

In this Edition



- Reappointment & Promotions
- **5** Our Faculty
- Feeding Success
- 名 L.E. Casida Award
- **9** Rancher's Thursday Lunchtime Series
- **10** The Search for the "Super Cow"
- 12 OQBN VAC-45 Sale
- **13** Facility News
- 14 In the Media
- **16** Meet our New Staff
- 18 Awards & Recognition
- **21** AFS Scholarship Banquet Student Awards
- **32** Sponsors of the Department

On the Cover:

Rachel Scott is on the cover of this edition. She was selected as the 2020 Outstanding Senior. Read more on page 22. Photo was taken by Todd Johnson.

COWPOKE NEWS

Welcome to the Summer 2020 Edition of Cowpoke News! We hope you enjoy reading about the Oklahoma State University Department of Animal and Food Sciences.

Cowpoke News is published three times a year. We strive to keep students, alumni, and friends of the department informed about our activities and successes. Cowpoke News is distributed through both e-mail and mail and is available 24/7 at afs. okstate.edu/cowpoke-news. To subscribe, e-mail us at cowpokenews@okstate.edu or mail in your request. Please give us your full name and either your e-mail or mailing address.

Contact Us

Editor, Rebekah Alford Department of Animal and Food Sciences 204a Animal Science Building Stillwater, Oklahoma 74078 405.744.8846 cowpokenews@okstate.edu www.afs.okstate.edu

Stay Connected

Want to receive more information and updates about our department? Follow us on social media!

@okstateafs

Oklahoma State University, as an equal opportunity employer, complies with all applicable federal and state laws regarding non-discrimination and affirmative action. Oklahoma State University is committed to a policy of equal opportunity for all individuals and does not discriminate based on race, religion, age, sex, color, national origin, marital status, sexual orientation, gender identity/expression, disability, or veteran status with regard to employment, educational programs and activities, and/or admissions. For more information, visit https://eeo.okstate.edu.

This publication is printed and issued by Oklahoma State University as authorized by the Vice President of the Division of Agricultural Sciences & Natural Resources and has been prepared and distributed at a cost of \$868.33 for 250 copies.

The information given herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Cooperative Extension Service is implied.

Reappointments & Promotions

Scott Carter

Reappointment to the Animal Science Graduates of Distinction Professorship

Steven Cooper

Reappointment to the Cline Family Equine Science Professorship

Darren Hagen

Reappointment as assistant professor

Kristina Hiney

Promotion to associate professor (action grants tenure)

Mark Johnson

Promotion from associate professor to professor

David Lalman

Reappointment to the Howard and Adene Harrington Chair in Animal Science

Ryan Reuter

Appointment to the George Chiga Animal Science Professorship

Blake Wilson

Appointment as Hitch Family Professorship Fellow

New Website

Have you seen our new website? It's at the same web address but with a whole new look!

Check it out to find information about our faculty, facilities, undergraduate and graduate programs, teaching, research, Extension and more!

afs.okstate.edu

Our Faculty

Clint Rusk

Department Head

Paul Beck

Beef Cattle Nutrition, Research and Extension

Scott Carter

Swine Nutrition, Waste Management, Research and

Teaching and Graduate Coordinator

Steven Cooper

Equine, Judging Coach and Teaching and Scholarship Coordinator

Justin Crosswhite

Clinical Instructor

Mellissa Crosswhite

Clinical Instructor

Udaya DeSilva

Molecular Genetics, Research and Teaching

Jerry Fitch

Sheep, Teaching, Extension and Teaching Coordinator

Andrew Foote

Ruminant Nutrition, Research and Teaching

Rusty Gosz

4-H Youth Livestock and Extension

Darren Hagen

Animal Genomics, Research and Teaching

Parker Henley

Livestock Judging Coach, Teaching and Extension

Kris Hiney

Equine, Teaching and Extension

Ravi Jadeja

Food Safety, Extension and Teaching

Divya Jaroni

Meat Safety, Research and Teaching

Mark Johnson

Animal Breeding, Teaching and Extension

Dave Lalman

Beef Cattle Nutrition, Research and Extension

Gretchen Mafi

Meats, Judging Coach, Teaching and Research

Peter Muriana

Food Microbiology, Teaching, Research and Extension

Adel Pezeshki

Monogastric Nutrition, Teaching and Research

Ranjith Ramanathan

Meat Science, Teaching, Research and Research Coordinator

Ryan Reuter

Range Beef Cattle Nutrition, Teaching and Research

Janeen Salak-Johnson

Animal Behavior and Well-Being, Research and Teaching

Leon Spicer

Reproductive Physiology, Research and Teaching

Dan Stein

Livestock Production, Teaching and Extension

Blake Wilson

Beef Cattle Nutrition, Teaching and Research

Glenn Zhang

Animal Molecular Biology, Research and Teaching

Feeding Success

Food science students honored with Gilliland Memorial Fellowship

The Oklahoma State University Robert M. Kerr Food and Agricultural Products Center honored two graduate students with the Stanley E. Gilliland Memorial Fellowship in Food Science, providing \$1,000 toward each recipient's education efforts.

Caitlin Karolenko and Conner McDaniel, food science Ph.D. students, were notified as recipients of the prestigious award during a Zoom session in April and were publicly recognized during a live video premiere on OStateTV and FAPC's Facebook page June 24, which was Gilliland's birthday.

William McGlynn, FAPC horticultural products processing specialist and food science graduate program coordinator, said there is no doubt Gilliland would be both delighted and proud to see his legacy being honored and carried on in the form of these two fellowship recipients.

"Those of us who were lucky enough to know Stan Gilliland remember him as a man who believed in the value and power of scientific inquiry," McGlynn said. "He was instrumental in helping to establish and grow the food science program here at Oklahoma State University, and he instilled and demanded intellectual rigor and excellence from those with whom he worked."

Gilliland was a 1962 graduate of OSU. He joined the OSU Department of Animal Science in 1976 and served as the interim director of FAPC, a part of OSU's Division of Agricultural Sciences and Natural Resources, during the construction of the center. During his 34-year career, he impacted the lives of hundreds of OSU students and served as an adviser to 65 master's and doctoral students and served on numerous candidate committees.

To continue to make an impact, Gilliland's family supported the creation of the Stanley E. Gilliland Memorial Fellowship in Food Science to provide scholarships for students in food science.

"Dr. Gilliland was an accomplished and well-respected food

microbiologist, as well as a leader at FAPC, so as a future food microbiologist, it is an honor to be awarded this fellowship in his name," Karolenko said.

