College of Agricultural Sciences and Natural Resources at Oklahoma State University

Cowboy Journal

Volume 20 Number 1 • Winter/Spring 2018

Swine Success
OSU Swine Center captures NBS title

CJ Celebration
Students publish 20th magazine volume

Measuring Soil Moisture
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ON THE COVER

The OSU Swine Center won with its first-ever truckload entry at the 2017 National Barrow Show. Photo by Justin Leonard.

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Above left photo by Wyatt Shaw. Top right photo courtesy of Animal Planet. Bottom right photo by Keely Brown Ross.

EXOTIC INVADERS CORRECTION

In the Summer/Fall 2017 issue of Cowboy Journal, the staff incorrectly reported scientists in the Division of Agricultural Sciences and Natural Resources and the U.S. Department of Agriculture created a sorghum checkoff. Rather, the United Sorghum Checkoff Program was created by Congress in 1996, and the checkoff is managed by the National Sorghum Producers. We sincerely apologize for providing this misinformation.

The United Sorghum Checkoff Program helped fund sugarcane aphid research performed by DASNR and USDA scientists. Checkoff funds helped enable trials for insecticide evaluations, field screening of tolerant hybrids to sugarcane aphids and development of an integrated pest management system for control of sugarcane aphids, said Ali Zarrabi, OSU entomology and plant pathology assistant research professional.

LETTER FROM THE EDITORS

Dear Reader,
Thank you for celebrating double decades of Cowboy Journal with us! We are humbled by the opportunity to contribute to this publication's 20th volume, and we hope it will continue to thrive for many years to come.

To the outstanding Cowboy Journal staff: Thank you for the exceptional effort you devoted to this issue. We are proud of the upbeat, team-first attitude this group displayed, and we have enjoyed working with you this semester.

To Todd Johnson, Melissa Mourer, Holly Blakey, Kelsey Conley, Ruth Inman, Kristin Knight, Beki Jackson, Courtney Arnall, Nelda Driggs, Melissa West, Nathaniel Torres, Pam Bay, David Thompson, Anna Tran and Jane Fuhlendorf: Thank you for your assistance with this issue of Cowboy Journal. We greatly appreciate your time and effort.

Ashton Lierle, thank you for your unwavering support and encouragement. This publication would not be possible without your expertise.

When we think of our agricultural communications family, song lyrics from the musical "Wicked" come to mind: "Because I knew you, I have been changed for good." Shelly Peper Sitton, Dwayne Cartmell, Angel Riggs, Quisto Settle and Samantha Blackwell — thank you for believing in our abilities and inspiring us to become storytellers. We are privileged to learn from the positive examples you set, and we will forever cherish the memories we made as your students.

Abigail Arthaud, Taylor Leach
and Alexis Shanes

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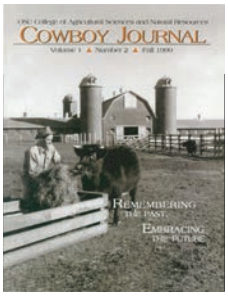
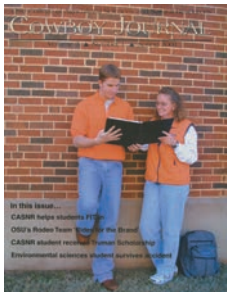
Photos (clockwise from top left) by Morgan Vance, Braden Schovanec and Cole Claxton.





TWO DECADES

During the fall of 1998, 15 senior agricultural communications students at Oklahoma State University made history. This team of seniors produced the first-ever OSU agricultural communications senior capstone project: the Cowboy Journal magazine.

The students and faculty working on the project had no idea they were creating a new tradition.

With the issue you hold in your hands, the OSU College of Agricultural Sciences and Natural Resources agricultural communications students celebrate the creation of the 20th volume of the Cowboy Journal.

Back in 1998, the first step in creating the Cowboy Journal was developing a new agricultural communications course.

"Getting the course approved was not a big deal," said Shelly Sitton, agricultural communications professor and managing editor of the Cowboy Journal. "After getting the course approved, the real challenge started."

At that time, the agricultural communications students took multiple courses from the former OSU School of Journalism and Broadcasting to meet their graduation course requirements.

"I had been working at OSU for about six years when we recognized the growth in the agricultural communications program and wanted to develop curriculum that would leave our OSU agricultural communications mark on our students before they graduated," Sitton said.

Sitton said she wanted to incorporate a hands-on capstone project for agricultural communications students to create.

The original idea for the magazine came from Texas Tech University, Sitton said. TTU students produce a publication called the Agriculturist.

Sitton asked Jacque Lockaby Haygood, a TTU faculty member, to help develop the syllabus for the course. Sitton then worked with a printer who would publish the magazine and brought in personnel to train students to sell sponsorships. These sponsorships would pay printing and mailing costs.

Sitton said the hardest part of starting the publication was raising money to cover the costs.

"It was extremely difficult to find sponsors with no product," Sitton said. "We were trying to sell something when we had nothing to show."

The first Cowboy Journal class named the publication, created the design, and structured the flag — the portion of the magazine's cover that contains the publication's name, volume information and date.

Since the course began in 1998, few changes have occurred in the elements of the magazine. From a design standpoint, the flag on the magazine has been updated twice: once in 2008 and again in 2012.

& COUNTING

OSU AGCM celebrates 20th volume of Cowboy Journal

The first full-color issue was Volume 6 No. 1. Until then, the publication was mostly black and white, Sitton said.

The size of the Cowboy Journal staff also has increased.

"We have grown from the smallest staff of 10 students to a staff size of 31 last year," Sitton said.

As a result, the publication's length has more than doubled since its inception.

"The first issue had 36 pages," Sitton said. "We are now up to more than 80 pages each issue."

Despite the changes to the Cowboy Journal, one thing remains the same.

"The excitement when you get the first box of magazines never changes," Sitton said. "When you pull out the final publication and the physical copy is in your hands, it is as exciting as it was the first time."

Creating a publication is a common agricultural communications program objective nationwide. However, the student-produced Cowboy Journal is the only magazine resulting from a capstone course, which is required for all OSU agricultural communications seniors, Sitton said.

"The Cowboy Journal has set the standard for projects of this nature across the country," said Rob Terry, head of the OSU Department of Agricultural Education, Communications and Leadership. "It has helped our program become one of the nation's top programs."

The Cowboy Journal earns multiple awards from the National Agricultural Communicators of Tomorrow Critique and Contest each year, Terry said.

The magazine has won the NACT Critique and Contest best magazine award nine times in the last 19 years.

In addition, the publication has earned hundreds of other state and national awards based on individual elements students have created for the publication, including advertisements, page layouts, stories and photos.

The Cowboy Journal also has impacted the success of the OSU agricultural communications program.

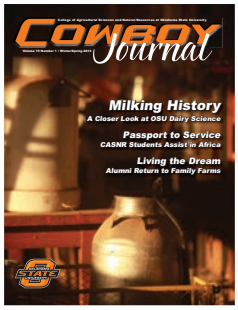
"I would put this program against any other in the country, and the Cowboy Journal is a part of that status," Terry said.

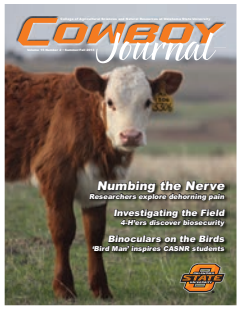
Terry gives a copy of the Cowboy Journal to every prospective student who visits the department.

"This publication shows what our agricultural communications students can do," Terry said. "It also showcases the philosophy of all majors in our department and CASNR: hands-on, minds-on learning."

Terry said the Cowboy Journal's years of success are because of the quality work and dedication of the agricultural communications faculty, staff and students.

"The publication is a reflection of the work all faculty and students put in to the program," Terry said. "It takes a lot





of work and talent to create this product. If the Journal was not of high quality, it would not have lasted 20 years."

The dedication and talent within the magazine continues to impress readers nationally, Sitton said.

"This publication goes to show how strong our department is," said Naomi Lemon, Cowboy Journal Vol. 19 No. 1 co-editor. "People are constantly amazed when I show them my copy and tell them the publication is made by students."

Lemon said she obtained her current job because of her experience with the publication and because she is an OSU agricultural communications alumna.

> The Cowboy Journal has set the standard for projects of this nature across the country.
>
> *Rob Terry*
> *OSU agricultural education, communications and leadership department head*

"This college has a lot of faith in its students to present them with this type of opportunity," Lemon said. "OSU is known for this project, and employers know what is expected from us and what we are capable of because of the Cowboy Journal.

"This publication reaches thousands of people each semester," Lemon said. "That puts a lot of pressure on students when creating the publication, but after seeing the final product and hearing how much people enjoy reading the Cowboy Journal, all of the work becomes worth it."

Although the creation of the Cowboy Journal can be stressful and tiring at times, the reward when viewers get to read each new magazine is worth the work students and faculty put into the publication, Sitton said.

"The Cowboy Journal has been such a big part of my life for the past 20 years," Sitton said. "When I think about the hundreds of lives I have had the chance to be a part of — students, sponsors and sources — I realize my world is a different place because of this project, and I would not change it for anything." CJ

Kallie Lampe

Cheney, Kansas

Editor Insights

Attention to detail, problem solving, working with others and time management are a few of the skills I took away from my Cowboy Journal experience.

— Morgan (Hannabass) Chapman, Vol. 17 No. 1

Without Cowboy Journal, I may have never gone down the career path I'm on.

— Samantha (Stanbery) Athey, Vol. 16 No. 1

The end of the Cowboy Journal class marks a completion of a journey and instills a sense of pride in creating something CASNR alumni will read on a national scale.

— Ashtin Bechtold, Vol. 18 No. 1

I enjoyed collaborating with our staff and am grateful many of us continue to stay in touch long after our time in the classroom.

— Avery Kinzie, Vol. 14 No. 1

Cowboy Journal was one of the most challenging and rewarding experiences of my college career.

— Kristin Alsup, Vol. 13 No. 2

I owe everything I have accomplished as a young professional to my colleagues I worked alongside throughout Cowboy Journal.

— Whitney Turek, Vol. 19 No. 2

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A raised flag pole constructed at Tulakogee Conference Center ensures the traditional flag raising and lowering at Oklahoma FFA Alumni Leadership Camp will continue as a priority for generations to come.

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LUCKY NUMBER Trécé

ENTO alumnus makes impact with chemical company

Oklahoma State University alumnus Bill Lingren describes his success as mere "dumb luck."

But, luck alone does not transform a one-room schoolhouse student into the founder of a globally recognized integrated pest management company, Trécé Inc.

While luck may have been a factor in his success, Bill Lingren paired it with drive, passion and grit along the way.

Lingren's first five years of education occurred in rural northeast Oklahoma. After transferring to Adair Public Schools, Lingren said he struggled to catch up with classmates, much less surpass them.

"I had one general science course throughout high school," Lingren said. "No chemistry, no lab, no biology, nothing hands-on. Hearing the words 'You're pretty good at this stuff' from that one science teacher is about the only thing I remember, but it was just enough encouragement needed to tell myself to continue seeking a science-based education."

In 1966, Lingren graduated from Northeastern Oklahoma A&M College with an associate's degree in zoology. He said his older brother, Pete Lingren, convinced him to finish his education as an Oklahoma State University Cowboy.

"I give credit to my high school FFA instructor, Jim Boston, for introducing me to Stillwater through FFA contests," Lingren said. "Ultimately, my brother Pete was the deciding factor. He knew I was business-minded and told me the entomology department is where I would find the most success."

Lingren said he had multiple job offers while finishing his bachelor's degree in 1969, but he started his career with Hercules Inc., an international agrochemical manufacturer in Fresno, California.

Next, he worked for Imperial Chemical Industries, where he served with a team of four men who launched the first DDT replacement in the U.S. in 1977.

Lingren stayed in the agrochemical industry for 10 years before joining Zoecon in 1979 as the pheromone product manager. Pheromones are chemical substances usually produced by an animal that stimulate behavioral responses.

At the same time, Lingren started taking business classes in the Master of Business Administration program at Golden Gate University in San Francisco to advance his career, he said.

Lingren said he continued to "climb the ladders" of the Zoecon company, witnessing multiple changes and a merger with a Swiss company, Sandoz. But when the company decided to place him as the manager of all specialty products, he wanted Sandoz/Zoecon to focus on the pheromones project.

"I told them to either invest or divest in the pheromones," Lingren said. "We were sitting in an executive meeting, and the chairman of Sandoz/Zoecon decides right then he is going to sell the pheromone business unit."

Lingren said he wasted no time making his next move.

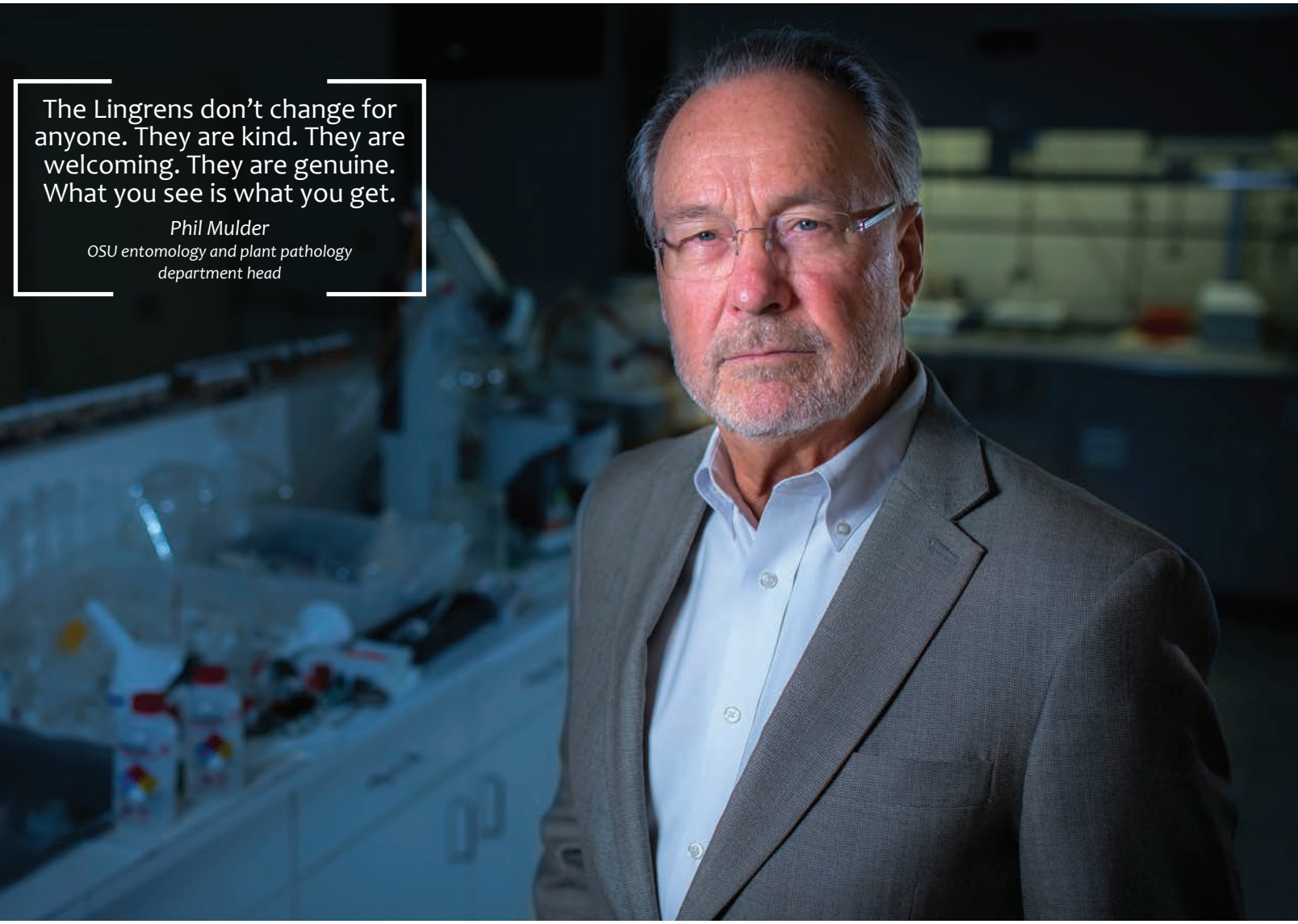
"I took a piece of paper from my pocket and wrote 'If you decide to sell, give me a chance to make this work' and slid it under the table to the chairman," Lingren said. "I got a note back that said 'Let's talk.'"

Lingren's business launch was about being at the right place at the right time, said Donna Lingren, Bill Lingren's wife and co-owner and marketing manager of Trécé Inc.

"Because he continued to better himself by going back to school, Bill got the rights to trademarks and a completely established company for a deal no one in their right mind would pass up," she said.

Bill and Donna Lingren said not to wait to take advantage of opportunities.

"When a lucky opportunity knocks on



> The Lingrens don't change for anyone. They are kind. They are welcoming. They are genuine. What you see is what you get.
>
> *Phil Mulder*
> *OSU entomology and plant pathology department head*

DASNR recognized Bill Lingren as a Distinguished CASNR Alumnus in fall 2017. Photo by Todd Johnson.

your door," he said, "take a deep breath and then do something about it. Right at that moment."

Upon purchasing the Sandoz/Zoecon pheromone business unit, Bill Lingren said he immediately renamed it Trécé Inc.

"Because of the luck that came along with purchasing — and because 13 had always been my lucky number — we renamed the company Trécé," Lingren said. "It is Spanish for 13 and represents the profit column on an Excel sheet."

Lingren said he got lucky again when Trécé Inc. caught the back end of a wave of IPM innovation.

"I am not sure how much I truly had to do with the booming success of Trécé," Lingren said. "I have to pinch myself sometimes just to remind myself it is real."

Trécé only looks for "growth with intention" in the future, Lingren said.

Phil Mulder, OSU entomology and plant pathology department head, said Lingren does not brag on himself enough.

"Trécé does continue to contribute to the boll weevil pheromone private market," Mulder said. "They have subsequently developed many other significant firsts in other valuable areas."

Trécé's additional ventures include development and marketing of pheromone and kairomone products to help fight various pests, including codling moths, oriental fruit moths and Japanese beetles.

"I could tell stories all day long, but it is incredible to think what his company has saved growers, accumulators and storage facilities worldwide, not only through costs and yields but also how he has saved the environment from unnecessary pesticide applications," Mulder said.

"Think about all of the pesticides that did not have to be applied thanks to Bill Lingren," he added.

Mulder said he is eager to work with the Lingrens in the future.

"It has been an honest pleasure working with the Lingrens for all these years," he said. "It doesn't matter who you are, expect a warm hug from Donna and a sincere, welcoming handshake from Bill.

"The Lingrens don't change for anyone," Mulder said. "They are kind. They are welcoming. They are genuine. What you see is what you get." CJ

Morgan Vance
Pawnee, Oklahoma

COWBOY TAKEDOWNS

Three OSU wrestlers choose to be CASNR Cowboys

Joe Smith (left), Preston Weigel and Kaid Brock share a common passion for wrestling and agriculture. Photo by Morgan Vance.

Having garnered 34 national titles — more championships than any other Division I sport team in the country — Oklahoma State University wrestling is often recognized as an elite program.

This year, a trio of NCAA All-American wrestlers are students in the College of Agricultural Sciences and Natural Resources: Preston Weigel, Kaid Brock and Joe Smith.

