replacing Waters II and providing new classrooms and labs for the milling, feed and bakery science and management programs. Faubion, who retired in August as the college’s Charles Singleton Professor of Bakery Science, says Shellenberger was essential in making what is now called the Department of Grain Science and Industry the global powerhouse it is today.

Shellenberger made it possible for the department to enroll more students, offer new degrees, and increase research in milling, feed, and bakery science and management. Today, K-State’s College of Agriculture is the only institution in the nation to offer four-year, bachelor-degree programs in these three majors. The demand for people with this type of expertise has led to a nearly 100% hiring rate for graduates from these programs.

According to Gordon Smith, the grain science department head, “The need is so

great we could easily place another 50%, possibly another 100%, of our graduates each year.”

Research conducted within the walls of Shellenberger also helped revolutionize the industry to make grain-related products healthier, safer, easier to use, last longer and taste better. The work has had a tremendous impact on the economy of the state.

Together, Kansas’ corn, wheat and sorghum industries have a direct output of \$4.2 billion a year and employ more than 9,000 people. Indirectly, the production of these three crops in Kansas supports 31,000 jobs and provides a total economic contribution of \$7.62 billion.

Sixty years after Shellenberger opened its doors, it has become clear that the building is no longer able to meet basic needs of the department.

“Today, only 40% of the building can be used,” says Smith. “The flour and feed mills have been decommissioned. They are structurally unsafe and have no heating or air conditioning in a space that can reach 125 degrees.”

Smith also explains that the roof and pipes leak, and the building has only half the restrooms needed. When it was built, there were no female faculty or students, so there is only one women’s restroom and there is no room to add more.

Smith says the cost to renovate the building would be exorbitant, and the change would not allow for increasing the square footage needed for growing enrollment. For now,

the department has moved the milling and feed teaching labs to a north campus building dedicated to research labs.

“This is not a long-term solution,” explains Dean Ernie Minton. “It will soon become a real challenge to grow the way we need to grow and provide an integrated approach to learning with teaching and research going hand in hand. The department requires its own building planned specifically for its needs.”

Kansas City-based PGAV Architects has been retained to design what will become home to the Department of Grain Science and Industry. Minton has challenged PGAV to plan an academic building offering classrooms, labs and mills equipped with the latest technology and room to grow. To Minton, it is essential that the building offers an environment that encourages collaboration between students, faculty, leaders of industry and government agencies to discover new opportunities and solve real-world problems.

Minton believes this new building will generate a renaissance period of growth and advancement just as it did when Shellenberger opened.

“We really haven’t had a fully functioning building for grain science for several years and yet we’ve stayed at the head of the pack in grain science education and research,” says Minton. “I can only imagine what our faculty and students will accomplish with all the new building will offer.” ■■■■■

Education Programs

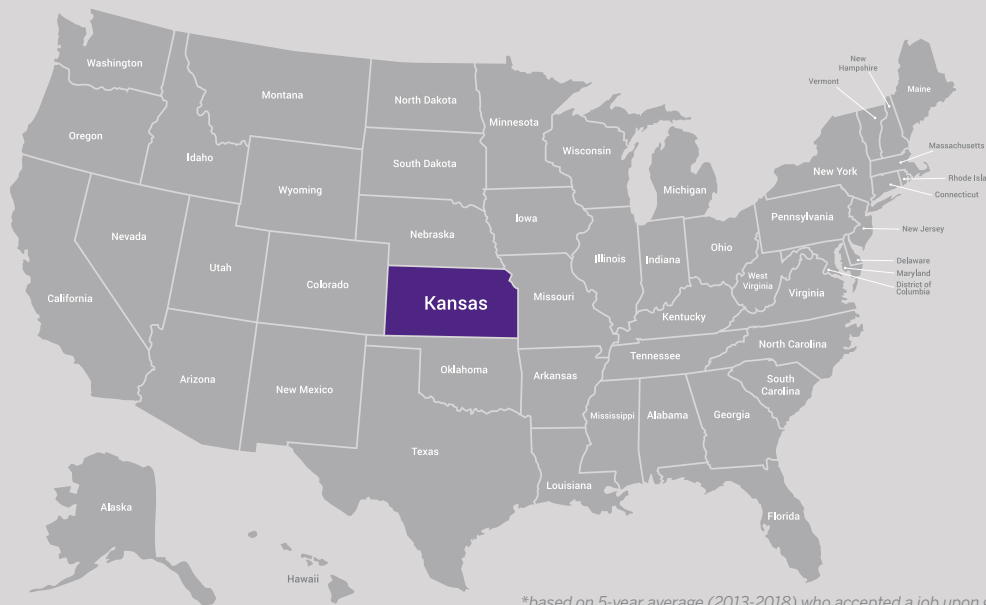
Our commitment to expanding possibilities

for students has never been stronger. The college continues to be ranked among the highest in the country, particularly for the quality of our faculty. The skills and reputation of our new graduates have led to a nearly 100% hire rate for those seeking employment.