Karolenko, a native of Forest Hill, Maryland, plans to graduate with her doctorate in spring 2022 with a specialization in food microbiology. Her research focuses on biltong, a South African beef jerky that is manufactured with low heat and low humidity. Karolenko is validating and investigating different manufacturing processes to achieve a five-log reduction of salmonella as recommended by the U.S. Department of Agriculture to attain a microbial safe product for consumers.

Following graduation, Karolenko plans to pursue a career in industry, specifically food safety.

Peter Muriana, FAPC food microbiologist and Karolenko's advisor, said Karolenko is one of the best students he has ever had.

"From the first day, she had the go get'em attitude, which is just



infectious," Muriana said. "The other students look up to her, and she commandeers and recruits them to do tasks, like the chemical inventory, which is not an enjoyable task to do in the lab. Why is she also deserving? Well, she has a 4.0 GPA; that kind of helps. It's those types of things that makes her deserving of this award."

McDaniel, a native of Ardmore, Oklahoma, will graduate with her doctorate degree in 2021 with a specialization in food safety. Her research focuses on working with different types of antimicrobials to reduce pathogens from fresh produce.

"I feel so honored to be selected for this fellowship; it's a great accomplishment, and I'm very proud of it," McDaniel said. "It feels great knowing a group of people here at FAPC chose me for the scholarship."

McDaniel currently is keeping her options open following graduation and plans to either pursue a career in the food industry or become a professor at an academic institution.

Ravi Jadeja, FAPC food safety specialist and McDaniel's advisor, said McDaniel is a critical part of his research and Extension group and takes on the responsibility of working independently with the local food industry by providing food safety assistance.

"Conner is one of the most hardworking students I have ever had the opportunity to work with, and I can't think of anyone who is more deserving of this prestigious award than Conner," he said. "I have no doubt Conner has a very bright future."

The OSU Graduate Food Science Program is a multi-faceted discipline focused on providing safe, nutritious, high-quality foods to the people of the world. Food science combines elements of business, biochemistry, chemistry, economics, engineering, microbiology and physiology within its scope. The interdisciplinary OSU food science graduate program gives students the opportunity to earn both M.S. and Ph.D. degrees in food science.

Photo Provided Photo by Mandy Gross

STORY BY MANDY GROSS

L.E. Casida Award

Oklahoma State's Bob Wettemann recipient of 2020 national honor

Oklahoma State University Regents professor emeritus Robert P. Wettemann has been named the 2020 recipient of the American Society of Animal Science L.E. Casida Award.

The national honor recognizes excellence in the education of graduate and postdoctoral students to conduct research in reproductive physiology and endocrinology. Award selection criteria included evidence by peer-reviewed publication – with students as senior authors – of basic or applied research.

Wettemann was an outstanding mentor and research leader in the OSU Department of Animal and Food Sciences for more than 40 years, with many of his students going on to achieve great success in academia and industry, said Clint Rusk, department head.

"One of Dr. Wettemann's greatest contributions – and there have been many – to the livestock industry has been mentoring graduate students," Rusk said. "His hallmark was to foster a team approach to education and research, often drawing upon the

knowledge and skills of nutritionists, physiologists, geneticists, statisticians and clinicians."

Wettemann joined the OSU animal science faculty in 1972 and quickly established himself as a premier researcher and educator. He served as major adviser for 27 master's and 20 doctoral degree students in his 40-plus years at OSU, as well as four postdoctoral associates. Twenty-three of his proteges served or continue to serve on university faculties. Three have served as department heads, one as a dean of agriculture and director of research and Extension, another as an associate dean of Extension and one as director of a research center.

The success of Wettemann's graduate program received national and international recognition during his tenure at OSU. His graduate students were natives of 18 states as well as Greece, Mexico, Spain, Uruguay and Venezuela.

An American Society of Animal Science Fellow, the highest honor awarded by ASAS, Wettemann coauthored more than 650 scientific publications. He served as president of both ASAS and the American Registry of Professional Animal Scientists, among the rarest of feats in animal agriculture industry and education. The latter organization provides certification of animal scientists through examination, continuing education and commitment to a code of ethics.

"Dr. Wettemann is and always has been an advocate of science, its role in education and its wise use and application to benefit people," said Don Wagner, OSU animal science department head from 1990-2008, who remains a lifelong friend of Wettemann.

"Bob is renowned for his extensive work with beef cattle, but he was also instrumental in scientific advances with swine management, particularly with heat stress," Wagner said. "If there was a need and it had to do with animal physiology, Bob would enthusiastically take on the challenge."

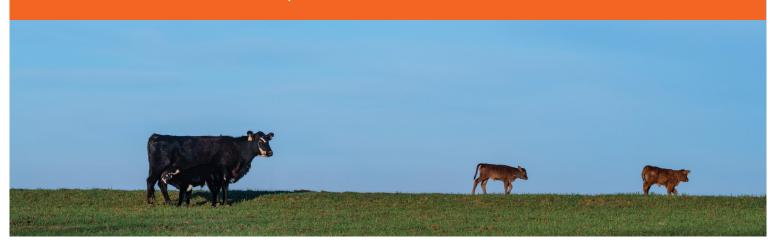
Dairy cattle is another livestock area in which Wettemann was always available to lend a hand. His expansive research expertise never surprised his fellow faculty, Wagner said, knowing Wettemann had earned his bachelor's degree in dairy science from the University of Connecticut (1966) before subsequently earning his master's (1968) and doctoral (1972) degrees in animal reproductive physiology at Michigan State University.

In 2018, Wettemann was named an OSU Totusek Arena Hall of Fame Chairback Honoree by the university's Animal Science Alumni Association. Wettemann has been accurately described as an Oklahoman by choice, animal scientist by passion, professor by calling and leader by nature.



STORY BY DONALD STOTTS

OKLAHOMA STATE UNIVERSITY | DIVISION OF AGRICULTURAL SCIENCES AND NATURAL RESOURCES





RANCHER'S THURSDAY LUNCHTIME SERIES

Cattle Health

Join our Beef Cattle Extension team, experienced ranchers and scientists to learn and share beef cattle production, management and marketing tips.