Choosing OSU

Weigel of Russell, Kansas, was raised on a cattle ranch by his parents, Tammy and Joe Weigel. His father is a first-generation Angus cattle producer.

"Being raised on a big cattle ranch taught me how to work hard at a young age," Weigel said. "The long days spent working cattle and calving with my dad also taught me how to eventually operate my own cattle ranch."

Growing up with his agricultural background, it only made sense for Weigel to pursue a degree in agribusiness, he said.

Weigel began his wrestling journey at age 5. He traveled throughout the Midwest to compete in major tournaments. At age 10, Weigel earned the Trinity Award after winning Tulsa Nationals, Reno Worlds and Kickoff Classic in one year.

In high school, Weigel was a three-time state champion wrestler and received scholarship offers to wrestle or play football as a college athlete. He chose a wrestling career at the school that inspired his wrestling goals, he said.

"I grew up watching OSU wrestling, and OSU has one of the best wrestling programs in the country," Weigel said. "I know I made the right decision to come and wrestle at OSU."

Weigel is a redshirt junior and has two seasons of eligibility remaining for his collegiate wrestling career. He placed sixth in the nation last season, making him an NCAA All-American.

"Preston has been a great developer for us," said OSU head wrestling coach, John Smith. "I really like the background he grew up in."

John Smith said Weigel is driven and mature. Weigel displays his power on the mat and uses his strength and power to be a great wrestler, he added.

"To be an All-American as a sophomore is a good step and tells you he has a great work ethic and he is focused on his goals," John Smith said. "He has been a real joy to watch develop."

Competitive Edge

A native of Stillwater, Oklahoma, Brock was raised by his parents, Kim and Pam Brock. Although his father is an OSU animal science alumnus, former OSU swine herdsman and current OSU farm operations coordinator, the younger Brock chose to pursue a degree in agribusiness.

"I figured it is a good job field to be in," Brock said. "I can do a lot with that degree, and it is also specialized."

Brock said he remembers running around his family's hog farm as a child and stirring up trouble.

"I was really ornery," Brock said. "I never got caught, though. I was sneaky."

Having a reputation of being mischievous, Brock said his father tried to get him involved in as many sports as possible at a young age. He began wrestling at age 4, was a six-time children's state champion, and placed at many national tournaments throughout high school.

Brock said his mischievous nature gives him his competitive edge, and his teammates agree.

"He is ornerier now than he was as a kid," Weigel said.

Brock said he has been friends with fellow OSU wrestler Joe Smith since he was 6 years old. He said being surrounded by the Smith family played a major influence in his life and in pursing wrestling. He said he began his OSU wrestling career ready to work.

"Coming in, I knew I was going to have to really earn my spot on the team," Brock said. "I treated myself as the underdog, and as a true freshman, I was going to prove myself."

In Brock's first year at OSU, he was 13-0 in the open tournaments before he got the call to get his redshirt pulled against the University of Oklahoma, when it counted most.

"I got my redshirt pulled against the returning national champion and pinned him," Brock said. "That was a pivotal moment and brought me a lot of confidence."

Brock said he felt he made his mark as a redshirt freshman, but he still has three more eligible seasons with the OSU wrestling program.

John Smith said he has a longtime relationship with Brock.

"I treat him a lot differently," John Smith said. "I'm close to him, and he knows me a little bit better."

John Smith said he does not show favoritism. He said, if anything, he is harder on Brock because of their relationship and wants to see him accomplish all of his wrestling goals.

Family Tradition

Joe Smith is a university studies junior in CASNR and a son of OSU head wrestling coach, John Smith.

The younger Smith began wrestling at age 5 and was home-schooled during his elementary school years by his mother, Toni Smith. He said he was involved in 4-H, showed animals, and worked on his family farm in his free time.

Smith's Gold Wheat Variety

In May 2017, the Oklahoma State University Division of Agricultural Sciences and Natural Resources announced a new wheat variety, Smith's Gold, named in honor of OSU Wrestling Coach John Smith.

According to DASNR, Smith's Gold has impressive yield potential, strong greenbug and Hessian fly resistance, and protection against stripe rust earlier in the spring and after flowering in the adult-plant stages. Smith's Gold comes from OSU's wheat variety parent, Gallagher.

"Gallagher wheat has had lots of success," Smith said. "I hope Smith's Gold does just as well.

"If you're going to have something named after you that has the hands of Oklahoma State agriculture attached to it, you know you're safe," Smith said. "Having a wheat variety named after me is as nice of an accomplishment, at my age, as winning a gold medal or receiving any award."

"Kaid and I ran around together at a young age, and his dad was the one who got me into showing animals," Joe Smith said. "I showed hogs for a couple of years and showed sheep."

Joe Smith said encouragement from his neighbor George Shenold was the main reason why he showed sheep.

"I got breed champion my first year with his sheep," Joe Smith said. "George is now famous around the wrestling team."

Joe Smith said he had many mentors and coaches when he was a youth.

"When I was middle-school age, I had a lot of wrestlers around me who I made different bonds with," Joe Smith said. "I was really lucky to have them as coaches.

"I was definitely fortunate, and I give my success to those guys who raised me," he added.

In sixth grade, Joe Smith won his first state wrestling championship.

As a freshman at Stillwater High School, he had an undefeated season and won the state title. He went on to win three state titles before graduating from high school.

The summer after his senior year, he won the Junior U.S. National Title and was the outstanding wrestler at the event.

John Smith said he enjoyed watching his son develop as a wrestler throughout the years. He said it is rewarding to teach him to be competitive and to develop an attitude of a competitor.

Now having his father as his head coach, Joe Smith said the role transition was different at first.

"He has always been my dad first because I had other people, besides him, coaching me growing up," Joe Smith said. "He saw I was doing the right things, and he didn't really have to step in that much.

"Now, he is my coach," Joe Smith added. "I learned you have to separate the dad and coach if you want to succeed in a sport, especially wrestling. "

John Smith said the change in dynamic was good. They have created a balance and he said he enjoys having his son be a part of the program and its legacy.

As a freshman, Joe Smith won the Big 12 Championship and finished as an NCAA All-American. As a sophomore, he repeated those titles.

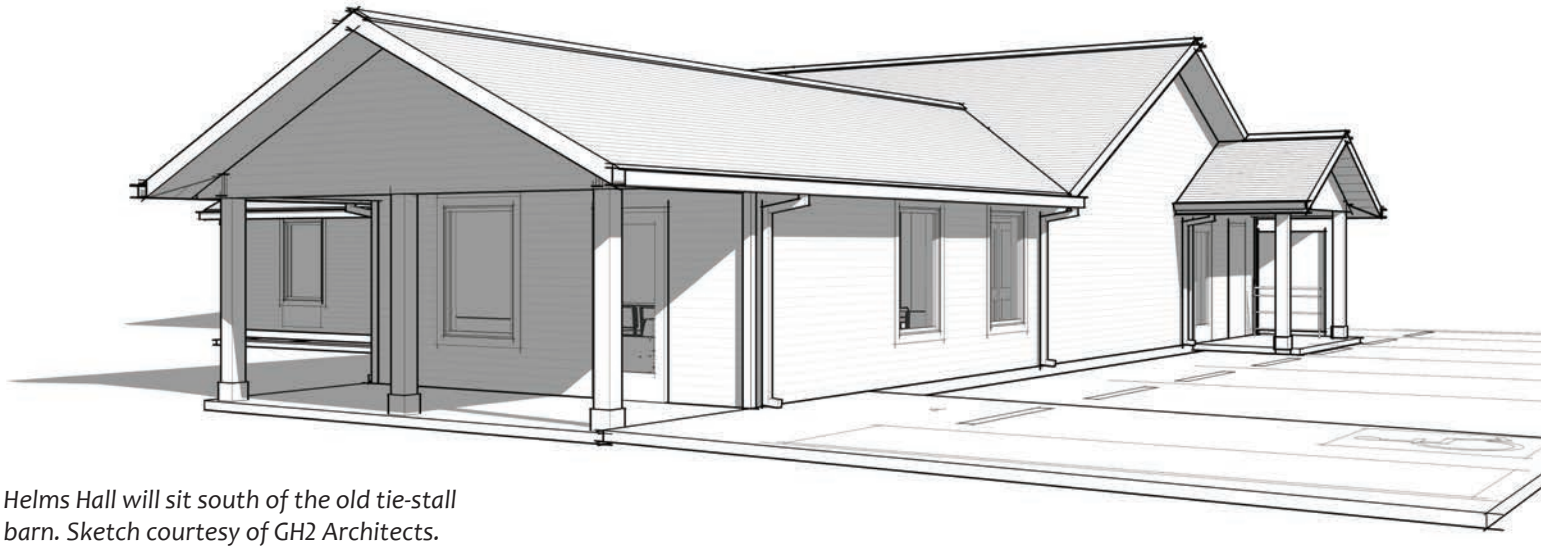
Joe Smith still has two years of wrestling left, and the 2020 Summer Olympics will time out perfectly for when he graduates, he said. His father won gold medals at the 1988 and 1992 Summer Olympics.

"We will see what happens, but it is something I am considering and pursuing," Joe Smith said.

From livestock pens to pinning their opponents, this trio of wrestlers was destined to be Cowboys.

"I loved my years at Oklahoma State and found out I love the outdoors and everything about agriculture," John Smith said. "Joe leaned toward agriculture with the influence of Kaid. Preston comes from an agricultural background, and for me, I feel blessed to be around bright people in a field I like spending my free time in." CJ

Matti Diener
Gardner, Kansas



Helms Hall will sit south of the old tie-stall barn. Sketch courtesy of GH2 Architects.

DAIRY PASSION

Ferguson family funds new OSU dairy facilities

Kayleen Ferguson got emotional as she took in the view of her children and grandchildren visiting the newborn calves at the Ferguson Family Dairy Center in Stillwater, Oklahoma.

"There is a passion here," she said. "We need to continue to fuel that passion for the students who live and work here."

Donors Larry and Kayleen Ferguson of Hot Springs, Arkansas, know the passion of the Oklahoma State University dairy cattle unit well.

Larry Ferguson, 1975 OSU animal science alumnus and retired president and CEO of Schreiber Foods, processed milk during his college career at the OSU Dairy Science Building, which was located east of Agricultural Hall. He attributed much of his success to his college education.

"I was just a poor farm kid," said Larry Ferguson during a passionate speech at the 2017 Oklahoma State University Distinguished Alumni Awards Banquet. "OSU gave me a chance. I was able to become a Cowboy."

Kayleen Ferguson also attended OSU for several years before transferring to Utah State University where she received her degree in English education. However, she said she always considered herself a true Cowgirl.

In 2014, the Fergusons gave back to the OSU dairy cattle unit by donating $2 million toward building a state-of-the-art freestall facility for the 100-cow Holstein and Jersey herd. The Fergusons agreed to donate an additional $4 million with the stipulation OSU match their donation with other donations. With a total goal of $10 million, the Fergusons said they wanted to find a way to support students working at the Ferguson Family Dairy Center.

> We owe it to them to provide a place to learn more about the industry they love.
>
> *Kayleen Ferguson*
> *Ferguson Family Dairy Center donor*

"It is our responsibility to give back to the students," Kayleen Ferguson said. "I enjoy talking with and learning from the students who work at the dairy. We owe it to them to provide a place to learn more about the industry they love."

Working alongside David Jones, Ferguson Family Dairy Center manager, the family developed a plan to create a learning environment in which the student employees can live and work.

"Students who show an interest working within the dairy industry will be given the opportunity to call the Ferguson Family Dairy Center home to help alleviate the financial burden of finding housing," Jones said. "Times are tough in the dairy industry, especially for college students. This is a tremendous way for the Fergusons to keep the cost of attending college down."

The current student housing center has a unique history behind the nearly 100-year-old barn doors. The housing was converted to living space from the original milking parlor and research laboratory, established in 1920.

In 1949, students began living in the dairy facility.

When a new milking parlor was built in 1989, little use existed for the original 80-cow tie-stall barn, Jones said.

With such a large building sitting vacant, the office from the original milking parlor was converted into living quarters for student employees. Approximately 15

students would live together in a bunk-style room throughout the school year, Jones said.

Study and storage rooms were provided up until the mid-'80s when the four individual rooms used now were created to be used as living quarters.

Thanks to the Fergusons, construction has begun on Helms Hall, a new student living center, which is expected to open in Spring 2018.

The student living center will include a kitchen and living area, laundry room and six bedrooms.

The facility also will have an outdoor patio area overlooking campus and the pasture where many of the Ferguson Family Dairy Center heifers live.

OSU President Burns Hargis (left) and first Cowgirl, Ann Hargis, join Kayleen and Larry Ferguson at the 2015 groundbreaking ceremony. Photo by Todd Johnson.

Holsteins dominate the herd at the Ferguson Family Dairy Center. Photo by Taylor Leach.

Chastidy Scott, animal science senior, will be able to say she has lived at the current student living center and at Helms Hall when it opens.

"I am excited to see our facility grow as a whole with a new freestall barn and new student housing," Scott said. "I hope we will be able to recruit new students interested in dairy from across the nation.

"Living in the old barn was memorable," Scott said. "It was an awesome opportunity to learn the history behind the dairy and live where so many people had before."

Kayleen Ferguson's parents, Kenneth and Kathleen Helms, met while working at the OSU dairy cattle unit together during college. Both were dairy industry enthusiasts who shared a love for teaching, later earning their master's degrees in education from OSU, Kayleen Ferguson said.

A similar love story emerged years later, when their daughter met her husband, Larry Ferguson, at the OSU Dairy Science Building while testing milk for butterfat.

Kayleen Ferguson dedicated the new student housing center to her parents, naming the building Helms Hall.

"It is a heritage to my parents to be able to honor them in such a way," Kayleen Ferguson said. "It is an indescribable feeling watching my children and grandchildren gather here together to see where their grandparents first met. It gives me goosebumps just talking about it."

A new chapter will be added to the history books of the Ferguson Family Dairy Center in 2018. With the grand opening of both Helms Hall and the new freestall facility taking place next year, students, alumni and staff have much to be excited about, Jones said.

"We are almost to the finish line," Kayleen Ferguson said as she looked at the construction site for the new facilities.

"A lot has changed since Larry worked here, but a lot of the feelings remain," she added. "It is clear to the both of us that the passion for dairy is still here."

Taylor Leach
Linwood, Kansas

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WORLD CHANG

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Mandela Washington Fellowship

The Mandela Washington Fellowship for Young African Leaders is a program of the U.S. Bureau of Educational and Cultural Affairs' Young African Leaders Initiative and is supported by the International Research and Exchanges Board.

The fellowship began in 2014 to empower young Africans through "academic coursework, leadership training and networking," according to YALI.

Each MWF Institute focuses on either business and entrepreneurship, civic leadership, or public management. Fellows are between 25 and 35, and an equal number of men and women participate.

The fellows who came to OSU were 25 of the 1,000 participants hosted by 40 different institutes across the U.S., said Craig Edwards, OSU MWFI program administrator. Those 1,000 fellows were chosen from more than 64,000 applicants.

Before returning home, the OSU participants joined fellows from institutes across the U.S. in Washington, D.C., for a four-day Mandela Washington Fellowship Summit.

For more information about the fellowship, visit yali.state.gov/washington-fellowship.

From June 16 through July 30, 2017, 25 young entrepreneurs from 17 sub-Saharan African countries came to Oklahoma State University to learn about business, entrepreneurship, service and leadership.

The program participants were part of the Mandela Washington Fellowship for Young African Leaders.

OSU's Mandela Washington Fellowship Institute provided the participants — called fellows — with opportunities and knowledge for thinking creatively, said Usman Ali Lawan, a fellow from Nigeria.

"I learned not only to think outside the box but also to think big," Lawan said.

The MWFI grant came to OSU after Richie Roberts, who was an OSU doctoral candidate in agricultural education, applied for the MWFI grant while taking a class in Fall 2016. The class was taught by OSU agricultural education professor Craig Edwards.

After receiving notice of funding in November 2016, Roberts, the OSU MWFI program coordinator, began planning with Edwards, who served as the OSU MWFI program administrator.

Faculty, staff and students from the OSU College of Agricultural Sciences and Natural Resources and the OSU Spears School of Business collaborated for the grant program.

Roberts, Edwards and Craig Watters, the executive director of the OSU Riata Center for Entrepreneurship, led the program with assistance from multiple graduate students.

During their time in Stillwater, the fellows learned about topics such as social entrepreneurship, financial accounting, family business management, emotional intelligence, change theory, leadership and business plans.

"Successful entrepreneurs are perhaps better than the average person at recognizing opportunities to create a business, to create a product or to sell something in a community or an area," Edwards said. "A lot of our programming tried to help them understand that and improve their skills in that area."

In addition to their academic coursework, the fellows participated in job shadowing, networking opportunities, cultural experiences and a poster competition.

As a part of the fellowship's emphasis on service, the fellows helped build two houses with Habitat for Humanity and worked at the Stillwater Habitat for Humanity ReStore, Roberts said. He said they also helped with the Oklahoma 4-H Roundup in Stillwater.

Edwards said he wanted to expose the fellows to what the U.S. does for youth development, particularly in agriculture. He said many developing countries struggle to attract bright, enthusiastic youth to the agricultural industry.

"They began to see things they could be doing back home to engage and involve youth and show them a different side of the agricultural sector," Edwards said.

Alex Smith, OSU master's student in international agriculture and graduate assistant for the OSU MWFI, said the fellows built relationships with people across campus, throughout Stillwater and in Oklahoma.

"We provided opportunities for

GERS

rican leaders come to Stillwater

networking," Smith said, "but the fellows put in the significant effort to network.

"To me, the relationships they made with each other is probably what is going to pull them forward later in life," he said.

Lawan is a founder and the CEO of an eco-friendly, integrated farm in Nigeria he started in 2015. Lawan said he and his 14 full-time employees produce animal feed and raise poultry and livestock.

Lawan said his time at OSU broadened his perspective, allowing him to see the big picture for his company and set short- and long-term goals.

Before coming to OSU, Lawan's vision for his farm involved increasing his land from four hectares to 20 hectares, he said. Now, he has secured more than 500 hectares, or 1,235 acres, for his company.

"I do not think I could have ever handled something like this if I was not at OSU last summer," Lawan said.

Lawan said he intends to use the 500 hectares to train 500 rural farmers who will produce 500 tons of farm produce, a project he calls Farmers in Suits.

Lawan said he also plans to open an agribusiness school where young people and rural farmers can learn about agribusiness and innovation systems in agriculture.

Lawan said the energy and motivation of those who helped with the OSU fellowship inspired him.

"If you never take action, then you will never have the change you desire," Lawan said. "That change begins with me."

Although the fellows learned much about business and entrepreneurship, Lawan and Peo Chilindi, another fellow, said one of their biggest takeaways from the fellowship was what they learned about servant leadership.

Chilindi, who operates a professional childcare company in Botswana, said they learned how to be both servants and leaders.

"Now, I want to help my community more in terms of leading my employees and helping them do community service," Chilindi said.

Chilindi said she wants to use what she learned about servant leadership during the MWFI to teach children about agriculture. Botswana encourages agricultural awareness and education, and she wants to incorporate agricultural education into her childcare business, she said.

Lawan said he plans to give back to his country by using locally sourced materials to mass-produce the GreenSeeder hand planter developed by the OSU Department of Plant and Soil Sciences. Bill Raun, OSU Regents professor and Walter R. Sitlington Chair in Agriculture Soil Fertility, sent several fellows home with a GreenSeeder hand planter.