Over the past decade, the college has seen significant gains in enrollment with a 28% increase for undergraduates and 18% for graduates. Since 2016, though, we've experienced what most colleges around the nation are also experiencing – a drop in enrollment. There are several reasons for the decline, but we don't want cost to be one of them. We have increased student scholarships and grants by nearly 60% in just four years. In 2019, the college awarded \$2.3 million in aid thanks to gifts made by generous alumni, friends and industry leaders.

70% of new graduates work in Kansas

the remainder work throughout the 49 other states



57%

Increase in scholarships and grant awards (2014-2018)



49%

Increase in the College of Agriculture endowment (2011-2019)

Quality



No. 6 among nation's top 101 agriculture programs
niche.com



97% Hire Rate

New grads employed or pursuing further education



87% Freshman Retention

Freshmen advance to become sophomores



\$45,000 Starting median salary

Enrollment



28%

Increase in number of undergraduates this decade



18%

Increase in number of graduate students this decade



14%

Decrease in undergraduates since 2016

Diversity



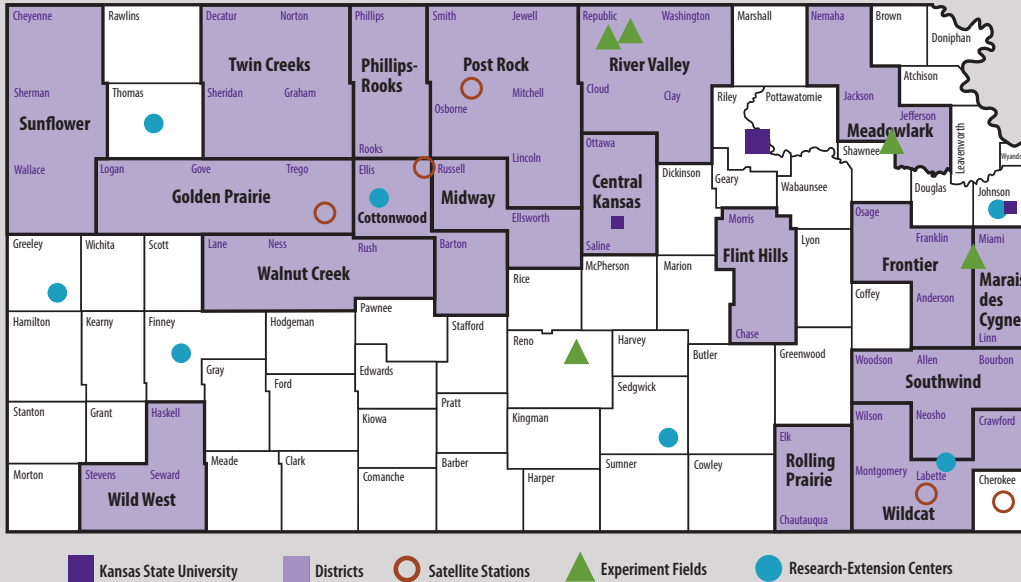
64%

Increase in multicultural students receiving degrees since 2015

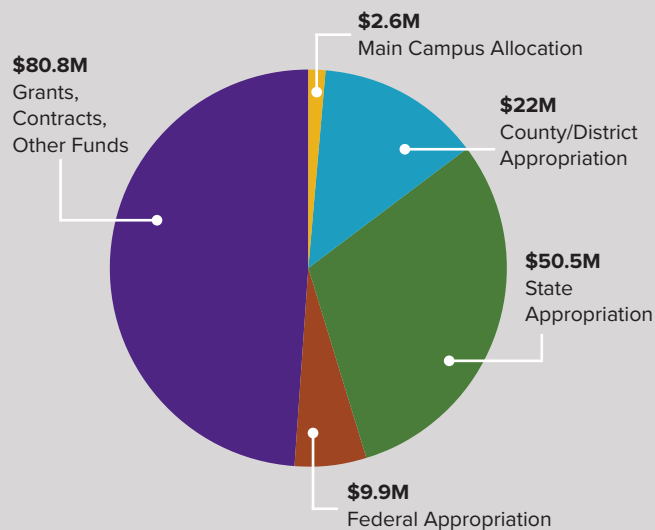
Research and Extension

A Presence in all 105 Counties

K-State Research and Extension agents live and work in every county to help Kansas residents. Agriculture research facilities are located throughout the state to accommodate the different needs of the communities we serve.



Funding Sources



\$166M

Total research and extension funding

Awards



\$56M research dollars awarded



30% Increase from 2018



37% of total University research award dollars

Supporting our grand challenges

Kansas citizens helped identify the major challenges we face



1M Total agent/specialist contacts made

Contacts made by challenge

- Tomorrow's Leaders: 290,000
- Global Food Systems: 238,000
- Health: 232,000
- Community Vitality: 159,000
- Water: 87,000

249,000

Volunteer educational contacts

310,000

Volunteer hours invested

11,700

People received nutritional education

80,200

Youth participated in 4-H

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