- ► Thursday, September 17, 2020 | 12:30 1:30 p.m. Vaccines: MLV vs. Killed, and Protocol Development - Dr. John Gilliam, OSU College of Veterinary Medicine
- ► Thursday, September 24, 2020 | 12:30 1:30 p.m. Parasite Control
 - Dr. John Gilliam, OSU College of Veterinary Medicine
- Thursday, October 1, 2020 | 12:30 1:30 p.m.
 Bovine Lameness: We Will Not Be De-feet-ed
 Dr. Meredith Jones, OSU College of Veterinary Medicine
- ► Thursday, October 8, 2020 | 12:30 1:30 p.m. Effective Veterinary-Client-Patient Relationships - Dr. Rosslyn Biggs, OSU College of Veterinary Medicine

LIVE WEBINARS

Register Online: https://dasnr.zoom.us/webinar/register/ WN_hQ10Fb6bRA240hUZC1AV_w

CONTACTS

- Rosslyn Biggs Beef Cattle Extension Specialist rosslyn.biggs@okstate.edu 405-744-8587
- ► Barry Whitworth
 Area Food and Animal Quality
 Health Specialist
 barry.whitworth@okstate.edu
 580-332-7011





What makes a cow efficient?

Dave Lalman, OSU Extension beef cattle specialist, has been researching the efficiency of cattle for several years. The goal of the research is to find ways to improve cow/calf enterprise profitability by reducing input costs, but without sacrificing fertility or weaning weights.

In a previous study, his research team measured hay intake in a group of 40 Angus cows. Intake was measured during both lactation and gestation so the average annual forage intake could be estimated.

"Researchers studying individual feed intake of growing cattle consuming a growing or finishing diet have reported a wide range in average daily feed intake within groups of cattle," Lalman said. "We find the same with cows consuming moderate to low quality hay."

The study measured the cow weight, milk yield, body condition and forage intake of each of the 40 cows. A tremendous variability was found between each cow's average daily forage intake and milk yield.

"We are trying to find ways to economically and rapidly identify those cows that are able to consume a relatively low amount of forage daily relative to their productivity and still be

able to maintain their body condition," Lalman said. "Those cows are out there."

Early on in these research studies, forage intake was measured either on a pen basis or by individually feeding cows penned separately. While these approaches have their advantages, they also have significant disadvantages.

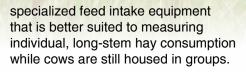
Using pen-based data doesn't provide any information about individual animals, which is an important factor when determining cow efficiency. Putting cows in separate pens does allow for

collecting individual data, but the labor requirement is enormous. There is also uncertainty over whether the data is very close to the 'real-world' because the group or herd dynamics have been removed.

"We didn't have a good way to determine relative forage or feed intake in grazing animals and/or animals housed in groups," Lalman said.

Due to alumni and industry support, the department was able to expand the research capacity at the OSU Range Cow Research Center. Part of the expansion included new





SmartFeed units were purchased and installed in specialized pens designed and constructed for the purpose of studying cow forage intake. Lalman then worked with the OSU Biosystems and Ag Engineering Laboratory to help design and construct hay baskets for the feeders.

Research faculty, staff and students have conducted multiple experiments using the new equipment.

"Now that we finally have our new system up and running, it seems to be working well with accurate forage intake measurements and relatively little hay waste," Lalman said. This new equipment opens the door for many kinds of research projects. Being able to monitor a cow's individual feed intake can help researchers better determine her efficiency.

"Our system is very unique in that we are not ranking groups of cows for feed intake based on a high-quality, highly processed, high-moisture, concentrate-based diet. We are measuring individual consumption of long-stem, dry hay...which is where most cows make their living."

With good record keeping and a long enough timeline, a rancher can improve their herd efficiency, Lalman said. Using accurate records is an important tool in determining a cow's efficiency. For more information about record keeping software, visit:

extension.okstate.edu/fact-sheets/ cow-calf-production-record-software. html.

How can I determine if a cow is efficient?

To determine in a cow is efficient, ask yourself if the cow can:

- Wean a healthy calf every 365 days (and preferably for 12 consecutive years)
- Problem free docile, healthy, requires little to no extracurricular handling or medical treatment
- Low cost requires little supplemental feed in your grazing and management system while maintaining her body condition
- Efficient (or aggressive) grazers

 travel and forage where the grass, forbs and brush haven't been grazed or browsed
- Get too fat in the good years and thrive in the tough years
- Produce steer calves with the capacity to gain on grass, convert in the five's, gain four lb per day, never need treated for sickness and produce a large, high quality carcass



STORY BY REBEKAH ALFORD

OKLAHOMA QUALITY BEEF NETWORK



45-DAY

60-DAY

LOCATION	SALE DATE	WEAN DATE	WEAN DATE
OKC West (El Reno)	Weekly Oct. 13, 2020 to Feb. 2, 2021	Weekly Aug. 29, 2020 to Dec. 20, 2020	Weekly Aug. 14, 2020 to Dec. 5, 2020
Cherokee Sales Co.	Nov. 4, 2020	Sept. 20, 2020	Sept. 5, 2020
McAlester Stockyards	Nov. 10, 2020 Nov. 17, 2020	Sept. 26, 2020 Oct. 3, 2020	Sept. 11, 2020 Sept. 18, 2020
Payne County Stockyards	Nov. 18, 2020	Oct. 4, 2020	Sept. 19, 2020
Woodward Livestock	Nov. 19, 2020	Oct. 5, 2020	Sept. 20, 2020
Southern Plains Livestock	Nov. 21, 2020	Oct. 7, 2020	Sept. 22, 2020





FOR MORE INFORMATION OR TO SIGN UP

Jeff Robe • 405-744-4268 • jerobe@okstate.edu

Facility News

Willard Sparks Beef Research Center

The OSU Willard Sparks Beef Research Center is excited to be adding a new hay barn in the upcoming months. It will give the facility the opportunity to expand their commodities and use different feedstuffs in some of the various rations.

The center is the finest beef research and educational facility in the country, and it is a great benefit in fostering our research, teaching and Extension programs to better serve the beef industry.



Robotic Milking & Visitor Center

The OSU Ferguson Family Dairy Center will soon be opening up its new robotic milking and visitor center, where guests will be able to watch the cows being milked.

A virtual grand opening will be held on October 22, 2020, from 3:30p.m. to 5 p.m. A "save the date" with more information will be shared on our departmental social media accounts.



Animal Nutrition & Physiology Center

The new OSU Animal Nutrition and Physiology Center will be completed later this year. The state-of-the-art facility will be dedicated to conducting animal studies, including climate variability, production efficiency and sustainability and general animal well-being.

Our department's poultry research will also move to the facility once completed.