"For me, that was the height of generosity," Lawan said. "We should be able to mass-produce this GreenSeeder hand planter and put it right into the hands of rural farmers."

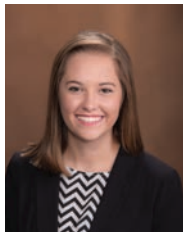
Chilindi said she wants the Stillwater community to know the fellows are grateful for how members of the community welcomed them.

"We were warmly received in Stillwater, and we appreciate that the Stillwater community received us," she said.

"Stillwater felt so much like home," Chilindi added. "In Botswana, when we think about America, we think about skyscrapers and everyone going about their own business … but we got to experience the homey side of America." CJ

To learn more about the OSU fellows' experiences, look for the Oklahoma State Mandela Washington Fellowship accounts on Facebook, Twitter and Instagram.

> Education is the most powerful weapon which you can use to change the world.
>
> Nelson Mandela (1918-2013)



Abigail Arthaud
Keyes, Oklahoma

Photo by Braden Schovanec.

The Insec Advoc

OSU entomologist pr

Fifty-one Oklahoma counties. One international expo. Six states. More than 3,000 presentations.

Andrine Shufran, associate extension specialist and Oklahoma State University Insect Adventure coordinator, fills a far-reaching role, to say the least.

The entomologist wastes no time sharing her love for insects and their relatives with people from across the world.

"She is just a ball of energy when she is involved in these outreach programs," said Phil Mulder, head of the OSU Department of Entomology and Plant Pathology. "Her breadth of knowledge is incredible about anything and everything to do with insects."

Mulder said he began working with Shufran in 2003, when she became his doctoral student. After completing her doctoral degree in 2008, Shufran received an offer to serve as the exhibits manager for the Audubon Butterfly Garden and Insectarium in New Orleans, the largest museum dedicated to insects and their relatives in North America.

The day after she received the Audubon offer, Mulder presented Shufran with a counteroffer to coordinate the OSU Insectary, he said. Shufran accepted the OSU offer and shortly after renamed the program: OSU Insect Adventure.

Before she came to OSU, Shufran received her undergraduate degree in horticulture and entomology from Texas A&M University and her master's degree in agricultural biology from New Mexico State University. Shufran said at NMSU she learned the skills needed for rearing insects and delivering presentations to the public about entomology.

During her first three years as an OSU faculty member, Shufran delivered an average of 135 insect zoo presentations per year. Shufran and her graduate students continued to receive more requests to deliver insect zoo presentations across the state and nation, she said.

"It just kept growing," Shufran said.

In 2015, Shufran delivered 599 presentations, the most delivered for the Insect Adventure program in one year.

Shufran said the insect zoo presentations provide participants with a unique, hands-on experience with insects.

"We don't work with bugs in exhibits," she said. "Our bugs are in your hands."

Before serving in a full-time position in extension and outreach, Shufran was surrounded primarily by individuals who studied entomology for a living, she said. About five years ago, Shufran said she had a "burnout moment" and started feeling the weight of misconceptions and falsities about insects.

"We are fighting this crazy, uphill battle," Shufran said. "There's so much negativity about this group of animals."

Shufran said she wishes, more than anything, children and adults would grow to find a little appreciation about the importance of insects.

"Without these animals, we would not be here," she said. "We could not survive."

One of Shufran's former student workers, Xandra Morris, said Shufran taught her how to communicate with people who have little or no knowledge about insects. Morris said Shufran is known for "making science approachable for all ages."

She said Shufran played a major role in mentoring her throughout her collegiate experience. From insect zoo presentations to dinner parties with the entomology department, Shufran was always accommodating and understanding, Morris said.

"She cared about everyone who worked for her and always tried her best to take care of us," Morris said.

Morris said Shufran makes a positive impact on students to the point that some students tell Shufran they decided to pursue a science-based degree because they saw one of her presentations.

She said Shufran can get kids excited about the natural world.

"When she walks into the room, everybody notices," Morris said.

In addition to her faculty position at OSU and outreach presence in Oklahoma, Shufran has impacted the field of entomology on a national scale, Mulder said. From 2011 to 2014, Shufran served as a member of the board of directors for the Entomological Foundation. In 2016, Shufran served as committee chair for the Insect Expo at the International Congress of Entomology. This meeting represented the largest annual gathering of entomologists in history.

Mulder said people notice her efforts in and out of the classroom. In 2017, she received the Entomological Foundation Medal of Honor, the highest award given by the Entomological Foundation. The medal of honor is given to an entomologist who epitomizes entomological outreach and uses entomology to teach youth about science, Mulder said.

Shufran was shocked when she learned she was receiving the Entomological Foundation Medal of Honor, she said.

"To be a woman — which is a good

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omotes insects through OCES

example for other women in my society — and to be relatively young was doubly rewarding," Shufran said.

In September 2017, Shufran also garnered a $10,000 special allocation from the OSU Foundation to benefit the OSU Insect Adventure program.

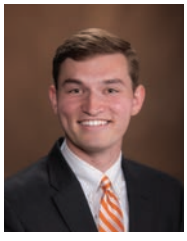
Emmy Morrison, Shufran's sister and a former biological control lab coordinator at Cornell University, said entomology is an underappreciated science and Shufran is working to make insects interesting and relevant to people of all ages.

"She's an innate teacher and is remarkable at dealing with younger people," Morrison said.

Mulder said he believes the OSU Department of Entomology and Plant Pathology has more students because of Shufran and the OSU Insect Adventure program. Potential OSU students are exposed to the insect zoo at different events, including OSU Up Close, Majors Fair, Junior Day, Senior Day and Grandparent University.

Mulder said he cannot say enough nice things about Shufran.

"She's always learning something new, something innovative about either educational delivery or about the entomology world," Mulder said. "She really epitomizes the lifelong learner." OJ



Wyatt Shaw
Byng, Oklahoma

Andrine Shufran raises more than 70 different species of arthropods at the OSU Insect Adventure facility, including this Malaysian jungle nymph. Photo by Wyatt Shaw.

LOADED

Late nights, early mornings, dedication and teamwork result in years of success and a championship on a national stage.

The Oklahoma State University Swine Research and Education Center team took its first-ever purebred Yorkshire truckload entry to the 2017 National Barrow Show — and won.

The NBS consists of a junior show for exhibitors 21 years old and younger, an open show for breeders and exhibitors 22 and older, and the truckload contest for anyone with six market-ready hogs.

Sixteen truckload entries competed at this year's show in Austin, Minnesota.

Mike Paul, CEO of the National Swine Registry and president of the National Association of Swine Records, said he has attended the NBS since he was old enough to remember.

"The truckload contest has been a part of the NBS since the inception of the show," Paul said.

The NASR hosts the NBS, and the NASR and Hormel Foods are responsible for the truckload contest. The show has occurred annually since 1946, except in 1952 and 2001 because of swine health risks and biosecurity concerns, Paul said.

Historically, breeders sold small loads of hogs to market. The consistency of carcasses was difficult to judge until after hogs were harvested.

The truckload contest was a promotional tool for breeders as well as a way for them to evaluate carcass merit in their herds, Paul said.

This contest gave breeders a way to compare their own genetics with colleagues in the swine industry as well as receive carcass data on their load of hogs to know what they needed to improve, Paul said.

In 1946, breeders needed 15 head for an entry. The number of head required was decreased to 10 in 1953. Beginning in 1970, exhibitors were required to have a truckload entry with a total of six market hogs weighing no more than 280 pounds per head. Three of those six head must be castrated males, also known as barrows.

The NBS is the only national swine show with a truckload contest.

"About one in every 15 years, a purebred load will be the grand champion," Paul said.

Winning the truckload contest, especially with its first entry, is no small accomplishment for the OSU Swine Center, said Clint Rusk, head of the OSU Department of Animal Science. However, this win is one of many successes the swine center has had since the original farm's opening, Rusk said.

"I did not expect to win the champion truckload of barrows the first year we exhibited them at the National Barrow Show," Rusk said.

Many of the OSU livestock facilities exhibit animals at shows across the country, Rusk said. Showing livestock

The Oklahoma State University Swine Research and Education Center, built in 2004, houses roughly 1,000 pigs. Photo by Justin Leonard.

IMPACT

OSU Swine Center makes history in Austin, Minnesota

with top-notch genetic merit also allows the department to showcase outstanding students, he said.

The OSU Swine Center is a small-scale commercial swine facility that raises purebred Yorkshire genetics and conducts research pertinent to the swine industry.

The teaching side of the swine center exhibits its breeding stock and sells pigs to 4-H and FFA members across the country. Many of those pigs have success at local, county, state and even national shows, Rusk said.

Most importantly, the OSU Swine Center allows students in the College of Agricultural Sciences and Natural Resources to get hands-on experience to reinforce the concepts learned in the classroom, Rusk said.

Since 2004, the reinforced learning technique has improved because the OSU Swine Center was relocated to a state-of-the-art confinement facility on McElroy Road, Rusk said. The confinement facility gives students the opportunity to experience the ins and outs of a real-world swine operation on a smaller scale, Rusk said.

"The swine center gives undergraduate and graduate students the opportunity to be involved in and conduct research that is important to current and future developments in the swine industry," said Carson Cooper, animal science master's student.

Cooper has come to know the OSU Swine Center well in her almost six years of work at the facility. As a freshman research scholar, she studied the effects of yucca extract on nursery pigs' growth performance. This project launched her continued research throughout her undergraduate collegiate experience and into her master's focused in swine nutrition.

While the teaching aspect of the swine center has had tremendous success through the years, a number of graduate students, like Cooper, conduct outstanding research for the university, Rusk said.

Other research projects conducted at the OSU Swine Center include nutritional trials for different stages of swine production, environmental-impact trials and animal well-being trials, Cooper said.

The swine center team continues to conduct necessary research for the swine industry as well as develop and increase the genetic merit of the sow herd, Cooper said. Students and staff hope the center can impact more industry leaders, industry followers and consumers, she said.

"I am thankful I found my place at OSU where I could learn and grow while having the opportunity to be involved in an industry I am passionate about," Cooper said. CJ

Justin Leonard
Eudora, Kansas

the SKINNY on healthy pets

AGCM alumnus stars in new television show

From a walk in the park with his four-legged companion to hosting his own show on Animal Planet, Travis Brorsen exhibits a love for animals.

Brorsen, a 2001 Oklahoma State University agricultural communications alumnus, now hosts Animal Planet's "My Big Fat Pet Makeover," a TV show centered around helping pet owners learn how to provide their animals with a healthier lifestyle.

"More than 50 percent of America's cats and dogs are obese," Brorsen said. "The key is finding ways to show pet owners each pet is different when it comes to getting healthy, just like people are different."

> Travis is such a real and genuine person. This is a quality that we know was instilled in him from his roots in Oklahoma.
>
> *Jessica E. Reynolds*
> *executive producer*
> *'My Big Fat Pet Makeover'*

Brorsen, who grew up in Perry, Oklahoma, had his first TV success after he and his dog Presley appeared on "Greatest American Dog," which showcased the bond between an owner and his dog. In 2008, as the duo strolled in a park, a producer approached Brorsen to sign up for the new show, Brorsen said.

"Presley was far from being a well-behaved animal when we started the show," Brorsen said. "Each week, Presley continued to improve and surprise me as we kept passing challenges until we eventually made it to the final round."

Despite being predicted to not make it past the first week, Brorsen and Presley proved their skill when they won the entire show, including the $250,000 grand prize.

Brorsen used the victory to launch his career toward pets, children and education. He traveled nationwide hosting workshops with Presley as well as authoring a series of children's books until Presley died in 2015.

Brorsen's experience during "Greatest American Dog" and his love for animals also led him to start his own business, Greatest American Dog Trainers, located in New York City. He developed his knowledge of animals through his rural background and his show pig projects, he said.

"We focus on teaching pets basic commands and manners," Brorsen said. "We also work with animals that need to start living healthier lifestyles."

The newest venture, "My Big Fat Pet Makeover," continues his desire to educate others about their pets, he said.

The original idea for the television program came from Heather Mansfield, the show's creator and producer, after a discussion about her in-laws' overweight cat. The cat was featured in one of the show's episodes, Mansfield said.

"We knew this show had been pitched several times before," Mansfield said, "but the way we would make our version stand out was by finding the right host."

When researching possible hosts, staff members from the production agency, Castleview Productions, found Brorsen's website and started doing their homework, she said.

"After watching several episodes of Travis on 'Greatest American Dog,' we knew we had to bring him in to film our sizzle reel," Mansfield said.

A sizzle reel provides a three- to five-minute clip to showcase a new show idea. A reel is sent to different television networks to see if any are interested in airing a show, Brorsen said.

Brorsen earned his role in "My Big Fat Pet Makeover" because he was light-hearted and authentic, Mansfield said.

"Travis is such a real and genuine person," said Jessica E. Reynolds, the show's executive producer. "This is a quality that we know was instilled in him from his roots in Oklahoma."

Brorsen and his personality were the selling points of the show, Mansfield said.

"After sending our clip to many different networks, we got a call from Animal Planet saying that they loved the idea of the show," Mansfield said. "They were ready to start filming.

"The idea had been pitched a multitude of times," Mansfield added. "Travis was the missing piece."

Brorsen's personality and passion for animals helped him connect on a personal level with each of the families to help them improve their pet's health, Reynolds said.

"We tried to put the families in real-life situations so they understood exactly what their pet was going through," Brorsen said. "In one instance, we actually loaded one of the pet owners with weights that equaled the same percentage of extra weight his pet was carrying so he could understand fully how hard that was on his pet's body."

The show features different types of

Travis Brorsen celebrates Niko's 7½-pound weight loss. Watch the episode on AnimalPlanet.com. Photo courtesy of Animal Planet.

Travis Brorsen and the Castleview Productions crew work to capture the perfect video. Photos courtesy of Animal Planet.

pets and pet families and showcases how they overcome the "struggle of over-loving their pet with food," Brorsen said.

Brorsen has helped multiple animals along a weight-loss journey, including dogs, cats and a potbelly pig.

"Different people have different interpretations of how you should love your pet," Brorsen said. "Many people do that by feeding their animal table scraps or more food than their recommended diet."

Brorsen said the show's crew hopes to teach pet owners how to care for their animal companions in a way that could allow owners more time with their pets.

"If I knew I could have one more day with Presley," Brorsen said, "I would do whatever it takes."

The creators and crew behind "My Big Fat Pet Makeover" hope this heartwarming journey between families and their pets inspires more pet parents to learn how to love their animals by keeping them happy and healthy, Mansfield said.

"If we can help pet owners across the nation realize how to love their pets in a healthy way, then our show was a success," Brorsen said. CJ

Kylie Sellers
Marlow, Oklahoma

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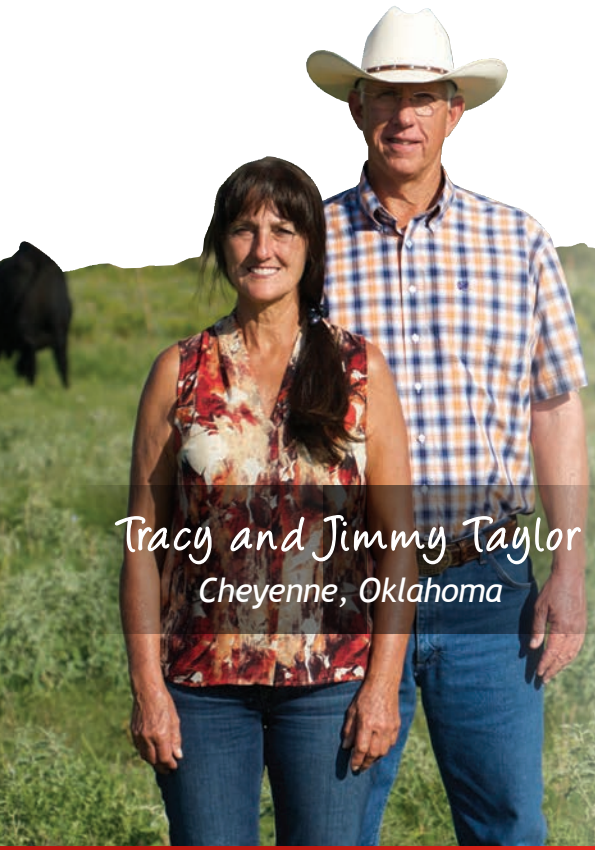

Tracy and Jimmy Taylor
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BRED FOR BREAD

Researchers help wheat producers with protein yields

During early summer, the Oklahoma horizon glistens gold when the setting sun shines across fields of ripening wheat.

In 2016, Oklahoma growers produced 136.5 million bushels of wheat, but the National Agricultural Statistics Service projects Oklahoma will produce only 98.6 million bushels in 2017. This 28 percent decrease stems from fewer acres of wheat and lower yields.

However, one more factor has the Oklahoma State University Wheat Improvement Team hard at work in the lab — protein.

The team is composed of 10 scientists within the OSU Division of Agricultural Sciences and Natural Resources and the U.S. Department of Agriculture – Agricultural Research Service.

The team includes OSU Department of Plant and Soil Sciences faculty members Brett Carver, OSU Regents professor and wheat genetics chair; Brian Arnall, precision nutrient management specialist and associate professor; and David Marburger, OSU small grains specialist.

Protein levels in Oklahoma wheat have been low for two years, Arnall said. Low protein makes selling the crop challenging and negatively impacts local economies, he said.

Half of the wheat produced in Oklahoma is exported, said Kim Anderson, OSU emeritus professor and extension economist. Oklahoma's biggest competitor on the world market is Russia, he said.

> From growing the wheat to producing a loaf of bread, the amount of protein as well as the quality of the protein matters.
>
> *David Marburger*
> *OSU small grains specialist*

"Oklahoma produced hard red winter wheat in 2017 with an average protein level of 10.8 percent, while Russia produced wheat with an average of 12.4 percent protein," Anderson said.

Flour millers need wheat with a protein of around 11.6 percent to mill acceptable bread, he said. Rather than looking for high-protein wheat, a miller could import 12.4 percent wheat from Russia cheaper than buying low-protein Oklahoma wheat and blending it with hard red spring wheat from North Dakota and South Dakota to reach the protein content level needed, Anderson said.

"The value of raising the protein level of our wheat is so we can compete in the global markets," Anderson said. "Most export contracts require a minimum of 60-pound test weight and a minimum of 12 percent protein."

Carver said one reason wheat prices are depressed is because of the low-protein value of Oklahoma wheat, but wheat farmers still look for ways to make a living.

"One way price can be turned around in the farmers' favor is that they are rewarded for a good-quality crop," Carver said. "Good quality often means there is higher protein."

The OSU Wheat Improvement Team has developed three new varieties of wheat

The OSU Wheat Improvement Team has developed more than 30 varieties of wheat. Photo by Beth Theis.

bred to yield higher protein values: Smith's Gold, Spirit Rider and Lone Rider. Carver said researchers must consider several different variables when breeding a new variety of wheat, such as genetics and disease resistance.

The new wheat varieties are descendants of other OSU varieties, but the OSU Wheat Improvement Team has made them better, Carver said.

Although a wheat variety can be bred to yield higher protein, genetics are not the only factor for protein production. With Oklahoma's diverse climate, wheat varieties react differently depending on the environments in which they are grown, he said. The farmer must create the right environment for the wheat to be high in protein, Carver said.