Horse Sale Breaks Records

Each year, a group of OSU horses are sold at the A- Ranch Sale. Students receive hands-on experience at the OSU Cline Equine Center by helping train and market the horses. OSU Rockin Style (pictured left) was our high seller at \$12,500. He is the highest selling horse we have had in the program. Collectively, two geldings and three mares were sold for a total of \$33,400 in sales, which is the highest gross sales we have had with a group at A-.

We would like to extend a thank you to Terry Stuart who donated the breeding to Rockin W, which was OSU Rockin Style's sire.

In the Media

Changing cow sizes impacts profitability

Dave Lalman was quoted in an article published by the *Farm Talk* newspaper. In the article, he discussed how beef producers could take a second look at their operations to improve profitability.

Learn More:

https://www.farmtalknewspaper.com/news/changing-cow-sizes-impacts-profitability/article_1152d684-5d61-11ea-bcd7-a338d66dbd28.html



Extension Horses, Inc. experts act fast to create online resources to assist the horse industry during COVID-19

A group chaired by Kris Hiney had an article published in *Translational Animal Science*. The article discusses the work the group did during the initial COVID-19 response, including creating online resources to assist the horse industry.

Learn More:

https://academic.oup.com/tas/article/4/3/txaa085/5862360



Cowboys come together to support OSU COVID-19 testing lab

Darren Hagen, OSU assistant professor in animal genomics, volunteered to work in the OSU Diagnostic Laboratory. Hagen is mentioned in an article discussing the lab and OSU's COVID-19 related efforts.

Learn More:

https://news.okstate.edu/articles/communications/2020/cowboys_come_together_to_support_osu_covid_19_testing_lab.html



OSU ag collects, donates PPE supplies to health care workers

Divya Jaroni and Peter Muriana, OSU faculty, were mentioned in an article published by *Ponca City News*. Jaroni helped organize the collection and donation of PPE supplies when hospitals and labs were running low at the beginning of the COVID-19 epidemic. Muriana donated a large amount of supplies to the cause.

Learn More:

https://www.poncacitynews.com/lifestyle/osu-ag-collects-donates-ppe-supplies-health-care-workers



Led by Stillwater

New faculty member Parker Henley was mentioned in an article by *The Brand*, a publication by the Oklahoma State University Animal Science Alumni Association. Henley will take over as the OSU Livestock Judging Coach starting in 2021.

Learn More:

https://issuu.com/osu_ansi/docs/the_brand_2020/26



Beefmaster genetics needed for research

Ryan Reuter was mentioned in an article published by the *High Plains Journal* which discusses Reuter's new research project using Beefmaster genetics as a crossbreeding tool.

Learn More:

https://www.hpj.com/livestock/beefmaster-genetics-needed-for-research/article_b0fa4fd6-691a-11ea-9746-9b68767022d2.html



Ditching dental school for pigs

Tre' Smith, animal science undergraduate student, had an article about him published in the *National Hog Farmer* (August 2020). Scott Carter and Jim Coakley, OSU faculty and staff, are also mentioned in the article.

Learn More:

https://www.nationalhogfarmer.com/business/ditchingdental-school-pigs



A prime celebration

Gretchen Mafi, OSU meat specialist, was mentioned in an article in *The Brand*. OSU celebrated 100 years of their extensive meat science program in 2020.

Mafi is a meat science professor in the OSU Department of Animal and Food Sciences.

Learn More:

https://issuu.com/osu_ansi/docs/the_brand_2020/22

Meet our New Staff



Grayson BrineySparks Herd Manager

Grayson Briney is the new herd manager at the Willard Sparks Beef Research Center. His primary responsibilities include reading bunks, making feed calls, operating and running equipment, processing cattle and overseeing student workers.

His passion and career has always been centered around the beef industry. When asked what he loves most about his new position, he said "Getting to be a part of research that will ultimately help producers like my family across the country in raising quality and sustainable beef for generations to come."

Jay Edens
North Range Herd Manager

Jay Edens is the North Range herd manager for the OSU Range Cow Research Center.

Welcome to our team, Jay!



Photo Provided Photo Provided

Corey MyersPurebred Assistant Herd Manager

Corey Myers joined our team at the OSU Purebred Beef Cattle Center. As part of the position, he cares for approximately 200 head of cows daily, calves the cows fall/spring, Als the purebreds and coordinates with with the herd manager to set up recips for embryo transplant.

When asked what he liked most about the department, Corey said, "Coming from the AGLE program, I didn't know many staff or faculty in AFS. In a matter of weeks, I had the chance to connect with almost all the other managers on some sort of level and build a relationship."

Corey grew up in Wooster, Ohio, where his family row crop farmed and raised cattle. In his spare time, he likes to hang out with his two Golden Retriever pups and golf.



Terry RawnDairy Herd Manager

Terry Rawn started at the OSU Ferguson Family Dairy Center as the new herd manager on July 27th, 2020. Terry is originally from Canal Winchester, Ohio. He and his wife, Joy, have three daughters and one grandson.

Terry has spent his entire career in the dairy industry. When asked what people should know about the facility, he said, "You are always welcome to visit, meet the students and pet the baby calves."

Jaxon Self Accountant I

Jaxon Self joined our accounting office in August. He graduated from OSU in 2019 and is excited to be back working at his Alma Mater.

We are excited to have Jaxon as a member of our team and look forward to his ideas on making us more efficient and automated. Welcome, Jaxon!





Caroline Stiger Dairy Tech

Caroline Stiger joined our team at the OSU Ferguson Family Dairy Center as a dairy technician. She is a dairy cattle milker (morning shift) and serves as an agri-tourism guide.

Welcome to our team, Caroline!

Want to join our team?

View available job positions online by visiting hr.okstate.edu/employment-opportunities.

Awards & Recognition



ASAS Distinguished Service Award

David Lalman, animal science professor and Extension beef cattle specialist, was the recipient of the 2020 American Society of Animal Science (ASAS) Distinguished Service Award (Southern Section).

The award recognizes and honors an ASAS member each year for outstanding service to the livestock industry.



Tyler Award Recipient

Kris Hiney was recognized with the Tyler Award by the OSU Department of Animal and Food Sciences. This award is presented to one faculty member in the department each year.



American Registry of Professional Animal Scientists

Paul Beck was elected to serve as president-elect of the American Registry of Professional Animal Scientists. This is a three-year appointment.

Beck was also recognized as a 2020 Advanced Graduate of Distinction award recipient by the University of Arkansas Department of Animal Science.



2020 OYE Show Honoree

Rusty Gosz, OSU Extension youth livestock specialist, was one of two people selected as honorees for the 2020 Oklahoma Youth Expo. Gosz organizes and hosts multiple youth events every year. He attends the OYE each year and helps with the OSU at OYE Day.



AMSA Student Teaching Award

Morgan Denzer received the 2020 American Meat Science Association (AMSA) Student Teaching "Cleaver" Award for the master's division. Morgan was honored during the Virtual 66th International Congress of Meat Science and Technology (ICoMST) and the AMSA 73rd Reciprocal Meat Conference (RMC) awards presentation.

Morgan is now pursuing her Ph.D. in food science and is advised by Ranjith Ramanathan.



Emerging Leader in Nutrition Science

Mohammad Habibi was selected as an Emerging Leader in Nutrition Science Finalist by the American Society for Nutrition. The 2020 Award winners were honored at Nutrition 2020 Live Online.

Mohammad is pursuing a Ph.D. in animal science with a focus on nutrition. He is advised by Adel Pezeshki.



NACTA Educator Award

Adel Pezeshki received the North American Colleges and Teachers of Agriculture (NACTA) Educator Award at the 2020 Virtual NACTA Conference held this summer.

This award is presented each year to faculty who represent the very best in agricultural higher education. Pezeshki teaches Principles of Animal Nutrition, Nutritional Physiology and Metabolism, Macronutrient Nutrition and Voluntary Intake and Basic Nutrition for Pets.



Microbiome Team Leader

Janeen Johnson was selected to be a team leader for one of four groups studying microbiomes and considering their effects. Her group will be focusing on the nutrition aspect of the microbiome.

This interdisciplinary research will involve around 70 collaborators (and counting) across multiple OSU departments.

Learn More:

https://news.okstate.edu/magazines/state-magazine/articles/2020/fall/oklahoma_state_microbiome_research_could_offer_clues_against_covid19_and_other_diseases.html



3rd Place for Presentation

Frank Kiyimba won third place in the Ph.D. division of the research presentation at the joint International Congress of Meat Science and Technology and the AMSA Reciprocal Meat Conference.

The title of his presentation was "Global Changes in Ribosomal Protein Expression Regulates MitoChondrial Protein Mass and Function in Dark-Cutting Beef."



2nd Place for Presentation

Madelyn Scott won second place in the undergraduate division of the research presentation at the joint International Congress of Meat Science and Technology and the AMSA Reciprocal Meat Conference.

The title of her presentation was "Effects of Light on Non-Enzymatic Metmyoglobin Reduction In-Vitro."



3rd Place for Presentation

Mandy Lawson won third place in the undergraduate division of the research presentation at the joint International Congress of Meat Science and Technology and the AMSA Reciprocal Meat Conference.

The title of her presentation was "Novel Probe-Type Oxygen Sensor to Measure Oxygen Consumption in Beef Steaks.

Lawson was also awarded the Clark and Dorothy King Endowed Scholarship for the 2020-2021 academic year by the OSU Ferguson College of Agriculture.

Animal & Food Sciences Scholarship Banquet

The Animal Science Weekend is held annually each spring and provides an opportunity for alumni to meet with old friends, as well as current faculty and students, and to see the new developments happening at OSU.

Animal Science Weekend as we know it today is a combination of several events: the Animal and Food Sciences Scholarship Banquet, ASAA Gala Reunion and the Cowboy Classic. This tradition is full of fun activities, recognition of accomplishments and old friends.

In 2020, many of the events were canceled due to COVID-19. The Cowboy Classic Sale and ASAA Scholarship auction both moved to an online format. The Animal and Food Sciences Scholarship Banquet was canceled, but the students were still awarded and recognized online. The following awards will be presented at the 2021 scholarship banquet: Graduate of Distinction, Advanced Graduate of Distinction, Master Breeder, and Distinguished Service.

The following pages recognize the students awarded at the 2020 scholarship banquet.



DEPARTMENT OF ANIMAL AND FOOD SCIENCES

Rachel Scott Outstanding Senior

Rachel Scott was born May 29th, 1998, and is the daughter of Amy and Steve Scott of Georgetown, Texas. Her involvement in agriculture started later than most, as she was not born into a family with agricultural ties. She found her interest in the horse industry at the age of eleven when she began judging and showing horses through her local 4-H club. Rachel eventually became president of both her 4-H club and her school's FFA chapter and won an individual world judging title with her 4-H team. These experiences encouraged her to pursue an agricultural degree. She decided to attend Oklahoma State University to earn a bachelor's degree in animal science.

While in the undergraduate animal science program, Rachel performed research through the honors college degree program. She has researched the relationship between equine follicular diameter and ovulation time in order to optimize cooled semen shipping. Her thesis was published in the spring of 2020.

Throughout her time as an undergraduate, Rachel has explored different careers within the animal science industry. She was a feed sales intern for Purina, Land O' Lakes in Waxahachie, Texas, and a OSU Charles and Linda Cline Equine intern.

While at OSU, Rachel was a member of the Leaders of Excellence in Animal and Food Science, Pre-Vet Club, Alpha Zeta Honor Fraternity and numerous community service projects. She was chosen to be a member of the Class VI McKnight Leaders Scholarship Program where she studied leadership methods and applied them to her life. Additionally, being a member of the McKnight

Program allowed her to study abroad in Greece and Italy.

Rachel served as president of the Block and Bridle Club during her senior year and has served as a teaching assistant for multiple courses at OSU, including Animal Breeding, Animal Reproduction, Horse Science and Equine Training Methods. In 2019, she received the Clark and Dorthy King Endowed Scholarship at the 2019 Ferguson College of Agriculture Scholarship Banquet.

Justin Crosswhite, animal and food sciences instructor, served as advisor for some of the student organizations Rachel participated in.



"I believe that the unique thing about Rachel is her ability to always rise to the occasion," Crosswhite said. "Rachel is constantly involved within the OSU Department of Animal and Food Sciences and yet as she has taken on more responsibilities, whether that be a club officer, leadership team member or most recently judging team coach, the quality of her effort never decreases."

Rachel was a member of the 2018 OSU Horse Judging Team. She was named an Academic All-American and was sixth high individual at the APHA World and AQHA Congress competitions and overall high individual at the American Quarter Horse Association World Show. Her team earned the title of AQHA World Champion, AQHA Congress Champion and APHA World Reserve Champion. The OSU Horse Judging Team was one of three OSU judging teams to earn a national championship in 2018, which led to OSU receiving a rare "Triple Crown" honor.