"Managing a wheat field to produce the wheat variety's genetic potential for protein depends upon how well the farmer manages nitrogen," Carver said.

Marburger teaches producers how to grow wheat crops with higher protein levels through general production practices.

"When it comes to increasing wheat protein content, three major factors can influence this — the weather conditions during the grain-fill period, the wheat variety and the amount of available nitrogen from the soil," Marburger said.

The protein deficit occurs from low soil nitrogen if farmers do not apply fertilizer because of the expense, Carver said.

General production practices, such as planting date, seeding rates and grazing intensity, also are important, Marburger said. While wheat varieties are bred in an attempt to produce higher yield and protein content, sometimes the environment in which a seed is developed will affect the protein content, Marburger said.

Marburger said he serves as the vocal extension of the team. He said he helps assist with the field days conducted by county extension offices to educate farmers and stakeholders about production practices and available wheat varieties from OSU and other sources. The field days provide farmers with a first-hand look at wheat varieties as well as information about each variety's characteristics and which variety works best in certain areas, he said.

Thousands of acres of the golden Oklahoma wheat are made possible by the OSU Wheat Improvement Team. The Oklahoma Agricultural Experiment Station through the OSU Department of Plant and Soil Sciences supports the OSU Wheat Improvement Team. The Oklahoma wheat industry's primary goal is strengthening the line of genetics, Carver said. Research funding comes through a partnership with the OAES, the Oklahoma Wheat Commission and the Oklahoma Wheat Research Foundation.

"When looking at the whole picture from growing the wheat to producing a loaf of bread, the amount of protein as well as the quality of the protein matters," Marburger said. "The OSU breeding program uses genetics to obtain both." CJ

Beth Theis
Chattanooga, Oklahoma

BEST SEAT IN THE HOUSE

AGEC alumnus makes career as sports photographer

Orange paddles slam against the walls, generating a sound like thunder. Some call the nearly deafening roar of the crowd "hell on ears."

On game days, Boone Pickens Stadium shakes to its foundation. In the midst of the sea of orange stands Bruce Waterfield.

"I have the best seat in the house to every single event," Waterfield said.

As the coordinator of photography services for Oklahoma State University Athletics, Waterfield gets an up-close view of all the highs and lows OSU's sports teams experience. Though a professional photographer now, he never expected this is where he would end up, he said.

Waterfield grew up on a cattle ranch near Canadian, Texas. His father, Richard Waterfield, and uncle, Jim Waterfield, maintained a stocker-cattle operation in the Texas Panhandle.

"My love of photography came from growing up on the ranch," Waterfield said.

Waterfield graduated from OSU in 1984 with a bachelor's degree in agricultural economics. He said he chose agricultural economics because he originally thought he would return to the ranch he loved, yet his life changed direction.

During his senior year, he told his father he had no intention of returning to the family operation. As a result, his father sold his part of the ranch, Waterfield said.

After graduation, Waterfield moved to Amarillo, Texas, to work for the First National Bank as a credit analyst for three years. He worked for BancOne in Lexington, Kentucky, for two years. Waterfield then spent four years at Texas Livestock Marketing and National Finance Credit Corp. using his agricultural economics degree.

In 1992, Waterfield went into a new business with his father. The two purchased a video post-production facility out of bankruptcy, recapitalized it, and operated it for seven years before selling it. They then purchased Database Marketing Group, a call center devoted to selling high-end solutions to technology companies. Waterfield still retains interest in the company, now called Invenio Marketing.

In 2011, he decided to return to his second home — Stillwater, Oklahoma.

Kyle Wray, OSU vice president of enrollment management and marketing, hired Waterfield to work in OSU University Marketing. For two years, Waterfield also did freelance photography for OSU Athletics. This work eventually led to a full-time position as the first-ever official OSU Athletics photographer.

"This opportunity came about in athletics that I wanted to pursue," Waterfield said. "Kyle recommended me for the job."

Without Wray's recommendation, Waterfield doubts he would be in his current position, he said.

"I didn't ever think I would be doing this," Waterfield said. "I was just freelancing, and, all of a sudden, it kind of fell in my lap."

Now, Waterfield takes photos for every OSU varsity sport. He also shoots the studio photos used for posters, social media posts and Posse magazine.

"I'm the only one crazy enough to want to be at every event," Waterfield said. "I'm right there on the frontlines of any big, fun thing that happens."

The best part about working in the OSU athletic department is the people, he said. His colleagues seem to share the sentiment about him, as well.

"We're lucky to have him with us," said Gavin Lang, OSU assistant athletic director of media. "Bruce is outstanding at what he does and is a pleasure to work with. He's an optimistic person with a positive outlook on things, which makes him a great fit for what we do."

OSU student-athletes appreciate Waterfield's work, as well.

"Speaking for the team, I know we really appreciate Bruce and all the work he does for us," said Chance Cook, a College of Agricultural Sciences and Natural Resources sophomore member of the Cowboy football team and fellow Canadian, Texas, native.

Waterfield said his job has added benefits beyond taking pictures.

"One of the cool things about this job is how many people I have reconnected with from my days when I was at OSU," Waterfield said.

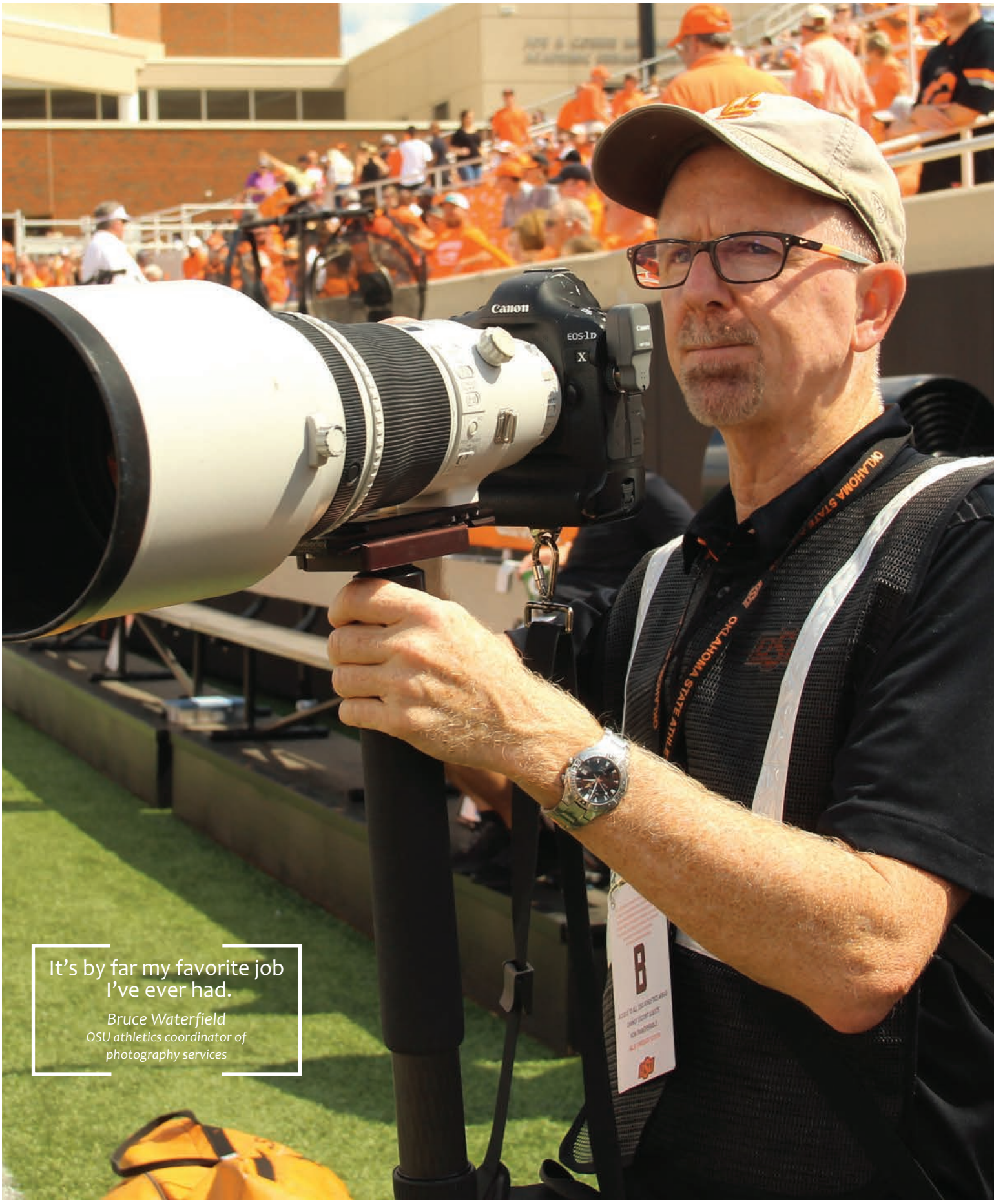
As an alumnus, Waterfield said OSU is near and dear to his heart because most of his relatives attended OSU. In fact, Waterfield often jokes that without OSU, he would not be alive today.

"My parents met at OSU," Waterfield said. "My mom was from Kentucky, and my dad was from Canadian, Texas."

Waterfield said he has no plans of vacating his front-row seat to OSU sports anytime soon.

"It's by far my favorite job I've ever had," he said. CJ

Jacob Sitton
Stillwater, Oklahoma



It's by far my favorite job I've ever had.

Bruce Waterfield
OSU athletics coordinator of photography services

As an OSU student, Bruce Waterfield was an active member of Sigma Nu Fraternity. Photo by Jacob Sitton.

Jenna Kool (left), Matti Diener and Taylor Spears' agricultural backgrounds led them to their CASNR majors. Photo by Dally Clark.

Loyal & Royal

Three CASNR women claim crowns

To be a queen takes more than wearing a crown.

Three Oklahoma State University College of Agricultural Sciences and Natural Resources women exemplify the dedication, service and heart required not only to wear the crown but also "be the crown," said Taylor Spears, Miss Rodeo Oklahoma and agricultural communications junior from Cleveland, Oklahoma.

Whether rodeo queen or pageant queen, the title entails devoting a year of service as an ambassador for the organization, said Jenna Kool, Miss Rodeo Iowa and animal science and agricultural communications alumna.

Such service includes attending hundreds of events, powering through early mornings that turn into late nights — sometimes becoming 22-hour days — and maintaining an upbeat enthusiasm and shining smile along the way, Spears said.

The moral of the story? Being a queen is difficult work, Spears said.

"I would work at practicing speeches, horsemanship and studying questions every single day," Spears said. "Anytime I got down, aggravated or upset, I would just take a second and picture myself with a good outcome."

Achieving the title requires hard work, passion and commitment to something bigger than yourself, Spears said.

From 7 years old to 20 years old, Spears has climbed every step in the Miss Rodeo Oklahoma system.

"As a little girl picturing myself wearing the crown, I always saw myself as Miss Rodeo Oklahoma," Spears said.

Spears is the first Miss Rodeo Oklahoma also to have served as Miss Rodeo Oklahoma Sweetheart, Miss Rodeo Oklahoma Princess and Miss Rodeo Oklahoma Teen.

"It was hard to go through the ups and downs of it all," Spears said. "Now that I've had to work so hard for something, I appreciate it so much more."

Being a queen not only requires hard work, but also a passion to serve, said Matti Diener, Miss OSU, OSU's feature baton twirler, and agricultural communications senior.

A native of Gardner, Kansas, Diener said she needed a new goal after earning the titles of 2015 National and World Open Three-Baton Champion of the National Baton Twirling Association.

After encouragement from a pageant director, Diener began entering pageants.

"Pageants are a hobby," Diener said, "but they are also a passion."

After earning her first title as 2016 Miss Heart of Kansas, Diener set a new goal: Miss OSU.

"I wanted the opportunity to serve the university that has given me so much," Diener said.

She competed in the Miss OSU pageant in September 2016 and was second runner-up on her first attempt at the title, she said.

Diener's passion and determination motivated her to compete for the title again in September 2017, she said. Now, as Miss OSU, her real work has begun.

Within a couple of weeks after Diener was crowned, she began her Miss OSU duties and started attending events, such as Coaches vs. Cancer, she said.

"There are countless opportunities where I get to serve my community," Diener said. "OSU is where I feel like my character has flourished. Serving OSU is like serving my home."

Kool of Adel, Iowa, said the sport of rodeo promotes the way she grew up and led her to the rodeo queen lifestyle.

With family roots 200 years deep in agriculture, Kool's family has been involved in swine, dairy, beef and row crop production. Her family also has been involved in the equine industry for three generations, she said.

Kool, a fifth-generation agriculturalist, said she is passionate about serving the equine industry, which has made her who she is today.

"Serving as a voice for the equine

Jenna Kool (left), Matti Diener and Taylor Spears each serve as role models in their communities. Photo by Dally Clark.

industry is a way for me to give back to what raised me," Kool said.

Spears, Kool and Diener each credit their education and involvement at OSU, especially within CASNR, for their crown-achieving successes.

"One of the biggest things in college for me," Kool said, "was getting involved in the college with clubs and organizations that pushed me to become better."

Kool said being a part of OSU's horse judging team gave her confidence for public speaking through judging horses, which includes evaluating classes of four horses and giving oral reasons about placings.

Kool also gives credit to the Animal Science Leadership Alliance for teaching her how to be a genuine leader.

"Being a leader isn't just having a group of followers," Kool said, "but learning how to promote your organization better and to give back as a leader."

Diener said her agricultural communications courses, such as Oral Communications in Agricultural Sciences and Natural Resources, Planning Campaigns for Agriculture and Natural Resources, and Feature Writing and Editing for Agricultural Publications, improved her interviewing skills.

"Agricultural communications teaches you how to interview and be relatable," Diener said. "It has helped me translate these skills to the pageant world."

Spears said a rodeo queen serves as an agricultural communicator.

"I believe 100 percent that rodeo queens are agricultural communicators," Spears said. "As a rodeo queen, you are expected to be able to discuss anything at any given time."

Spears, Kool and Diener will each compete for another title. Spears will represent Oklahoma and Kool will represent Iowa during the Miss Rodeo America pageant in December 2018. Diener will represent OSU during the Miss Oklahoma pageant in June 2018.

Following their pageant careers, each queen said she wants to continue being an ambassador of a new sort. Spears wants to become a national news broadcaster, Kool wants to have a career in sales, marketing or communications within agriculture, and Diener plans to work in public relations.

"A queen is a role model who strives to be the best version of herself," Spears said. "I want to be a role model for the rest of my life." CJ

Dally Clark
Kansas, Oklahoma

CREATING SCIENTISTS

BIMB encourages youth through outreach program

For youth who dream of being biologists, biochemists or maybe even entomologists, the Oklahoma State University Department of Biochemistry and Molecular Biology has these and related career paths available.

BIMB faculty encourage youth to pursue their dreams in multiple ways, including by facilitating science-based educational outreach programs such as one that happened in August 2017.

Lawrie Gainey, a BIMB doctoral student, developed an outreach program with the Pawnee Nation of Oklahoma as part of the nation's Culture Camp on Aug. 7. This program was designed to help foster a cooperative effort with the Pawnee Nation of Oklahoma for future outreach programs, Gainey said.

"Our main goal was to inspire the students," Gainey said. "We wanted to show them all the possibilities there are with science and encourage them to follow their dreams of being scientists."

After contacting the Pawnee Nation of Oklahoma, Gainey had one week to plan the outreach program, find people who would participate and teach, and gather the supplies for each station.

"It was great how we were able to get the entire department involved, especially in the short time frame we had to prepare," Gainey said.

Ten department members helped with this outreach program: doctoral students Gainey, Will Johnson and Qiao Xiaoyu; master's student Claudio Galves Sagastume; staff members Melissa West and Jessica Matts; department head John Gustafson; professor Patricia Rayas-Duarte; and undergraduate students Taylor Gainey and Matt Lowrie.

Gainey said having such support from the department in her efforts to form this outreach program was fantastic.

Overall, the BIMB group worked with approximately 50 first- through eighth-grade students for "Be a Scientist Day."

The outreach program included four stations in which the students could participate: a mosquito station, a DNA-extraction station, a research scientist and nutrition station, and a "be a scientist" photo booth.

Sagastume developed the station about mosquitoes because he conducts research in this area.

"We set this station up for students to view both live and dead mosquitos under a microscope and see them at their different stages of life," Sagastume said.

Lowrie assisted with a second station, which allowed the students to participate in a DNA extraction experiment and see DNA strands from strawberries.

"To isolate the strawberries' DNA, we used dish soap, salt, alcohol and a hot water bath," Lowrie said.

Gainey said the students found seeing the DNA from the strawberries interesting. However, the OSU team ensured the students did not eat the strawberries after extracting their DNA because the mixture was not safe to consume.

In the research scientist and nutrition station, Gainey talked about healthy eating and showed the students how to make ice cream using dry ice, ethanol and a cast

iron skillet for a cold plate. To make the actual ice cream, she used frozen strawberries, sweetened condensed milk and cream.

"The kids loved it, especially the fresh fruit," Gainey said. "They were amazed at how I was making ice cream right in front of them. Then, of course, they were really excited to eat the ice cream."

Gainey also talked to the students about careers in science while she made the treat.

The final station in which the students participated was the photo booth.

The students enjoyed the photo booth where they dressed up as different types of scientists, said Dorna Riding In-Battese, education division director for the Pawnee Nation of Oklahoma.

"It made it more real for them," Riding In-Battese said. "They got to put on a lab coat and goggles and then actually see themselves as scientists rather than just imagining it."

> I want to open doors for kids who want the chance to be scientists.
>
> *Lawrie Gainey*
> *OSU doctoral student*
> *biochemistry and molecular biology*

Riding In-Battese said each student had his or her picture taken in the lab gear at the photo booth and then the pictures were printed for the students to take home with them that day.

"Not only did they get to do all of this and see themselves as scientists, but they now have this picture to keep with them as a reminder," Riding In-Battese said.

Gainey said she had the idea for the photo booth from going to a science fair when she was in grade school. At the event, she dressed up for a similar photo booth and still remembers getting to do that to this day, she said.

"It was something that really stuck out to me when I was younger," Gainey said. "I thought it would make a big impact on them, as well. Plus, it's just a lot of fun."

Riding In-Battese said the outreach program was a great opportunity for the students to have exposure to hands-on science activities.

"I am not sure the students have access to activities like this in school," Riding In-Battese said. "For them to be able to participate in the stations at the outreach program was amazing for them."

Gustafson said he helped at the event to show support for Gainey and the outreach program. He said the students were engaged completely with the activities, especially the photo booth. They loved the idea they could act as scientists, he said.

"It is absolutely amazing we had a graduate student organize this entire outreach program," Gustafson said. "In all my years at OSU, I have never had a graduate student lead something like this.

"When Gainey brought the idea to me, I was ecstatic about it," he said. "I wanted her to know she had not only my support but also the department's full support."

Gustafson said outreach programs like this one are essential to the future of the scientific community.

"This is the kind of thing we, the scientific community, need to make sure young people stay engaged in," Gustafson said. "We want them to see how incredibly interesting and engaging science can be."

Gustafson also said people must understand what scientists do and what their research means.

"You would be surprised at the number of people who would say if they knew DNA was in their food, they wouldn't eat it," Gustafson said.