Rachel went on to serve as a coach for the OSU Horse Judging Team. In addition to horse judging, Rachel competed for OSU as a member of the 2019 Animal Science Regional Quadrathlon Team, which placed 2nd overall.

"Rachel Scott is a true competitor in everything she does," Crosswhite said. "This attitude not only drives her to do the best she can, but for all of her peers to reach for the same success."

Rachel was named the 2020 Outstanding Senior by the OSU Department of Animal and Food Sciences. The department selects only one senior each year who has embodied excellence during their undergraduate academic career. In addition, Rachel was also chosen as an OSU Senior of Significance, Ferguson College of Agriculture Senior of Distinction and an OSU Outstanding Senior.

Following graduation, Rachel decided to pursue her master's degree at OSU. She is working on a M.S. degree in animal science with a focus in equine nutrition under the direction of Steven Cooper. She plans to then pursue a doctorate in equine science and to one day become a professor.

"While at OSU, I noticed the potential collegiate faculty and staff have to impact the foundation of their student's professional and personal futures," Rachel said. "I hope to eventually be in the position to expand the knowledge and capability of my students while also encouraging an unyielding desire for continued improvement and learning in the agriculture field."







Carly Olufs

Award of Merit

Carly Olufs was born September 30, 1998, to John and Paula Olufs in Petaluma, California. Growing up on a small farm, Carly had an instant love for the agricultural industry. Her passion first started at seven years old when she started showing market lambs in 4-H and continued when she decided to start building her own dairy herd at the age of ten years old.

Starting from one grade Holstein heifer calf, Carly developed a national award winning herd of over 30 registered Jerseys and Holsteins. Carly continued to pursue her passion for the California agriculture industry by becoming heavily involved in her 4-H club, FFA chapter and multiple dairy cattle breed associations. It was Carly's passion for the dairy industry that led her to pursue a degree in animal science with an emphasis in business, as well as a minor in agricultural economics and agribusiness, at Oklahoma State University.

During her undergrad career, Carly was heavily involved in the OSU

Ferguson College of Agriculture and the animal and food sciences department. For the past three years, Carly served as an ambassador for the Ferguson College of Agriculture where she was able to share her passion for the college with perspective students from all over the nation. She was also an AG 1011 Student Academic Mentor during her sophomore year.

Carly was a four year member of the OSU Dairy Science Club and served in the position of president, is a founding member and past president of Sigma Alpha professional sorority and was a three year member of the OSU Dairy Judging Team. She culminated her dairy judging career at World Dairy Expo in 2018 with a fifth place team finish for OSU, the best finish to date for an OSU Dairy Judging Team.

In addition, Carly worked at the Ferguson Family Dairy Center milking and caring for the university's herd of Jersey and Holstein dairy cattle. She volunteered her time each year to assist with the Oklahoma State FFA Career Development Event Dairy

Cattle Judging Contest held at the dairy center.

Throughout her time at OSU, Carly pursued her career in the dairy industry by interning in a field that she passionate about. Carly served as the All West/Select Sires 2018 Summer Intern where she increased her exposure to the California dairy industry and was able to work with dairymen to improve the genetics of their herds. This past summer she continued her relationship with Select Sires when she held the role as dairy sire marketing intern for Select Sires in Plain City, Ohio. During this opportunity with the corporate headquarters, she was able to travel the country to work with various dairy producers and appreciate the offspring from the bulls she worked to market during the summer.

After graduation, Carly returned to Petaluma, California, where she began her career with All West/Select Sires as a dairy program specialist and work with the dairymen that helped ignite her passion for the dairy industry.



Lilly Hildebrand

Award of Merit

Lilly Hildebrand is the youngest child of Chris Hildebrand and Jacky Eshelby. She grew up in Templeton, California, raising black face ewes alongside her grandparents, Bob and Joanne Cummings, as well as Angus and Simmental-Angus cattle with her dad. Additionally, Lilly dedicated most of her childhood to exhibiting market lambs and steers with her two siblings, Nolan and Kayla. Having a family of agriculture instructors, Lilly's involvement in agriculture started at a young age in 4-H.

While a member of Templeton FFA, her passion for production agriculture grew and motivated her to pursue a degree related to the agriculture industry. She decided to obtain a degree in animal science with a minor in agribusiness.

Lilly was a student employee at the OSU Sheep and Goat Center. While working at the barn, she spent time assisting in the day-to-day operations, helped with ongoing research studies and participated in running the Oklahoma Youth Exposition, as well as the Tulsa State Fair sheep classifications and livestock judging contest.

Lilly has explored different careers within the agriculture industry. She began with an internship at the San Diego County Fair specializing in creating educational pieces about agriculture to help teach surrounding areas of urban California about livestock and meat production. She was a livestock intern for the Oklahoma Youth Exposition in 2018 and 2019, which gave her the opportunity to help in running the livestock and entries department of "The Greatest Show on Earth." Most recently, Lilly was a marketing intern for the American Meat Science Association where she helped design social media pieces, wrote press releases and put on their annual Reciprocal Meats Conference.

While at OSU, Lilly was a member of the Freshman in Transition Program, National Leadership Society, American Angus Association, California Angus Association and the Food Science Club. Furthermore, she was chosen to be a member of the Oklahoma Agriculture Leadership Encounter Class XVII where she traveled to various regions in Oklahoma learning about regional agriculture, assisted with the Oklahoma Youth Expo, visited Washington D.C. and traveled to Costa Rica and the Panama Canal.

Lilly was a member of the 2018
National Champion Intercollegiate
Meat Judging Team. She was
honored to be a part of history when
OSU became the second agriculture
institution to win the "triple crown"
of judging. She was named an AllAmerican and was in the top-ten
individuals at many meat judging
contests. Lilly was also honored
with the Lowell Walters Outstanding
Meat Judging award. She continued
her involvement with meat judging
by assisting with the 4-H and FFA
contests and helping the 2019 and

2020 OSU Meat Judging Teams. Lilly was also a member of the 2019 Meat Animal Evaluation team.

As an undergraduate, she was actively dedicated to her schooling and volunteer work. Lilly has been on the President's and Dean's List multiple times. She also enjoys helping her FFA chapter back home with their fair animals and spending time volunteering at her church and local hospital.

Lilly plans to obtain her master's degree in nursing, followed by further schooling and training with an end goal of becoming a neonatal nurse practitioner.

Being a part of the cowboy family has opened many doors for Lilly, and she cannot wait to use all of the professional and personal skills she has gained to further her education in a new field of study. Lilly looks forward to the day she is able to educate the families she will touch within the NICU about agriculture and the industry she loves.





Alex Adams

Senior Leadership Award

Alex Adams was born November 4th, 1998 and is the only daughter of Amy Adams. She grew up on their farm in Princeton, Texas, where she was raised around an assortment of animals. Over the years, this included llamas, horses, donkeys, cattle, and even some incredibly evil geese. During high school, Alex became involved in FFA, finding a passion for the livestock industry and showing pigs. Her advisor and Oklahoma State University alumnus, Tim Johnson, convinced her to leave Texas in pursuit of a degree at OSU. Alex decided to obtain her bachelor's in animal science, with a business concentration, and an agricultural economics and agribusiness minor.

Alex was hired at the OSU Swine Research and Education Unit, expanding her knowledge of the swine industry. Herd manager, Jim Coakley, coined her "the best pig puller in Payne County." Alex represented Oklahoma State at the National Barrow Show in Austin, Minnesota. This real life "dirty job" taught her more than she could ever learn in

a classroom, and despite its lack of glamour, she is appreciative of the experience she gained in her two years there.

In January of 2019, Alex had the opportunity to take a job with the OSU vet school's Equine Research Park. There, she was able to assist with different research projects, such as exercise physiology in retired racehorses. While this is a completely different world in comparison to her time at the swine unit, the ERP has offered a new facet of animal science that Alex is appreciative to have experienced.

Alex has been a member of the agricultural sorority, Sigma Alpha, serving as the fellowship chair and a member of the officer nominating committee. She has been a member and student council representative for Swine Club and was the swine chairman for Block and Bridle's showmanship clinic. Alex has been privileged to be a Student Academic Mentor. Most recently, she was a member of the 2019-2020 Animal Science Quadrathlon Team.

One of Alex's most meaningful experiences in her undergraduate career was her opportunity to study abroad in Europe last summer. Through this experience, she was able to be immersed in central European culture and learn more about the agricultural industry in the Czech Republic.

Alex credits her success during her undergraduate career to the support of the entire Animal & Food Sciences family who have encouraged her to a career in agriculture, specifically her former advisor and now guardian angel, Tim Johnson. Alex also attributes her accomplishments to the strong foundation that her mother established within her from the time she was little. She believes that her mom is the embodiment of strength, courage, and independence, and is proud to be her daughter.

Upon graduation in May, Alex will continue her education here at Oklahoma State University. She is excited to pursue a master's degree in International Agriculture, with the goal of working in development and human rights for the United Nations.



Andrew Coakley

Senior Leadership Award

Andrew Coakley was born March 31st, 1998, in Stillwater, Oklahoma to Jim and Korrie Coakley. He is the eldest of four children. Andrew grew up in the southwest Oklahoma town of Hobart where his mother was a language arts teacher and his father was the AG teacher. He has been involved in animal agriculture from birth raising mainly show pigs with his siblings at Coakley Showpigs. He was extremely active in the local 4-H and FFA, which led him to pursue a preveterinary undergraduate degree at Oklahoma State University.

Andrew continued his passion for swine production while at Oklahoma State being employed at the Oklahoma State Swine Research and Education Center. This experience allowed him to see several different outlooks and facets of the swine industry, as well as grow his swine production skills. In February of 2018, his dad, Jim, accepted the position of swine farm manager and the rest of Coakley family joined Andrew in Stillwater.

While at Oklahoma State, Andrew was active in the Swine Club and Block and Bridle. He was a career liaison for the Ferguson College of Agriculture, helping fellow students with their career development. Andrew was also selected for the Congressman Frank Lucas Agriculture Policy Internship and spent the summer of 2018 in Washington, D.C. in the Congressman's office learning about the agriculture policy of Oklahoma and the United States.

Andrew is very grateful to all of the faculty and staff in the OSU Department of Animal and Food Sciences for all of the hard work and dedication they put in to teaching, research and Extension. He is very excited to one day get the opportunity to give back to them and the department that has done so much and opened so many doors for him.

Andrew plans to continue his education at Oklahoma State as a member of the College of Veterinary Medicine Class of 2024. He looks

forward to obtaining his DVM and using it to serve the people and animals of rural Oklahoma as a mixed practitioner.



Kaela Cooper

Senior Leadership Award

Kaela Cooper was born on October 7, 1997. She is the eldest daughter of Gary and Melissa Cooper of Atascadero, California. She grew up on the Central Coast of California raising and showing livestock with her younger brother, Garret. Kaela and her family operate a small club calf and Boer goat herd, marketing to local 4-H and FFA youth. Her interest in agriculture started at a young age when she started showing rabbits at the age of five in her local 4-H club. Kaela expanded her youth show experience to a state and national level. She showed cattle locally and meat goats at the local, state, and national level. She became very involved in FFA in high school, serving as her chapter's president, as well as a state and national delegate representing California FFA.

After high school Kaela accepted a position as a resident agriculture intern at Modesto Junior College in Modesto, California. Kaela enjoyed her time in junior college working as the student manager at the beef unit, helping to plan FFA Field Days and jackpots.

She also served as the Young Farmers Club reporter and president. Kaela was named Outstanding Agriculture Freshman in the spring of 2017. After earning two associate degrees in animal science and agriculture science, Kaela transferred to Oklahoma State University in the fall of 2018 to pursue a degree in animal science with an option in livestock merchandising.

During her two years in the OSU Department of Animal and Food Sciences, she quickly found ways to get involved. During her first semester she was an undergraduate teacher's assistant for Dan Stein in his Introduction to Animal Science course. Kaela also took a meat judging course and learned quite a bit. In Kaela's senior year, she was a member of the Leaders of Excellence in Animal and Food Science, as well as the reporter for the Block and Bridle Club. Kaela attended the Agriculture Future of America Leadership Conference in Kansas City, Missouri both her junior and senior years. In addition to that, she attended the AFA Animal Science institute and the AFA Food Science

Institute. Kaela is also a member of the Honors Society of Leadership and Success.

Throughout her time at OSU, Kaela has explored different careers within the animal science industry. Last summer, Kaela was an operations intern for Cargill in Fresno, California working at the culled cow plant. She has also interned for the Oklahoma Youth Expo the last two years working in The Marketplace retail shop and helping with the show when needed. Kaela recently interned with Elanco Animal Health working as a sales intern in the small animal division.