Educating students at a young age is critical so they understand what is in their food or what DNA is, he added, and the department plans to continue outreach programs as well as bring older students to the OSU campus for more hands-on experiences in the BIMB labs.

Gainey said she became interested in starting a program like this because she and her husband, Taylor Gainey, spend a lot of time in the area and they wanted to give back in a way that was important to both of them.

With the department's support, Gainey plans to continue this outreach effort with the Pawnee Nation.

"I wanted to show these kids all of the amazing opportunities ahead of them," Gainey said. "They need role models. I want to open doors for kids who want the chance to be scientists." CJ

Hope Watkins
Guthrie, Oklahoma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John Groendyke serves as the CEO of Groendyke Transport. Photo by Todd Johnson.

THE CLAS

Leader. Advocate. Visionary.

Oklahoma State University alumnus and Enid, Oklahoma, native John D. Groendyke is best known for his role within his family's business, Groendyke Transport, the fifth-largest bulk transportation company in the United States.

However, some might not know his passion for agriculture and wildlife.

As a third-generation farmer, Groendyke grew up farming and caring for livestock. Today, Groendyke and his family own 750 acres of wheat, alfalfa, native grass and 1,200 commercial cow-calf pairs.

Groendyke graduated from OSU in 1966 with a bachelor's degree in business. While in Stillwater, he was an active member of the Sigma Nu Fraternity.

"I took a number of business classes that helped me return to my family business," Groendyke said. "My minor in animal science has helped tremendously with my farm and ranch business."

He then attended the University of Oklahoma College of Law before serving in the U.S. Army for two years.

After Groendyke returned home from his military service, former Oklahoma Gov. David Boren appointed Groendyke as the Oklahoma Department of Wildlife Conservation commissioner for District 8 in 1976.

"My father was an avid quail, pheasant and big-game hunter," Groendyke said. "As a small child, I participated in quite a few of those hunts, so I really enjoy that."

District 8 of the ODWC spans from Kay and Noble counties in central Oklahoma to Texas and Cimarron counties in the Panhandle.

"We have been involved in various

SIC Cowboy

OSU alumnus supports NREM programs

research during my time as commissioner," Groendyke said. "Quail research is one of my major projects, but it has evolved into deer, bear, Lesser Prairie-Chicken and Greater Prairie-Chicken research."

During his 41 years with the ODWC, Groendyke said the best thing he has experienced is the combined efforts of his team members in regard to wildlife habitats.

"By going together and joining forces, we have been able to come back with more significant and credible wildlife research," Groendyke said.

The ODWC works closely with the OSU natural resource ecology and management department to conduct different types of research, he said.

"Through my time with the Grand National Quail Club, I was able to learn more about the NREM program and become affiliated with it," Groendyke said.

> In terms of leaders from a civic standpoint, Groendyke is right up at the top in Oklahoma.
>
> *Sam Fuhlendorf*
> *natural resource ecology and management*
> *Regents professor*

Groendyke said his father, Harold C. Groendyke, was an active member of the Grand National Quail Club along with well-known Oklahomans Irv Bollenbach and Edward K. Gaylord.

Groendyke said after Bollenbach died in 1997, club members wanted to honor him and created the Bollenbach Endowed Chair in the OSU NREM department.

Groendyke said he donates because OSU is his alma mater and he has a strong connection with the university.

"I was pleased to fund the John D. Groendyke Wildlife Conservation Chair in the NREM department at OSU," Groendyke said.

Sam Fuhlendorf, OSU Regents professor, has served as the John D. Groendyke Chair in Wildlife Conservation since its establishment in 2011.

The Groendyke chair advances wildlife management education and scholarship at OSU by financially supporting a faculty position with teaching, research and extension needs, Fuhlendorf said.

"This chair allows me and the department to focus on research relevant to Oklahoma," Fuhlendorf said. "It also allows for interaction with students who are interested in managing natural resources in Oklahoma."

Fuhlendorf said current research focuses on Groendyke's interests: patch burning, Bobwhite quail Greater Prairie-Chicken and Lesser Prairie-Chicken habitat.

Groendyke's Oklahoma roots allow him to have a more personal connection to university research, Fuhlendorf said.

"The connection is family, culture and agriculture," Fuhlendorf said. "He is also a landowner, which he takes immense pride in. It allows him to know real-world issues and take action on those."

Fuhlendorf said Groendyke is the perfect example of a land-grant donor.

"In terms of leaders from a civic standpoint, Groendyke is right up at the top in Oklahoma," Fuhlendorf said. "He is a main contributor in ensuring we have wildlife management in the state."

Fuhlendorf said the Groendyke and Bollenbach research chairs take the NREM department to a higher achievement level.

"Collectively, the chairs attract and keep really high-quality faculty who can become nationally and internationally recognized," Fuhlendorf said. "Although most faculty are working on research for local problems, ultimately, we also are putting out amazing students who receive jobs all around the world."

In 2016, Groendyke doubled his investment in the endowment to further strengthen the impact of wildlife habitat research, said Tom Coon, OSU vice president for agricultural programs.

"Fuhlendorf has parlayed the investment made by Mr. Groendyke into an internationally known program for wildlife conservation and habitat restoration," Coon said. "It is also mentoring undergraduate, master's and doctoral students. The chair is a lasting legacy."

Cooper Sherrill, an OSU NREM graduate student supported through the endowment, conducts research on sericea lespedeza management practices and how the species affects wildlife landscape.

"Groendyke's generous contribution to the NREM department, including the endowment, makes research such as mine possible," Sherrill said. "His generosity has had a positive impact on my research, and without it, much of the past, current and future research done by Dr. Fuhlendorf and his students would not be possible." CJ

Logan Van Allen
Bakersfield, California

FROM S

Ask Jinguno Dong about her research, and she will tell you about the excitement surrounding an innovative new technology.

Why the enthusiasm? The Oklahoma State University soil science doctoral student has access to a rare, sophisticated research instrument used to observe natural soil patterns.

"Once you have a telescope, you just want to use it as much as you can to look at stars," Dong said. "You can see a lot of things that are quite different."

Dong is not looking at stars, but her instrument does involve outer space. The technology she uses is a cosmic ray neutron rover, or "COSMOS rover" for short. The rover allows researchers to monitor soil moisture without touching the ground.

COSMOS is a national network of soil monitoring stations created by University of Arizona researchers called the Cosmic Ray Soil Moisture Observing System. The rover, which was developed by environmental observation equipment manufacturing company Hydroinnova in Albuquerque, New Mexico, uses technology similar to the stations with one major difference: its mobility.

Tyson Ochsner, OSU associate professor of applied soil physics, and a team of students and other faculty began tests with the rover in 2011 when they borrowed a version of the instrument from UA.

With funding from the National Science Foundation's Experimental Program for Stimulating Competitive Research, an initiative to improve research infrastructure in Oklahoma, OSU researchers gained a rover of their own in 2014, Ochsner said.

"The key thing we wanted to improve was our ability to monitor soil moisture across the state," Ochsner said. "That's what got us into this current project."

Although the technology is large-scale, measurements start at the molecular level, Dong said. Cosmic rays — subatomic particles originating in outer space — constantly penetrate earth's atmosphere. When the fast-moving particles collide with molecules in the atmosphere, they create high-energy neutrons, called fast neutrons.

When the cascade of fast neutrons hits Earth's surface, it creates an opportunity for data collection. Hydrogen atoms have the same size and mass as the fast neutrons. When the two interact, the hydrogen atoms, mostly in the soil's water, slow the fast neutrons, Dong said.

The rover consists of helium-3 gas-filled tubes, making it sensitive to fast neutrons, Dong added. The fewer fast neutrons the rover detects, the wetter the soil.

However, the rover is not the first major technology used to document soil moisture in Oklahoma. The Oklahoma Mesonet, a statewide weather network with 120 measurement stations, estimates soil moisture directly using sensors buried at varying depths.

Mesonet stations are situated approximately 18 miles apart, leaving large gaps

Researchers use molecular soil measurements to make statewide moisture maps. Photos by Alexis Shanes.

Researchers use cosmic rays to measure soil moisture

in which soil moisture varies remarkably, Ochsner said.

Until the rover application, measuring between stations was infeasible, he added. Now, researchers simply load the instrument into a vehicle and drive down the road to take measurements.

"That changes everything for us," Ochsner said. "We can start to observe the spatial patterns in soil moisture that we've never seen before."

The rover, which takes indirect measurements, complements the Mesonet sensors, said Chris Fiebrich, Oklahoma Mesonet executive director.

"Both are really important to understanding Oklahoma's water budget," Fiebrich said. "We want to understand how the soils respond to rainfall and how that then impacts agriculture."

Although the rover has a large measurement footprint — an approximately 31-acre circle — it still requires careful application. Driving too fast makes collecting enough fast neutrons difficult, leaving greater room for error in final data, Dong said. She drives approximately 30 mph when taking measurements.

In 2015 and 2016, the researchers designed and completed a rover trial involving a 100-mile fixed path, called a transect, Dong said. Once or twice a month, they drove the rover along the transect, gathering data and observing patterns. Thirteen months later, the team had enough information to identify variables controlling the patterns.

"The No. 1 strongest influence on the soil moisture patterns we observed was the variation in soil texture," Ochsner said. "Variations have a huge imprint on the soil moisture patterns. We didn't have the data to prove that before, and now we do."

Dong currently performs stationary experiments with the rover by parking it at Mesonet stations to increase the area represented by the Mesonet data. She devotes approximately 10 hours per week to working exclusively with the rover, she said.

But the rover is not just a cool new technology used for theoretical experiments. By combining research forces with Mesonet, Ochsner and his team built a soil moisture mapping system, he said.

The research team visited Mesonet monitoring sites to collect and characterize the soil before obtaining the rover. Measuring soil properties helps researchers interpret data from both stationary and mobile sensors, Ochsner said.

"If you've ever worked with soil or growing media, you know that they're different," Ochsner said. "If you have sand, it doesn't hold much water, but if you have a clay, it holds a lot of water, so we had to account for those differences in soil water retention among the sites and also among the different depths at one site."

After obtaining information about soil hydraulic properties — detailed parameters defining traits such as saturation — Ochsner and his team used computer simulations to describe water movement through soil using mathematical functions, a process called modeling.

The new soil mapping system automatically loads measurements from the stationary Mesonet stations, Ochsner said. Then, it applies a computer model informed by the rover data.

The model, combined with high-resolution soil maps and rainfall estimates from a National Weather Service radar, allows the system to create a scientifically backed map of daily soil moisture patterns for the state.

"It produces these maps for every half mile for the whole state of Oklahoma," Ochsner said. "We have these soil moisture maps every day."

The composite map is available at the OSU High Performance Computing Center, while the stationary sensor map is accessible at the Mesonet website.

Soil moisture is a fundamental variable production agriculturalists consider, so accurate, applicable data is extremely important for farmers, Dong said.

"Everybody wants to know soil moisture at a certain field," Dong said. "Farmers who need to irrigate their land have to know the soil conditions."

Mesonet provides tools that allow farmers to determine proper irrigation levels for specific crop stages, Fiebrich said. The organization also offers training for agriculture professionals, helping them maximize the maps' effectiveness.

"OSU faculty member Al Sutherland is our ag outreach coordinator who works with county educators and growers on how to use these moisture tools in their operations," Fiebrich said.

Additionally, knowing soil moisture conditions helps with drought monitoring, wildfire forecasting and flood prediction, Ochsner said.

Mesonet's weekly drought map is part of a nationwide monitor, but Oklahoma's portion is especially detailed thanks to the unique technology available, Fiebrich said. Mesonet maps also are valuable for weather forecasting as they provide information about conditions prior to rain, allowing researchers to anticipate the implications of additional moisture.

Former OSU undergraduate research assistant Phillip Pope prepares the rover for a trial. Photo by Jinguno Dong.

"There's a really complex way that moisture moves through the soil and the way it evaporates out of the soil," Fiebrich said. "Mesonet allows users to graph how moisture is changing after a rain event."

Making maps of Oklahoma — 68,679 square miles of land — might seem like an impressive accomplishment, but Ochsner has even bigger plans.

"I'd love to see us do that for the whole U.S.," he said, smiling. "That would be the next big goal."

The rover data is applicable in Oklahoma because of the Mesonet, but proving its worth to the rest of the country is a bit more difficult, Ochsner said. The team plans to continue conducting trials, pushing the technology's boundaries in hopes that a federal agency will discover the project and appreciate the researchers' vision, he added.

Although national soil moisture mapping has yet to happen, Ochsner said he is optimistic about the project's future.

"We're working on it," he said. "I don't think we'll stop until we find a way to make it happen." CJ

Alexis Shanes
Wichita Falls, Texas

BUILDER OF MEN

fhokstate.com | rushfh@yahoo.com

FARMHOUSE
FRATERNITY

THE PATH TO Pete

CASNR senior pursues goal with intense determination

Meet Steven Vekony, and you may not recognize him.

In his role as a 2017-2018 Pistol Pete, the animal science and agricultural education student likely first introduced himself to you while under the mascot's head.

Now a senior, Vekony was not always certain he would have the opportunity to serve as Pistol Pete nor did he see himself in the College of Agricultural Sciences and Natural Resources.

Vekony's first interest in a degree in agriculture came during high school in Byng, Oklahoma, after a futile attempt to find his place in sports, he said. Vekony tried both cross country and baseball, realizing high school athletics were not the place for him after a season of baseball.

"The only catch I made was when I tripped over my shoelace," he said. "That's an actual story."

At the time, Vekony's only connection to agriculture was growing up on two acres of land with a couple of dogs, but he enrolled in his school's agricultural education class as a way to fill his class schedule.

"I went to class the first day to kind of see what it was about," Vekony said. "I hated it."

Though he wanted to drop the class, he said Craig Thompson, his agricultural education teacher, convinced him otherwise.

"After talking to Mr. Thompson, I realized there were opportunities other than sports, so I decided to stay in FFA and got involved in public speaking," Vekony said, adding he fell in love with the organization. "I thought at the time I wasn't going to be a college athlete, but I knew I wanted to pursue FFA outside of high school."

Vekony became more involved and was elected as an Oklahoma FFA Association officer, where he spent the best two years of his life, he said.

While serving as Oklahoma FFA president, Vekony spoke at the Oklahoma FFA Convention about "Telling Your Story." After looking at his own life, he said he realized one of the biggest parts of his story, second only to his Christian faith, was being an OSU Cowboy.

"I knew Byng was a place I had a house, but Stillwater was the place I had a home," Vekony said. "That was really special to me — just OSU in general and the people here. It's definitely home."

Wanting to focus his speech on something unique to OSU, Vekony began extensive research on Pistol Pete's past and present. With a 19-page speech completed, he continued to think of ways to make his presentation more impactful, he said.

"I thought it would be really cool to reference Pistol Pete during the speech, his characteristics and attributes, and I thought maybe we could do a laser light show that made the image of Pistol Pete on the screen while I spoke," Vekony said.

As he continued planning, his dream became one of having Pistol Pete there, live and in person, he said.

At the time, Landon Stallings, a former FFA member from Holdenville, Oklahoma, served as Pistol Pete and agreed to appear at the convention.

"After the speech, I saw Landon walking out of the building with the Pistol Pete head thrown over his shoulder in a bag," Vekony said. "I was like, 'Man, I've got to talk to this guy.'"

Stallings explained the tryout process to Vekony, and in response to his extreme interest, Stallings invited Vekony to a few events, one of which was a visit to a children's hospital.

"That was the point that I was like, 'This is what I want to do, and this is what I want to pursue,'" Vekony said. "I just saw the smile that Pistol Pete put on people's faces when they were going through a hard time. On some of the most important days in people's lives, Pistol Pete shows up to those. But also, at some of the most emotional times, he shows up, too."

That day changed everything, Vekony said, because he became determined to be Pistol Pete.

Vekony began counting the days to the tryouts at the end of his sophomore year. He competed against about 15 other men, making the top five, but going no further.

"I didn't get it that year, and I remember being devastated," Vekony said. "That was tough, and seeing Pete the next year was really hard, to be honest."

Scott Petty, tryout judge and Pistol Pete No. 40, said he was reminded of himself seeing Vekony for the first time.

While Vekony impressed the judges, Petty said he was just too young. When Vekony was not chosen, Petty encouraged him to try out again.

Vekony said he then decided to do everything he could for a different outcome the next year.

He went to work, taking concealed carry and firearm safety classes to feel more comfortable handling Pete's signature

pistol, hitting the gym, talking to former Petes, and watching every Pistol Pete video he could find to really take on the mascot's unique persona.

"Creativity is a big part of being Pistol Pete," Vekony said. "You're not ever really going to take the place of a mascot who does flips in the air because it's physically impossible. So, Pete's more of a guy who stays true to who he is as a cowboy and uses whatever is around the room to his advantage in terms of being creative with props in any way that he can."

Vekony said learning how to do this was crucial to becoming Pete. Petty said Vekony excels in this area.

One year later, both men were back in Gallagher-Iba Arena, Vekony again hoping to win the honor of bringing the Cowboy mascot to life.

"I counted down the days and made the final rounds but didn't get it," Vekony said. "That was tough. I decided even though it was tough, I was really going to make the most of where God put me."

Instead of spending another summer disappointed, Vekony spent nine weeks in Florida at Kaleo, a student ministry based in Florida, growing in his faith and learning to share his story. He came back to Oklahoma with a clear vision and a renewed mindset, he said.

Vekony said that summer taught him to view being Pistol Pete as a way to serve OSU and build relationships with the students, athletes, staff, alumni and fans.

Vekony brought new perspectives to the next round of Pete tryouts.

Petty said Vekony came into his third year of tryouts at his best.

Steven Vekony plans to earn an MBA after his bachelor's degree. Photo by Hayley Cobb.

One of Steven Vekony's duties as Pistol Pete is to excite the fans at pep rallies and sporting events. Photo by Bruce Waterfield.

"I was the last guy chosen," Vekony said. "That was emotional … I teared up."

His passion for being the best role model he can be, both as Pistol Pete and as Steven Vekony, does not go unnoticed.

"It's really important for us to get good guys, of good character, who will make good decisions," Petty said, adding how great Vekony, Pistol Pete No. 88, is in filling that role.

The other student chosen to be Pistol Pete was Kyle Foreman, an aerospace engineering senior. Foreman, who also knows Vekony through Oklahoma FFA, said Vekony was his best competition and is grateful Vekony was selected to complete the two-man team.

"Unlike a football team with 70 other people there, I have Steven, and Steven has me," Foreman said, noting how close being Pete has brought the two.

"My first impression of Vekony being Pete was, 'Man, he's doing really good,' and he kept going, and I thought, 'He's doing a phenomenal job,'" Foreman said.

Foreman said he could not think of a better man than Vekony to represent OSU.

"He's just a great guy," Foreman said, adding Vekony is a creative go-getter and constantly thinks of ways to make Pete even better, both on and off the field.

Vekony, who has since suited up as Pistol Pete for more than 200 events, said he really did not expect just how fun, yet fatiguing, a game day would be.

"I love The Walk," Vekony said. "It's the most exhausting of everything because everyone is so high energy.

"It's also really cool to be out on the football field," he added. "That's a great part of being Pete, but the one-on-one interactions that you get to make with people as Pete are really special."

Late in the summer, Pete was invited to make a house call in Skiatook, Oklahoma, for a Cowboy who would soon enter hospice care. Vekony, as Pete, entered the man's house, but the man did not turn his attention from the TV to greet the unexpected visitor. Then, the squeals of children, elated to see Pete, caused the man to turn and see OSU's front man standing in his living room.

"I have never seen someone's expression go from what it was to what it did," Vekony said. "Pete really brought a lot of joy to him in that moment."

Unable to engage in conversation from behind the head, Vekony sat and listened to the man tell stories and tell Pete he would be watching the games from above.

"It was really emotional," Vekony said. "It was then that I was glad I had a head on my shoulders to cover my emotions underneath it."

After taking pictures with the family, Vekony and the man were alone. At that point, Vekony took off the head to talk with the man. Their conversation left a lasting impact on him, he said.

Two weeks later, at an OSU Spirit Team reunion, a friend of the family from Skiatook informed Vekony the man died the day following his visit.

Vekony said he was glad to have been there for the man and his family, making their last of many memories with Pistol Pete. Vekony said he is grateful for the platform he now has to care for and serve people in the Cowboy community.

"I think there's a reason why I didn't get Pete two years in a row," Vekony said.

"Now, I think I'd like to be Pete for 25 more years," he added with a smile.

Foreman said Pistol Pete is a great guy and requires someone like Vekony to personify him.

"Pete is what we all as Cowboys stand for," Foreman said, adding Vekony truly embodies the essence of the university's iconic cowboy.

Petty said his best experiences being Pistol Pete are happening now as he watches the younger guys grow and develop Pete. He said Vekony is a great example of the type of student who truly leaves Pete an even better guy than when he found him. CJ

Hayley Cobb
Claremore, Oklahoma

Peanuts of

USDA pairs with OSU to create new peanut varieties

Patience is a quality anyone growing crops develops. Many crops take several months to grow, but a few take years to measure performance.

This quality of patience is tested at the U.S. Department of Agriculture – Agricultural Research Service in Stillwater, Oklahoma, said Kelly Chamberlin, USDA-ARS research biologist, peanut geneticist and Oklahoma State University College of Agricultural Sciences and Natural Resources graduate.

Scientists at the USDA-ARS breed different varieties of peanuts, which requires selecting peanut plants with desired traits to cross pollinate and produce a better quality peanut. Each variety takes at least seven years to develop, Chamberlin said.

"We look for resistance to fungal diseases such as Sclerotinia blight, leaf spot and southern blight that are caused by different fungal pathogens," Chamberlin said.

Oklahoma has 19,158 acres in 16 counties planted in peanuts. According to the USDA, three counties dominate Oklahoma's peanut production: Caddo, Beckham and Major, with Caddo producing nearly 10,000 acres.

Peanuts in the U.S. can be categorized into four market types: runner, Virginia, Spanish and Valencia. USDA-ARS in Stillwater focuses on runner, Virginia and Spanish peanuts because Oklahoma producers grow these market types, Chamberlin said.

According to the USDA-ARS, the goal of the peanut research program in Stillwater is to increase the sustainability of the high-oleic peanut in the southwest U.S., increase producers' profits, and reduce disease and fungicide inputs, which is where the Spanish peanut excels.

Rebecca Bennett, a research plant pathologist at the USDA in Stillwater, started working with peanuts in 2012. One of her projects helps identify sources of resistance to various diseases.

"I screen the peanuts for a disease called southern blight, which is a problem in the southeastern United States," Bennett said.

Peanuts are summer annual crops. They can only be grown from May to October in Oklahoma, Bennett said. Only one generation of peanuts can be grown per year, so developing improved varieties takes multiple years.

"Some peanut breeders have winter field trials in Puerto Rico to get a second generation evaluated in a year," Bennett said. "A lot of testing occurs throughout the program."

Bennett said another focus of the USDA-ARS peanut program in Stillwater is the emphasis on the high-oleic peanuts.

"High-oleic foods are healthier," Chamberlin said. "High-oleic Spanish peanuts have at least 10-to-1 ratio of oleic to linoleic fatty acids, which makes them more heart healthy for consumers."

In the southwest U.S., the peanut industry has transitioned toward high-oleic peanuts, Chamberlin said. These peanuts are high in monounsaturated fat.

Since the beginning of her research, Chamberlin has developed new high-oleic peanut varieties for each market type.

In her research, she determines the exact male flower to cross pollinate with a female flower to enhance the likelihood the offspring will exhibit signs of resistance to the disease being tested during the trial, Chamberlin said.

If a progeny line shows the resistant trait after three years of advanced testing, Chamberlin presents the new variety to the USDA-ARS and OSU plant variety release committees, she said.

Once the committee approves the release of the new cultivar, OSU and USDA-ARS release it jointly. Oklahoma Foundation Seed Stocks produces the seeds for commercial production.

"USDA-ARS licenses all their peanut varieties that come out of Stillwater's ARS office to OSU, which is the first-step in large scale seed production," Chamberlin added. "They grow the seed until there is enough seed for commercial growers, and they ensure the seed can be purchased throughout the state."

Todd Baughman, weed science program support leader at the Institute for Agricultural OSU Biosciences, conducts weed management trials with peanuts in Fort Cobb, Oklahoma, and observes new varieties and their resistance to pests.

Properly managing weeds in peanut fields is a challenge, Baughman said. Developing a residual program is essential for peanut plants to grow, he said.

"Right now we face a two-fold issue," Baughman said. "Weed resistance and the limited number of herbicides require growers to make multiple applications to

Promise

control weeds, and we are now dealing with pigweed resistant to glyphosate in rotational crops."

Once the new varieties are tested at the OSU test plots in Fort Cobb, a few more steps occur before farmers can purchase and grow the peanuts commercially, Chamberlin said.

The peanut seed's acceptance can vary based on the seed variety released to growers. The demand of the market, peanut buying points and peanut shelling points across the state affect acceptance, she said.

"Even though some varieties are not accepted as well as others, Chamberlin's latest Spanish release should be appealing to the market," Baughman said.

The variety, called "OLé," which is high-oleic, has tremendous potential to dominate the Spanish peanut market, Baughman added.

Once the seed is available to purchase at buying points, the need for that variety of seed will depend if the seed continues to show disease resistance and no new known diseases appear, Chamberlin said.

"We develop new peanut cultivators to benefit all members of the peanut industry, which includes farmers, shellers and manufacturers," Chamberlin said. CJ

Braden Schovanec
Garber, Oklahoma

Researchers at OSU and USDA-ARS in Stillwater developed Jupiter, a new variety of Virginia peanuts. Photo by Braden Schovanec.

An Economist's Three Leg

OCES administrator completes 41 years of service

In the beginning, James Trapp was just a small-town Kansas farm boy who attended a one-room school house with seven other students. For the past 41 years, he has served the land-grant mission at Oklahoma State University.

A native of Russell, Kansas, Trapp found his way to Kansas State University to obtain his bachelor's degree in 1969 and master's degree in 1971. After receiving his master's degree, he turned down an offer from Harvard University to attend Michigan State University, where he obtained a second master's in economics and doctorate in agricultural economics.

With his agricultural background, Trapp said he was determined to conduct research for a land-grant university. He said he chose OSU because Oklahoma's wheat and livestock emphasis was similar to where he grew up.

He spent 24 years as a College of Agricultural Sciences and Natural Resources faculty member before serving six years as the agricultural economics department head and 11 years as associate director of the Oklahoma Cooperative Extension Service.

"As a faculty member, he was honored for his scholarship roles and received the honor of being named a Regents professor, OSU's highest rank," said Thomas Coon, vice president for agricultural programs. "He had to give up the title of Regents professor when he became associate director of OCES and was willing to do so."

When Trapp retires in January, he will leave an impact in teaching, research, how the OSU Department of Agricultural Economics operates and all the great people he has hired, said Mike Woods, OSU agricultural economics department head.

Woods said leadership and the ability to look at farming as a whole has allowed Trapp to succeed as the OCES director.

"Trapp has positioned extension to go forward in the next century," said Keith Owens, associate vice president of the Oklahoma Agricultural Experiment Station. "Trapp put a lot into what extension has been and what it will be."

Trapp helps make extension, research and teaching work together, Owens said.

His collaborative efforts and strategic thinking helped bring OCES through budget crises, said Derrell Peel, agricultural economics professor at OSU. Trapp looks at things from all angles and thinks of the future, helping OCES as well as OSU, Peel added.

"In the past three years, we have had a lot of budget cuts," Coon said. "Trapp has been dedicated to handling a decrease in OCES employees as humanely as possible to try and help employees not be disturbed in their work life and to keep counties from being jeopardized."

Coon said Trapp genuinely cares for people while being an economist and keeps a good balance between budget and meeting people's needs.

"A shrewd strategist is what I would call Trapp," Peel said.

Trapp reflects the land-grant mission, Peel said. When Trapp started teaching and researching, he expanded into OCES and was successful, making him a good candidate for his current job, Peel added.

Trapp, Peel and two other faculty members developed the Fed Cattle Market Simulator, which is a unique way of addressing teaching, extension and research. Peel said the team worked on the simulator for more than 20 years, and they still have requests for it today.

The Fed Cattle Market Simulator, or the Feeder Packer Game, was developed in the early 1990s, Trapp said, to teach people how the fed cattle market works.

"In 10 minutes, the game can simulate fed cattle trade of one month," Trapp said. "If the class lasted all semester, we could simulate about six to seven years.

"This is the only class where I have seen a diverse group of students work together and each one of them learn something different," he added.

"We would run workshops all day and the people involved would beg us not to quit when it was finished because they would think the good times were just around the corner," Trapp said.

The Fed Cattle Market Simulator won professional society awards, as well.

Being from a land-grant college allows groups of people to share ideas and use them to benefit others, such as cattle producers in Oklahoma, Trapp said. The idea for the simulator came from sociologists in England, Trapp said.

"Trapp was one of the reasons I wanted to come to OSU after getting my doctorate," Peel said. "He has become an important mentor and close friend."

acies

Trapp said one of his greatest satisfactions is to have hired or mentored multiple people who did well at their jobs and furthered their careers to continue their personal success.

"One of the biggest changes I've seen is the way we communicate," Trapp said. "When I first got to OSU, we wrote everything for our secretary to type. Now, we generate written communication more efficiently with word processing.

"The way we communicate now doesn't change what we say, just how we say it," Trapp added. "It also changes how you relate to people."

When Trapp was growing up, he had access to only one TV channel. The only information the public saw was from that channel and the newspaper, making only one viewpoint available, he said.

"Now, almost everyone has a smartphone and has access to an infinite number of viewpoints," Trapp said. "We went from not enough viewpoints to too many, and it has made it a challenge for extension. However, technology allows for more ways for extension to get its information to people."

Extension has to know its clients, what matters to them and what type of communication works best to provide information to them, Trapp said.

Trapp and his wife, Carol Dreher Trapp, have two children — Scott Trapp and Wendy Murphy, who both graduated from OSU — and two grandchildren: Bradighn James Murphy, 8, and Maggie Ann Murphy, 6.

James Trapp began working at OSU in August 1976. Photo by Reighly Blakley.

James Trapp speaks during the Extension Centennial in 2014. Photo by Todd Johnson.

"Besides raising our two children and being a great papa, Jim has good leadership skills because of his involvement with many organizations, especially 4-H," Carol Trapp said. "He sees both sides of an issue and can think on his feet. He weighs both sides before he speaks."

After spending almost 42 years at OSU, Trapp will retire Jan. 10, 2018. He said he plans to help on the Kansas farm where he grew up, spend lots of time with his grandchildren, and travel with his wife.

"Trapp will leave a legacy in many dimensions," Peel said. "As a faculty member, his research will continue to be used. As the department head, the department prospered under his leadership, and he has brought the agricultural economic department to where it is today." CJ

Reighly Blakley
Oologah, Oklahoma

A pathway to better BEEF

Improving beef quality one audit at a time

Photo by John Clouse.

To improve the quality of beef on every plate, the Beef Checkoff initiated the National Beef Quality Audit in 1991.

"The first NBQA was conducted to provide us a report card as to how the industry was doing," said Jesse Fulton, National Cattlemen's Beef Association associate director of producer education.

Ultimately, the NBQA is designed to be a guide for the U.S. beef supply, said Deb VanOverbeke, Oklahoma State University animal science professor and College of Agricultural Sciences and Natural Resources assistant dean.

The OSU Division of Agricultural Sciences and Natural Resources has supported the NBQA since the audit's inception. VanOverbeke, who served as a principal NBQA investigator in 2017, has been involved with the audit team since she was a graduate student. VanOverbeke partnered with OSU animal science professor Gretchen Mafi to lead the most recent OSU audit team.

The multifaceted 2017 audit included face-to-face interviews, a production plant inspection and strategy workshops.

The NBQA team conducted in-person interviews with industry professionals, including producers, packers and customers. Later, in the plant, the investigators observed cattle and carcasses in the holding pens, on the harvest floor and in the cooler to evaluate quality defects. Finally, they conducted strategy workshops to calculate lost opportunities and devised a plan for the next five to 10 years.

"The NBQA was molded after a concept by W. Edwards Deming's total quality management to measure the frequency of defects and address the production system to fix those defects," VanOverbeke said.

Results have changed through the years, according to the Beef Quality Assurance program. In 1991, the audits listed hide defects and excess fat as the most important concerns. In 2016, audit concerns related primarily to consumer issues, including food safety and eating satisfaction.

The audit, which is updated every five years, provides a guide for a quality baseline product as well as goals for the future, Mafi said.

"NBQA started as a benchmark to see where the industry is regarding key issues," Mafi said.

The beef industry still is looking for better ways to minimize defect loss, VanOverbeke said.

"$49.06 per head is lost due to quality defects in fed steers and heifers," she said.

In an attempt to control the final product, commercial cow-calf producers work to improve beef quality through selective breeding, Fulton said.

"We realized the quality of product was hindering opportunity for financial benefit across the industry," Fulton said. "Carcass data really proves what kind of calves are produced and allows for genetic decisions to be made to improve beef quality."

Results from more than 4.5 million carcass data entries at plants nationwide provide a clear picture of the products harvested, VanOverbeke said.

The NBQA offers answers to rising consumer concerns, VanOverbeke added. Retail and food service establishments also provide insight to consumer issues that play a role in developing the roadmap for the beef industry, she said.

"Great information and actionable strategies for every segment of the cattle industry are available in the National Beef Quality Audit," Fulton said. "Many improvements from animal welfare to meat quality are documented through the last 25 years."

The NBQA shows where the industry is falling short and gives a focus for improvement efforts, Fulton said.

"Our industry produces higher quality beef more efficiently, which keeps beef delicious and affordable," Fulton added. "As long as funding continues for this industry research project, NBQA will continue to be conducted every five years, providing us the scorecard we need to improve our great industry." CJ

John Clouse
Blacksburg, Virginia

Happiness IN A CUP

Tulsa baker seeks help from FAPC to launch sweet treat

Step into Jennifer Jones' bakery in Tulsa, Oklahoma, and you can sense her happiness through the bright colors and even brighter smiles.

Jones, owner of Icing on the Top bakery, said she strives to mix happiness into her cakes and her new sweet treats, Scrappy Cakes.

As a child, Jones watched her mom bake cakes but never had any intention of owning her own bakery, she said. Baking one cake at a time, Jones has gone from a stay-at-home mom to celebrating 15 years of baking sweet treats at her bakery.

At first, Jones said she did not even make her four kids' birthday cakes because she wanted to enjoy those special moments as their mom. Jones said that situation changed when her 5-year-old daughter picked a simple cake design for her birthday. She could not pass the opportunity to make it herself, she said.

"I never had in mind to be a baker," Jones said. "My mom made cakes, but I didn't do much with cakes.

"When my daughter turned 5, she chose a Hollywood-themed star birthday cake design too easy to hire out," she said.

Jones made her daughter's birthday cake, which led to her friend's insistent requests for additional cakes.

"I told my friend 'no' originally, but she was insistent I make her a cake and then there was no going back," Jones said.

Many of Jones' friends and family were impressed with her work and encouraged her to start her own bakery, she said.

Jones said she decided to "go all in or nothing," because running a food business in a home kitchen was illegal at the time.

"Starting out, I rented space from a donut shop to make my cakes," Jones said.

As Jones' cake business grew, so did the amount of cake scraps left behind after cutting the dome off the top of cakes, called "leveling" them.

"I had to find a way to use the scraps in a way someone could eat them because I hated wasting them," Jones said. "I cannot put into words how much scrap cake I was throwing away."

At the time, cake balls were gaining popularity and looked like a way she could use scraps, she said.

"I was excited to finally have a way to use up all my scraps, but then I realized how time-consuming cake balls were," Jones said. "I was back to square one with all the scraps I was throwing out."

Jones said she had the idea of taking her cake scraps and layering them with icing in a container.

"I just thought to myself, 'I've got to find a way to make this in a way people can eat it,' " Jones said.

Jones said she started selling Scrappy Cakes in her bakery after she moved to her second location in downtown Tulsa. Twelve years and two locations later, Jones decided to launch Scrappy Cakes as a commercial product, she said.

Jones said as Scrappy Cakes' popularity grew, an employee mentioned how Oklahoma State University's Robert M. Kerr Food and Agricultural Products Center could help with the product's marketing and distribution. Jones said she met Andrea Graves, business planning and marketing specialist, while exploring the ways FAPC could assist her.

"Jennifer had a really neat idea and wanted to do something with the waste she had from her cakes instead of throwing it away," Graves said. "One of the first

Jennifer Jones bakes happiness into her sweet treats in her Tulsa bakery, Icing on the Top. Photo by Jenna Maltbie.

things we helped her with was developing a label."

Mandy Gross, communications service manager for FAPC, designed the Scrappy Cakes label.

"She already had a logo and a concept of what she wanted the label to look like," Gross said. "Our main goal was to take those pieces and help make her label compliant with the Food and Drug Administration's regulations."

Jones also makes Scrappy Cakes for special events, and Gross helped design custom labels for those events, as well.

"We took her product and helped her get on the right track to go a different direction than she had before," Gross said.

Graves said Jones came to FAPC with a plan because Jones already owned a business. The FAPC team's role was to help her transition her product to be sold outside of her bakery.

Graves said FAPC helped Jones with packaging, determining shelf life, labeling, developing a nutrition facts panel, and finding locations for distribution.

"I wish I could narrow down the most impactful thing FAPC has done for my business, but really it has been the whole process," Jones said. "Our biggest challenge in this process has been getting the message out there and having businesses and food companies commit to sell Scrappy Cakes."

Graves is a key player in helping Jones get her Scrappy Cakes in various locations and in front of retailers, Jones said.

Jones and Graves have worked together to spread the message of Scrappy Cakes through an exhibit booth at the Oklahoma Restaurant Association Show and the Oklahoma Grocers Association Show, Graves said.

"I know many of the buyers at these shows and tried to introduce Jones to those connections," Graves said.

With FAPC's assistance, more than 18,000 Scrappy Cakes have sold in more than 25 locations throughout Texas, Arkansas and Oklahoma, including the OSU and University of Oklahoma campuses, Jones said.

She said Scrappy Cakes last up to one year in the freezer or seven days in the refrigerator and come in three flavors: triple chocolate, butter pecan and carrot.

With Graves' assistance, Jones is drawing plans to remodel her kitchen to accommodate for her increase in orders, Graves said.

"We bake scrap now," Jones said with a laugh. "We bake a thin layer on a sheet pan and then break it up."

Jones said the most rewarding part of making Scrappy Cakes is seeing how it makes her customers feel.