Becoming a part of the Cowboy Family has been one of the greatest decisions Kaela has made. It has opened up so many doors for her. She is forever grateful that she was able to attend such an outstanding agriculture school. Kaela looks forward to being able to use the skills she has developed at OSU in her future career.

Upon graduation in December, Kaela plans to have a career in sales either in the animal feed industry or in the animal health industry.



Grayson Cottrell

Senior Leadership Award

Grayson Cottrell was born on January 5, 1998, and is the daughter of Ty and Marda Cottrell. She grew up in the rural town of Fairbury, Illinois, and found her passion for agriculture through her involvement in the equine industry.

She rode horses and barrel raced throughout her childhood and was involved in 4-H and FFA. She went on to be a member a member of five state champion FFA judging teams, including a reserve champion national dairy judging team. Through this accomplishment she was invited to spend two weeks abroad in Europe studying livestock and dairy method management in Scotland, England, Belgium and Luxembourg.

Her FFA involvement allowed her to discover horse judging. She competed as a member of the Illinois State Horse Judging Team as a junior and senior in high school and was a member of the reserve champion team at the AQHA Youth World and the champion team at the Quarter Horse Congress.

She furthered this success by committing to be a member of the

horse judging team at Black Hawk College East Campus in Galva, Illinois. At Black Hawk she was a member of the high team at the APHA World show and reserve champion team at the Quarter Horse Congress and AQHA World Show. She was also an assistant coach and traveled with the younger team to contests as a sophomore.

In addition to judging, she was the vice president of Student Senate, secretary of Agriculture Ambassadors, and member of Phi Theta Kappa Honors Society. She was selected as the Todd Demay Outstanding Agriculture Transfer Freshman, a Founders Scholar, the Outstanding Sophomore Horse Judge, and the Outstanding Future Alumni.

Grayson chose to attend Oklahoma State University to continue horse judging and pursue a degree in animal science. During her undergraduate experience she was a member of the Leaders of Excellence in Animal and Food Sciences and the co-chairman of the Block and Bridle Bonanza Cattle Show. She was also a member of the 2018 Triple Crown horse judging team. The team was also named Champion at the Quarter Horse Congress and the AQHA World Show. Grayson was the reserve high individual at the Congress.

Off campus, Grayson has enjoyed many opportunities afforded to her by the skills developed within the OSU Department of Animal and Food Sciences. She worked as an intern for RFDTV covering The American rodeo, writing press releases and coordinating social media marketing. She also has held several jobs in the equine industry on and off campus. She was also the volunteer coach of the Payne County 4H Horse Judging Team.

Grayson plans to work in customer relations and equine management at a guest ranch in Paradise Valley, Montana. She looks forward to using all of the skills developed at OSU to advocate for the agriculture industry and give back to the university in the future.



Erin Leach

Senior Leadership Award

Erin Leach was born June 12th, 1999, and is the middle daughter of Rob and Lisa Leach of Linwood. Kansas. She was raised on her family's small dairy in Northeast Kansas where they milked 40 head of Holsteins and Jerseys. She grew up showing cows and heifers at the local. state, and national levels alongside her sisters Taylor and Sophie. Her involvement on her family's farm and with her local 4-H club at a young age instilled in her a passion for the dairy industry and motivated her to pursue a career in agriculture. She decided to attain a degree in animal science with an emphasis in business from Oklahoma State University.

She was a member of the OSU Dairy Judging team and received several honors in the Fall 2019 season. She was named an All-American at the World Dairy Expo Collegiate Dairy Contest and placed fourth in reasons. She also placed fifth in reasons at the North American International Livestock Exposition where the team finished second overall. Her experience working with the judging team helped her to

grow more confident in her speaking abilities and allowed networking with new people.

Erin was involved with the OSU
Dairy Science Club where she
enjoyed being able to talk to students
and community members about the
dairy industry. She served as an
undergraduate teaching assistant for
both the Animal Breeding and Animal
Reproduction courses. She is also
heavily involved with the American
Jersey Cattle Association, being a
member of the Jersey Youth Academy
Class V and having received several
Jersey Youth Achievement Awards.

Most of her free time has been spent working at the Ferguson Family Dairy Center. She greatly enjoyed being able to continue working with cattle while away from home and being able to help students learn about the dairy industry. She recently took on the role of calf manager, where she oversees care and management of the university's youngstock.

After graduation, Erin took an internship position with Select Sires, Inc. as the dairy sire marketing intern.

Erin will continue being involved with her family's farm as they rebuild from the devastation of an F-4 tornado. She plans to follow her passion of working in the dairy industry and obtain a career working with dairy cattle genetics.



Amber Wright

Senior Leadership Award

Amber Wright was born July 31st, 1996, and is the eldest daughter of Jodie and Marla Wright of Lindsay, Oklahoma. Being the granddaughter of a former agricultural education instructor, agriculture has been an enormous part of her life. She grew up around livestock beginning with purebred Limousin cattle, then eventually raised bucking bulls that have been showcased on the PBR and IFR circuits. At the age of nine, Amber began showing pigs through 4-H, which eventually led her family to starting their own show pig operation. Her passion for the junior livestock industry and her involvement in FFA first led her to Connors State College, and then Oklahoma State University to double major in animal science and agricultural education with a minor in food science.

Prior to transferring to OSU, Amber received her an associates degree from Connors State College where she competed on the livestock judging team. Her team highlights include Champion Team Griswold Classic 2017, 2nd High Team Dixie National 2017 and 3rd High Team North

American International Livestock Exposition 2016. Throughout her time at Connors State, Amber was the Aggie Club vice-president. She also helped coordinate statewide FFA CDE contests and youth livestock judging camps during the summer.

When Amber arrived at OSU, she became very involved on campus, This included being a member of the Block and Bridle Club, Swine Club, Collegiate FFA and the Meat Science Association, for which she served as the president. Furthermore, Amber was a member of the 2018 National Champion Livestock Judging Team, 2018 Reserve National Champion Meat Animal Evaluation Team, and the 2019 Meat Judging Team. Between class and practice schedules, Amber was a student employee at the Robert M. Kerr Food and Agricultural Products Center where her passion for the meat industry sparked.

Amber will be continuing her education at Tarleton State University. Her passion for the meat industry led her to pursue a master's degree in meat science. Her goal is to come

back to Oklahoma and become an agricultural education instructor.

Thank You!

To the following sponsors of the OSU Department of Animal and Food Sciences













