"When people come in and express how this product turns their day around, it means so much to me because it is so meaningful to them," Jones said.

"It is rewarding to package up Scrappy Cakes and deliver them to customers," Jones said. "I feel instant gratification."

Jones said she feels like she was called to be a baker.

"I followed that calling," Jones said. CJ

Jenna Maltbie
Burlington, Oklahoma

Members of the 38 federally recognized tribes in Oklahoma can use the Center for Sovereign Nations. Photo by Morgan Anderson.

Diverse Entomologists

New grant program helps Native American scholars

Culture, determination and education are three qualities six self-driven, hard-working freshmen — now OSU's first Entomology Multicultural Scholars — possess.

The Oklahoma State University Center for Sovereign Nations has encouraged the students toward academic success through the inaugural year of a four-year, $200,000 grant, the Native American Entomology Multicultural Scholars Grant.

"This grant gives an opportunity to students who probably otherwise wouldn't come to OSU and may not have ever considered entomology," said Wyatt Hoback, primary investigator and assistant professor of entomology.

"It promotes our discipline, shows what job opportunities there are in entomology, and provides a scholarship to offset the cost of college," he added.

Hoback and Elizabeth Payne, the center's founder and director, worked together to develop the grant application for the Entomology Multicultural Scholars Grant. Co-primary investigators Bruce Noden, Justin Talley and Astri Wayadande also helped create the program.

The Center for Sovereign Nations was established in 2015 as part of OSU President Burns Hargis' vision for focused service to the 38 federally recognized tribal nations in Oklahoma, Hoback said.

Payne said she invited the OSU Department of Entomology and Plant Pathology to become a Center for Sovereign Nations partner in 2016.

Choctaw Nation Chief Gary Batton designated the grant application for the U.S. Department of Agriculture Higher Education Multicultural Scholars Program as an official application from the

Choctaw Nation of Oklahoma Promise Zone Initiative project.

The first tribal scholars are Choctaw students Taylor Coles, Alexis Coles, Bailee Posey and Haylee Stevens; Muscogee Creek student Natalee Taylor; and Cherokee student Katelynn Montgomery.

As a part of the grant, the six Native American students will learn about entomology as well as ways to pursue their professional careers and give back to their tribes, Hoback said. The grant provides science, technology, engineering and mathematics-based curriculum and research experiences in three areas of entomology: insect biology and ecology, medical veterinary entomology, and forensic entomology.

The students also will visit research and commercial facilities for food safety, agrosecurity, and medical and veterinary entomology. Toward the end of the grants, the students will complete a study-abroad experience in Panama.

"International experiences are something that students are fortunate to do with entomology," Hoback said.

"Once you get out of your own country, you are out of your comfort zone and you're able to see how other people live and realize the world is not a small place," he said. "It is a way to round out your education that is not possible if you stay in the department."

Hoback said the grant program has brought new energy to the entomology department. The department is now able to do things it has not done in the past, Hoback said.

"I didn't realize the experiences I have had this semester until someone asks me how I do my day-to-day and it's all at the center," Taylor Coles said. "From schoolwork to personal help, someone is always there for someone in need.

> The center staff shares love while you are here. They definitely want to see you succeed.
>
> *Bailee Posey*
> *OSU entomology grant freshman*

"The center staff has been a huge help to us and wants to help us be successful," she added.

Members of the center team have mentored the six students during their freshman year at OSU.

The six students meet at least twice a week with Courtney Arnall and Sky Rogers, center coordinators.

"The center has a three-fold mission — sovereignty, students and partnerships," Payne said.

"It's critically important that we execute that mission successfully," she added. "Not only do we have the ability to be supportive and create an environment of community that promotes academic success for students, but these students serve as role models."

Payne said having the students at the center is a pleasure.

"They bring such intellect, heart, focus and discipline to this program," Payne said. "It's such a joyful experience."

Montgomery said she could not imagine going to another school because of the leadership opportunities she has had through the center.

"Not many students have someone they can just go and talk to," Montgomery said. "This scholarship is unlike any others in a good way in that it's so personal.

"All the students go to the center to hang out and see each other, and everyone is like family," she added. "The center is a home away from home."

Taylor Coles said moving to Stillwater and enrolling for classes happened quickly. However, she said she loves where she ended up.

"The professors I have for entomology make it fun and interesting," Taylor Coles said. "You learn things really fast, especially if you love your major. Also, you can tell the professors love their jobs. They are so passionate about what they do."

Alexis Coles said the grant has provided the six grant participants with excitement and opportunities for growth.

"The center is there to encourage us not only for academic success but also moral support," Alexis Coles said. "I am very honored to have this scholarship. It has tremendously helped me and my twin sister move forward with our education and reach success.

"To actually be at OSU, it's an opportunity that unfortunately most people don't get, and I get to experience that with my twin," she said.

Posey said the six students have enjoyed each other and the continuous support from the center.

"The center staff shares love while you are here," Posey said. "They definitely want to see you succeed."

Hoback is always checking on the six entomology students, Stevens said, unlike many busy advisers. The scholars know they are always cared for and have a support system, she said.

Five of the six students want to pursue a career in a medical or veterinary field. With the grant, they have an increased chance of being accepted into their preferred graduate school, Payne said.

Few Native Americans earn degrees in entomology, Hoback said. The grant will bring more light to entomology and also encourage more Native Americans to pursue a degree.

"This scholarship has been such a blessing," Montgomery said. CJ

Morgan Anderson
Tahlequah, Oklahoma

Center for Sovereign Nations

The OSU Center for Sovereign Nations is designed to lead students into academic success and help them carry their achievements into their professional careers.

Through the center, students can find internship and scholarship opportunities as well as potential employment for after college.

The center's office in 104 Life Sciences East is home to 14 American Indian student organizations.

The center team is available to help students connect with opportunities in the Center for Sovereign Nations. For more information on the Center for Sovereign Nations, visit sovnationcenter.okstate.edu.

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Taking Learning

OSU students design hands-on learning garden

With the help of Oklahoma State University landscape architecture students, children at Westwood Elementary in Stillwater, Oklahoma, can take their learning outside to an interactive learning center.

The idea for an outdoor learning garden developed because of Principal Darren Nelson's hope for students to have a gardening experience. He decided the school's dreary courtyard would provide the perfect space for the learning center, he said.

"The original idea was for students to have the chance to experience growing plants from start to finish," Nelson said, "and for students to witness the connection between planting the seeds and growing vegetables."

After further discussion with parents and teachers, Nelson approached Michael and Kim Holmes for help. Michael Holmes is the program director and an associate professor of landscape architecture at OSU. Kim Holmes is the former assistant director of The Botanic Garden at OSU and former host of "Oklahoma Gardening." The Holmeses also had a child at Westwood Elementary at the time.

Soon the Westwood Elementary community rallied around the garden idea by offering to help, and the project progressed, Nelson said.

Michael Holmes said his landscape architecture students at OSU used the project as a learning opportunity, and members of landscape architecture honor society Sigma Lambda Alpha started creating designs.

Michael Holmes said about 10 students were involved in the design of the learning center and 16 in its construction. The students involved in building were enrolled in his Construction 3: Materials and Methods course.

"They first completed hand-drawn sketches of what the learning center would look like," Michael Holmes said. "Then, we used design software to come up with more exact dimensions and plans."

Michael Holmes said he made moderate adjustments to the designs so they could be built feasibly.

"My students were designing an experience for the students at Westwood," Holmes said.

After the designs reached completion, the plan for the outdoor learning center included raised gardening beds, a sandbox, an arbor, a science exploration center, a weather station, a xylophone bench, a music and sound station, and a collection of regular seating benches.

The OSU students, along with Boy Scout Troop No. 828 of Stillwater, Westwood Parent Teacher Association members and Westwood school administration, spent a few days building the outdoor learning center in summer and fall 2016.

Elementary students can learn about more than plants at the OSU student-designed, hands-on garden. Photo by Michael Holmes.

g OUTSIDE

"Often, as students, we design projects that will never be built," said Stephanie Stoner, landscape architecture senior from Stillwater. "Seeing the designs come to life and being a part of the building process was a dream come true."

Michael Holmes said his students learned a variety of skills throughout the design and building process.

"These college students were able to see what it was like to work on a project and build professionalism along the way," Michael Holmes said.

Nelson said the learning center project took "all hands on deck."

Kim Holmes was instrumental in deciding what plants could thrive in the space, Michael Holmes said.

With the garden flourishing and the formation of a new gardening club, teachers and administrators are learning as they go, Nelson said.

Nelson said the plants thrived and the students enjoyed the garden throughout the 2016-2017 school year.

"We were encouraged to have a person or a group take ownership of the learning center," Nelson said. "I approached the Grandparents Association and asked if they would be interested, and they were."

Nelson said the gardening club, which includes Westwood students, now takes care of the outdoor learning center.

"One grandparent, Jodi Deer, has really taken charge," Nelson said. "She is the one who has organized the after-school gardening club.

"We started with a simple idea," Nelson said. "It grew so much after more people got involved."

Nelson said OSU students were instrumental in the planning and implementation processes.

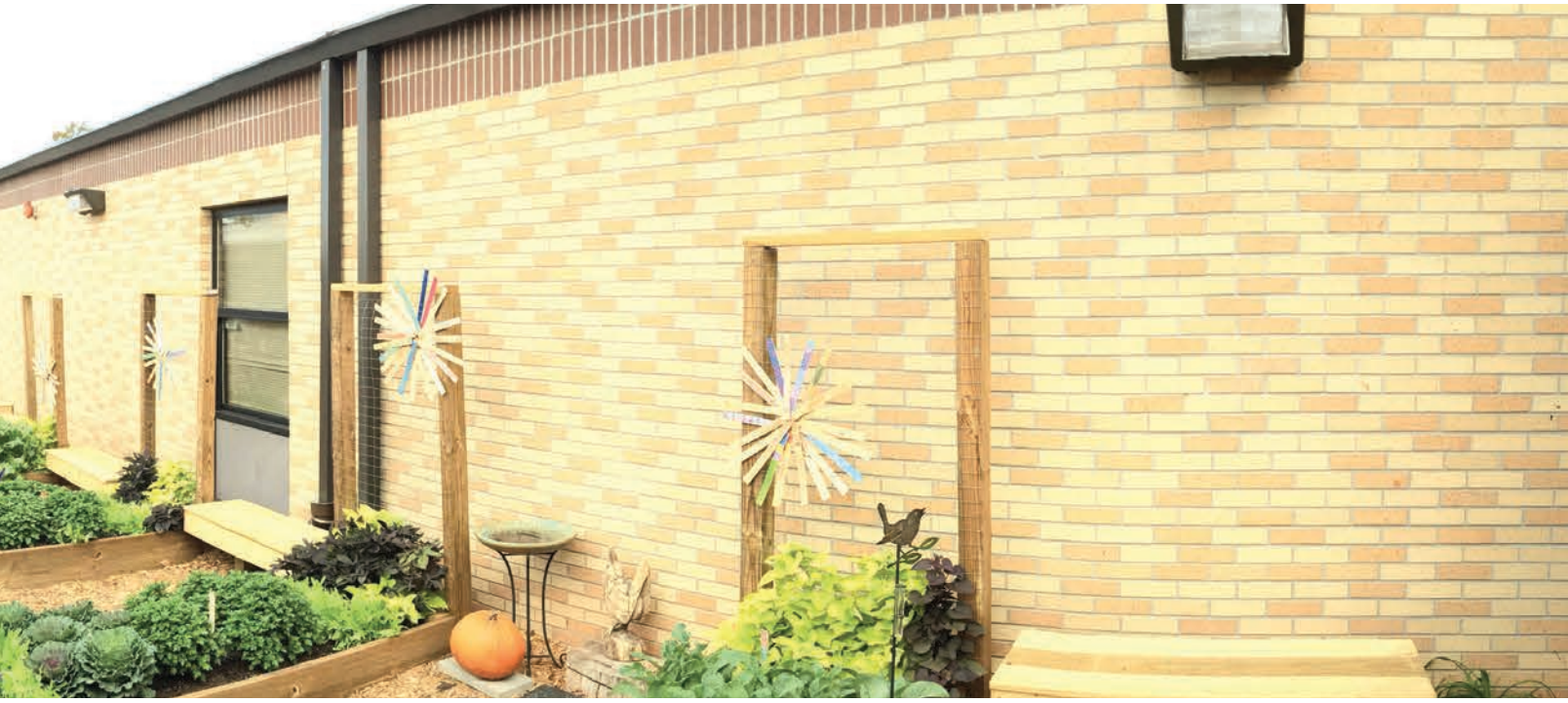
"The help from the OSU landscape architecture students is irreplaceable," Nelson said, "and I think it shows how

Award Winners

On Sept. 29, 2017, the American Society of Landscape Architects presented a community service award to Oklahoma State University students who developed the Westwood Interactive Outdoor Learning Center.

"It is an award given to a group of students for a project that is built that has impacted a community through community service," said Stephanie Stoner, landscape architecture senior from Stillwater.

Michael Holmes, program director and OSU associate professor of landscape architecture, said the students deserved the award and he is proud of their commitment to the project.



Landscape architecture seniors Stephanie Stoner (left) and Payton Wynes complete a project at Westwood Elementary School. Photo by Michael Holmes.

Third-grader Ella Clark participates in the Westwood Elementary Gardening Club each week. Photo by Kaci Livingston.

much people in the community care about our students' education.

"It is very much trial and error," Nelson said. "The gardening club has really stepped up, and we are figuring it out."

The garden had sweet potatoes, tomatoes and pumpkins growing throughout fall 2017.

While the garden is a focus of the outdoor space, the total outdoor learning center encourages exploration of science, technology, engineering and math subjects through its multiple interactive stations.

"The kids love the sandbox and the weather station," said Michael Holmes. "We hope the stations can spark an interest in learning about science and nature."

The landscape architecture students involved hope students will explore the STEM stations and develop a curiosity for those subjects.

"The hope is that these experiences will encourage them to explore their surroundings," said Payton Wynes, landscape architecture senior.

Nelson said the children are interested in the colorful learning stations.

"The outdoor learning center is very visually interesting to the students," Nelson said. "I think that is one of the reasons they like being out there so much."

The learning center especially helps students with special needs, Nelson said.

"The teachers are still trying to figure out how to incorporate the learning center into their lessons," Nelson said, "but the special education teachers have loved having the outdoor space."

Nelson said one student with special needs likes to sweep the area and takes pride in keeping the space clean.

"Some students learn best by reading, some by hearing, and some by doing," said Xochilyn Davis, landscape architecture senior. "This learning center will offer students the chance to learn with an experiment station."

Nelson said he is grateful for the community outreach displayed during this entire project.

"The college students gaining experience while helping elementary students was special," Nelson said.

As a Stillwater native, Stoner said being a part of this project was rewarding.

"I loved giving back to a community that has shaped me as a person," Stoner said. "I got to use my talents and skills I have learned at OSU while doing it."

Nelson said the gardening club has increased from eight to 28 students in just one year. He said he hopes the club and the garden will continue to grow for years to come. CJ

Kaci Livingston
Seiling, Oklahoma

Unbridled Education

ANSI faculty member specializes in animal behavior

From a young age, Kris Hiney wanted a career revolving around the equine industry.

Now, she has exactly that.

"I always wanted to be around horses," said Hiney, equine extension specialist and assistant professor in the Oklahoma State University Department of Animal Science. "I was in 4-H as a kid and showed both dogs and horses."

Hiney grew up on seven acres near Morris, Illinois. She went to the University of Illinois to study animal science, thinking she wanted to be a veterinarian, she said. But after working in a research lab, she redirected her focus to pursuing her graduate degrees: her master's degree from Texas A&M University and her doctorate from Michigan State University.

Prior to accepting her current position at OSU, Hiney taught for 12 years at the University of Wisconsin-River Falls, instructing a variety of animal science and equine courses. She came to work at OSU in July 2014.

Each fall, Hiney teaches the equine training methods course as well as the pet and companion animal management course. She devotes spring semesters to her responsibilities within the Oklahoma Cooperative Extension Service.

"I heard we were getting a new horse specialist and probably met her within

Kris Hiney spends time daily with her Australian shepherd, Hitch, to teach him new commands. Photo by Kaylia McCracken.

the first month of her being here," said Elisabeth Giedt, director of continuing education, extension and community engagement in the OSU Center for Veterinary Health Sciences.

Giedt can be found almost every Tuesday and Thursday at 2 p.m. sitting among students attending Hiney's pet and companion animal management class. Geidt said she tries to attend Hiney's lectures as much as she can because she feels like she always learns something new that could be applied to her job.

"I have learned so much about interpreting the behaviors of dogs and cats since listening and observing in this class," Giedt said.

When Hiney is not teaching a class, she dedicates her work time to educating both youth and adults about horses and handling through OCES.

"I do all the normal stuff like coordinating youth contests, educational workshops and clinics," Hiney said. "Then, we essentially mirror those things on the adult side, except for the contests."

Hiney created her own workshop, called Horse Science Academy, to help encourage high school students toward science, technology, engineering and math disciplines.

Hiney said the workshops show students how STEM applies to everything, even equine science, which most people do not consider.

Outside of teaching and extension responsibilities, Hiney and her husband, John McClenny, spend much of their time training their four dogs, she said.

"It's amazing when you think about the process of learning for an animal," Hiney said. "If you think about how they learn, it makes training that much easier and also makes you a better trainer."

Hiney's passion for animal training and agility encouraged her husband to start training his dog. They now attend agility training classes together and make training a family affair, she said.

Hiney said she voluntarily took animal behavior classes outside of the college while she was an undergraduate and one class in particular stuck out to her.

> To be a professor, an adviser, and state specialist, you have to be able to wear a lot of different hats. Dr. Hiney does just that.
>
> *Brittani Kirkland*
> *OSU animal science master's student*

Hiney's private dog trainer, who was a psychology major, taught the class, and her teaching was based off learning theory and behavior modification.

Hiney said she does not look at her animals as just companion animals. She sees the benefits they could have on human health, she added.

"There's an entire foundation and multiple research papers about the benefits of animals to human health," Hiney said. "It's not just mental health either, but physical health, as well."

Hiney said she has always been an advocate for pet therapy. In fact, she started a pet therapy program at University of Wisconsin-River Falls before she left by assisting with teaching courses to allow dogs to be certified.

Hiney also has experience with off-campus animal therapy.

"When I worked in Wisconsin, I used to take the dogs to hospitals," Hiney said. "You could really see the impact the dogs had on humans."

Hiney said during the hospital visits, she saw people who were too depressed to eat begin to eat because they felt better by being in the dog's presence, showing her just how powerful pet therapy could be.

While working toward her master's degree, Hiney got her first Australian shepherd, named EZ, and has worked closely with the breed since, she said.

Since coming to OSU, Hiney has involved her dog Hitch, another Australian shepherd, in Pete's Pet Posse, an on-campus pet therapy program.

She said she applied for PPP, received departmental approval, and then she interviewed for the job together with Hitch. A committee selected the dogs that would fit best in the program. These dogs entered a training program and had to pass two tests to be PPP members.

Hitch had previous experience with all the exams and training required and was accepted into the program. Now, Hitch and Hiney are well known across campus, and students go see the duo any time they need a stress relief session, Hiney said.

Whether teaching in the classroom, organizing a youth clinic, or working closely with animals, Hiney serves as a positive example for others, Giedt said.

"We all need role models," Giedt said. "We all have different expectations, desires and needs, but it's always encouraging for everyone to see a woman in that position of extension."

In fact, Hiney's ideas about teaching and extension are what brought some of the graduate students she advises to OSU.

"I came here because of what Dr. Hiney had in mind for our program," said Brittani Kirkland, animal science master's student and Hiney's graduate assistant.

Kirkland said Hiney has provided structure and guidance for her.

Through teaching and extension, Hiney exerts a unique way of thinking, Kirkland said. She combines both the physical sciences and the social sciences to make everything understandable, which Kirkland said she really appreciates.

"To be a professor, an adviser, and state specialist, you have to be able to wear a lot of different hats," Kirkland said, "Dr. Hiney does just that." CJ

Kaylia McCracken
Elgin, Oklahoma

Pete's Pet Posse

According to Oklahoma State University Human Resources, Pete's Pet Posse was established in 2013 to help enhance the physical and mental health of students, faculty and staff.

The therapy dogs belong to OSU employees and affiliates. Once accepted into the program, a dog and its handler must meet specific training requirements, including a registration with the Alliance of Therapy Dogs and the American Kennel Club Canine Good Citizen certification program.

HELPING *Hands*

CASNR helps through community service

Jackson Day, OSU agricultural education senior, observes the damage in western Oklahoma after the wildfires. Photo by James Cook.

When disasters strike, the faculty, staff and students of the Oklahoma State University College of Agricultural Sciences and Natural Resources come together to help those in need.

Angel Molina, CASNR Student Council president and agribusiness senior, said CASNR becomes a community and a family when disasters strike.

"People come together to help make life better for the ones affected," he said. "CASNR helped a little by giving money, but it is the bigger picture to think about — it is not just our group who is helping around the world."

Last spring, members of the CASNR family volunteered after wildfires in Western Oklahoma.

Jackson Day, agricultural education senior from Owasso, Oklahoma, and his friend James Cook, an OSU engineering alumnus, drove west to help those families in need.

Day said he knew people in Buffalo, Oklahoma, who had damage from the spring 2017 wildfires.

When they arrived, Day started removing fence between May and Buffalo, Oklahoma, and doctored many calves along the way, he said.

"We knocked on the door of the first house we saw, and they already knew our names and who we were," Day said. "News 9 was doing a story on my friend and me helping with the damage."

Jake Fanning, agribusiness senior, said his family lost a few head of cattle in the wildfires in May, Oklahoma, but his uncle and neighbors were affected more severely.

"When your personal area is affected, you step up and try to do as much as you can, even if it is not your property," Fanning said.

> I wish we were all as kind to each other every day as we are when disaster strikes.
>
> *Stacie Sawrie*
> *Houston resident and Hurricane Harvey survivor*

After the fires wreaked havoc, many CASNR students helped build fences in a time of need, Molina said.

Day said he collected supplies, delivered them to fire victims, and did whatever he could to help them.

"Seeing the picture is one thing, but being out there was a whole different story, Day said. "We started working right away and did not stop until five days later."

Fanning said having the CASNR family committed to helping others is important.

"What does being a CASNR family actually mean in times of struggle and strife?" Fanning asked. "When bad things happen, we answer the call and go do something for what we believe in and what is around us."

In September, the CASNR Student Council raised funds to help those affected by Hurricane Harvey.

"For two weeks, we put jars in the CASNR Student Success Center to collect change," Molina said. "Each department had its own jar to put money in to support the effort."

Students from the OSU Department of Agricultural Economics won the contest by raising $60. As a reward for winning, the students could choose a faculty member to take a pie to the face at the annual CASNR Deans' Volleyball Tournament. They nominated John Michael Riley, agricultural economics assistant professor.

Molina said because they knew

Hurricane Harvey would impact a lot of Texas students, CASNR Student Council members decided to host the fundraiser.

"Not only were we helping victims of the hurricane, but we were giving back to OSU students," said Megan Silveira, CASNR Student Council secretary and agribusiness and agricultural communications sophomore. "A separate fund at the OSU Foundation will go to OSU students directly affected by Hurricane Harvey."

Brent Gwinn, biosystems and agricultural engineering sophomore, was affected by Hurricane Harvey at his hometown in Cypress, Texas.

"I received emails from people who planned to host an event for students who lived in the Houston area to come in and talk if we were having a difficult time," Gwinn said. "The people in CASNR were very concerned with our safety and our mental health."

Gwinn's family did not experience extreme loss, he said. However, their neighbors were not as lucky because of the amount of water that flooded into their homes, he said.

Stacie Sawrie, Houston resident and Hurricane Harvey survivor, said her house flooded and parts of her home were destroyed. Sawrie, who is originally from central Oklahoma, said many things brought tears to her eyes, such as the friends who took her in, fed her, and gave her shelter.

"There were even strangers who paddled their canoes to neighbors' front porches to evacuate them," Sawrie said.

Sawrie said her neighbors took her family's dirty, flood-water-soaked laundry, washed it, and returned it to them clean and perfectly folded.

Sawrie said the most important things in life are not things.

"They are relationships and people," she said. "I wish we were all as kind to each other every day as we are when a disaster strikes." CJ

Jennifer Pralle
Fairmont, Oklahoma

Wildfire near May, Oklahoma, destroyed everything along its path. Photo by Jackson Day.

Place-bound But Not Out

OSU AGLE offers online bachelor's degree program

For some college students in Oklahoma, the opportunity to attend Oklahoma State University is just a dream.

However, Bill Weeks and Penny Weeks, both professors of agricultural leadership at OSU, work to make these dreams a reality for some place-bound students.

The professors, along with their faculty partners at Connors State College, Murray State College, and Northeastern Oklahoma A&M College, received a grant from the U.S. Department of Agriculture to fund an online program for place-bound students, Bill Weeks said. The Weekses use the term "place-bound" to describe students who, for a variety of reasons, cannot move to Stillwater, Oklahoma, to pursue a degree in agricultural leadership at OSU.

"I never finished my degree from OSU, and now I have a family, career and cattle," said Kristin Weaver, agricultural leadership junior. "Without this online program, I would not have been able to come back to school and complete my degree."

The idea for the program started at CSC, Penny Weeks said. Administrators at CSC contacted administrators at OSU and asked what the College of Agricultural Sciences and Natural Resources could do for their agricultural students who could not move or commute to Stillwater. CSC administrators presented the idea of a partnership to the OSU Department of Agricultural Education, Communications and Leadership, which joined the partnership by offering a Bachelor of Science in agricultural leadership through the program.

"We thought it was a great idea, and we decided we needed to explore funding for the project," Penny Weeks said. "But, we knew it had to be more than just Connors for there to be enough students."

> What we are doing is fulfilling the land-grant mission. We are taking education to the people.
>
> *Bill Weeks*
> *OSU professor of agricultural leadership*

The Weekses then contacted administrators at MSC and NEO to see if their agricultural departments would be interested in joining the partnership.

Cynda Clary, CASNR associate dean, and Steve Damron, former CASNR assistant dean, helped the OSU agricultural leadership faculty throughout this process. After both of the schools agreed to a partnership, the professors submitted a grant proposal to the USDA. The original proposal was denied, but, after amending a few details, the second proposal was approved. This USDA Higher Education Challenge grant provided $270,090 to fund the program.

For a student to participate in the program, the student must graduate from MSC, CSC or NEO with an associate's degree. Then, the students must be admitted to OSU, pay all university fees, and enroll in the agricultural leadership classes each semester. These students can be either full- or part-time students at OSU.

"I have students in these courses who have full-time jobs in the Tishomingo area," said Brian Cothran, interim program director for agriculture at MSC. "The flexibility of the courses allows them to complete the degree, where otherwise they could not get a bachelor's degree through OSU."

The OSU agricultural leadership

Online agricultural leadership students earn the same degree as on-campus students. Photo by Cole Claxton.

faculty teach the core agricultural leadership classes the students will take while pursuing the bachelor's degree. These classes have been modified to an online format to accommodate the place-bound students, Bill Weeks said. Additionally, these students take other online classes required by OSU to complete their degrees.

"Only some of the classes they take at OSU are agricultural leadership classes," Penny Weeks said. "The students will also take classes in agricultural economics, animal science, and natural resources ecology and management. It all just depends on what is offered online."

The students take a "blended" orientation course in agricultural leadership for them to interact face-to-face with their professors and classmates, Penny Weeks said. The class coincides with the annual agricultural leadership fall dinner at the Weekses' house and CASNR's annual fall career fair, which allows students to attend both events.

Bill Weeks serves as the students' OSU adviser. The primary role of the two-year college advisers, such as Cothran, is to help recruit the students to the program and serve as liaisons during trips to the OSU campus in Stillwater, Bill Weeks said. The advisers at the three junior colleges often take their roles a step further and mentor these students as they pursue their bachelor's degrees at OSU, Bill Weeks said.

"The grant allows us, on the junior-college side, to assist with course materials they need for the classes," Cothran said. "It also provides money for travel when the students have to go up to OSU, in addition to lodging and things of that nature on the trip."

The primary goal of the program is for place-bound students to complete their bachelor's degrees efficiently, Penny Weeks said. The Weekses work closely with the two-year college advisers to ensure the students are on track with their degrees.

"The Weekses do a great job of lining out what the students need to take at OSU," Cothran said. "It is honestly a seamless transition. The students know, coming directly out of Murray, exactly what they need to take."

In fall 2017, approximately 15 place-bound students participated in the program. Fourteen of those students started the program at OSU this fall and plan to graduate with their bachelor's degrees in three to four years, Bill Weeks said.

"I am thankful for the agricultural leadership degree being offered online," said Katey McAdams, agricultural leadership senior. "It makes it possible for me to do what I have been called to do and still get an agricultural degree."

The grant funding began in February 2014 and is set to end in February 2019. However, Penny Weeks said the grant was designed only to get the program "on its own feet."

The OSU agricultural leadership faculty, along with their partners at NEO, CSC and MSC, are confident the program will be ready to stand on its own after the grant has ended, Bill Weeks said.

"What we are doing is fulfilling the land-grant mission," Bill Weeks said. "We are taking education to the people." CJ

Cole Claxton
Durant, Oklahoma

RODEO TEAM

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Ground cumin is used in various recipes. Turkish cumin is one of the varieties being researched by OSU faculty. Photo by Elizabeth Adams.

SPICY RESEARCH

Researchers look to bring cumin to Oklahoma fields

What do your spice cabinet, India, your favorite chili and Oklahoma have in common? Cuminum cyminum L., more commonly known as cumin. Research in the Oklahoma State University Division of Agricultural Sciences and Natural Resources may mean in the future one could grow cumin in Oklahoma.

DASNR scientists have collaborated on a grant-funded research project with Kalustyan, a global spice producer, to determine how to grow, produce, and harvest cumin in the state.

Leading the way for the research are Niels Maness, OSU professor of horticulture and landscape architecture; Greg Lightfoot, vice president of global business development at Kalustyan and a past president of the American Spice Trade Association; Josh Lofton, OSU assistant professor of plant and soil sciences; and Brian Arnall, OSU associate professor of plant and soil sciences.

A recall of spice products due to peanut contaminants being mixed in with cumin in 2014 was the biggest allergy-related recall since the U.S. Food Allergen Labeling and Consumer Protection Act became law in 2006. This led to the recent push for bringing cumin to the U.S., according to Maness' research.

"Cumin is principally produced on the north side of India," Maness said. "The second place is Turkey. What led us to look at this as a potential crop for this state is the Earth's latitude line."

When looking at latitude, Oklahoma and Turkey align, he said, which led scientists to believe cumin would create a perfect project.

Researchers did not consider, however, the differences in the seasons, he said. Cumin is typically planted in India during November and December because the winter temperatures there are higher than those in Oklahoma.

How to adjust for the differences in the seasons was one of the questions researchers needed to answer, he said.

"OSU's researchers have learned about cumin's background and are advancing their knowledge through the trials to become successful," Maness said.

Cumin is a long-season crop requiring 90 to 120 days to mature. It grows best in arid and semi-arid climates with high humidity similar to Oklahoma, Maness said. The crop is drought tolerant, but it is susceptible to diseases, he added.

Maness has worked with alternative crops in Oklahoma for the past 25 years. He has researched numerous crops and herbs, including peppers, he said.

The research team planted the cumin in late April and early May, hoping it would be OK, he said.

Although a few plants grew, only two plants survived but were extremely slow growing and susceptible to diseases, Maness said.

He dug them up, took them to the diagnostics lab, and determined what diseases affected the plants.

"All our weeds grew faster than the

cumin," Maness said. "We were out in the field hand-weeding it."

Researchers have learned some important factors in the first year, including how to plant the cumin, he said.

An India variety cumin plant in bloom. Photo from Shutterstock.

"It has to be planted very, very shallow," Maness said. "Establishing the plant is the biggest obstacle to overcome."

Along with learning important cumin production factors, the grant has provided undergraduate research opportunities, Lofton said.

Maness and Lofton both expect another challenge: harvest.

"Cumin flowers like a carrot — continuously," Maness said. "It is also difficult to pick the best time to get the most mature seed prior to the first freeze."

Cumin plants mature at a different rate. As they mature, seeds will fall off the plant and shatter. Determining when the shattering will occur is extremely difficult, he said.

As the team members continue learning, they look ahead at the plans for next year, he said.

Maness said he plans to use different planting times, continue research on disease development within the crop, and investigate insect interaction, harvest time and mechanisms used. He also wants to look at irrigation requirements even though cumin is a drought-resistant plant, he said.

Maness said he hopes to plant the crop in mid-February 2018.

As the research continues, researchers look ahead to what remains unanswered: How will cumin grow in Oklahoma? What seed varieties will work best here? How long until cumin is an Oklahoma crop?

"There are a million reasons to bring spice production to Oklahoma but also a million problems," Maness said.

Lightfoot said he hopes this project succeeds because he thinks it has a market.

"Once the struggles are overcome, the potential exists for a strong demand of cumin production in the United States," Lightfoot said. "Cumin could be a tool in the toolbox for Oklahoma producers."

Elizabeth Adams
Palestine, West Virginia

UNDERSTANDING Consumer Preferences

Faculty collaborate to teach new course

The neighborhood grocery store provides the place where consumers make most shopping decisions. But, how and why do consumers make the choices they do?

A new course at Oklahoma State University allows students from all departments to widen their knowledge of how consumers make purchasing decisions.

Agricultural economics professor Bailey Norwood and Deb VanOverbeke, professor of animal science and College of Agricultural Sciences and Natural Resources assistant dean, saw a need for a course in which students would learn how to conduct research and analyze consumer-based research data.

"We started this course because there was a component lacking in the agricultural economics department," Norwood said.

"If students were interested in the farm, we had tons of options," Norwood said, "but if they were interested in food, there was not much in the department."

VanOverbeke recognized a similar need in the animal science department, she said.

"We wanted the course to focus on how consumers think and how this influences their buying decisions," VanOverbeke said. "This hands-on experience will benefit students going to graduate school as well as those who plan to start careers in the food industry."

During the course, students conducted real-world research while gaining different perspectives from consumers, VanOverbeke said.

Students enrolled in the course talked to Stillwater, Oklahoma, business owners

Bailey Norwood (left), Andy Zahl and Cristina Ramos discuss flavors while visiting Orange Leaf Frozen Yogurt. Photo by Michelle Helm.

to learn more about the decision-making process for everything from recipes to the music played in stores, VanOverbeke said.

The class traveled to 1907 Meat Co., Rocky Mountain Chocolate Factory, and Orange Leaf Frozen Yogurt. Students learned about franchise owners and startup companies as well as how consumer bases affect company decisions, Norwood said.

"I love hearing the stories of how each owner started the company," said Cristina Ramos, a food science senior. "It was amazing to see businesses in the area that are pushing sustainable, locally produced products having such huge support from the community."

The faculty designed the course to appeal to both food science and agricultural economics students as a way to conduct real-world research, VanOverbeke said.

"One of my biggest interests is finding out how people tick and why consumers do what they do," said Andy Zahl, an international agribusiness senior. "This is one of the biggest reasons I was interested in the course.

"Knowing how to conduct research and surveying the public is a big part of the agricultural industry," he added.

Students participated in a variety of research projects focusing on the businesses they visited.

During their visit to Rocky Mountain Chocolate Factory, students taste-tested fudge with and without vanilla to see if they could tell the difference.

Many of the students could tell vanilla was missing from the recipe when they tasted the fudge, Norwood said.

"Vanilla is such an expensive product," Norwood said. "In this business visit, students got the chance to help make a real-world business decision.

"The course gives students an idea how an actual business runs and how consumer marketing is done," he added. "Even if they don't go into consumer research, they know how things are there."

This course adds another aspect into a student's degree by focusing on prevalent topics within the agricultural industry, Ramos said.

"It has helped me view the food science degree in a different light," she added. "We focus a lot on science and pathogens, but this adds another aspect and makes it real."

For this year's final project, the agricultural economics department partnered with the Noble Research Institute and McDonald's to research how consumers view sustainability.

"One of our core pillars at OSU is hands-on experience," Zahl said. "This class gave us an opportunity to go into the industry and conduct research."

> This knowledge sticks with you even when you are out of the classroom.
>
> *Cristina Ramos*
> *OSU food science senior*

For the project, students distributed surveys with a series of questions to consumers to determine perceptions of McDonald's decision to switch to sustainable beef.

"Knowing our class played a role in helping a massive corporation like McDonald's make such a large business decision is awesome," Zahl said.

After collecting data, students presented their findings to a NRI economist.

"Without the consumer, you cannot be successful," Ramos said. "You really have to figure out what people want to buy and how to market it to make them want to buy it. Without knowing those little things, you go nowhere.

"This knowledge sticks with you even when you are out of the classroom," Ramos added. "At restaurants or in the grocery store, you see how food is displayed and marketed, and it makes you think about the reasoning behind it."

A student tries a variety of flavors and toppings while visiting Orange Leaf Frozen Yogurt. Photo by Michelle Helm.

By completing this course, students have a better understanding of the motives behind consumer choices and can better educate the public, Norwood said.

"In the agricultural industry, we get so mad about what consumers are saying," Zahl said. "We just complain to each other about it. When we are able to truly understand where consumers are coming from, then we are able to create educational components and better understand the consumer and their preferences." CJ

Michelle Helm
Geary, Oklahoma

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Dual-degree students must travel 1,456 miles to attend OSU. Photo by Jamie Carey.

The collegiate experience gives students the opportunity to learn and discover new horizons.

Now, five Master of International Agriculture program students will earn dual master's degrees during their unique collegiate experience.

Two universities in Mexico — Universidad Popular Autonoma Del Estado De Puebla and Universidad Autonoma Chapingo — have entered into agreements with Oklahoma State University and the College of Agricultural Sciences and Natural Resources for graduate students to earn two master's degrees in two years.

"The UPAEP dual degree program was something OSU had developed with UPAEP," said Shida Henneberry, Regents professor and MIAP director. "MIAP became part of that general agreement."

Henneberry said the UACh dual degree program was developed gradually during the course of 20 years through her consistent relationship with the university.

"I taught classes there," Henneberry said. "I gave lectures. I advised their students. I have even served on a graduate student's committee there."

UPAEP and UACh formed the dual master's programs with OSU to give graduate students the opportunity to learn academically and culturally, Henneberry said. Each student experiences living in each country for one year. She said a need for these programs existed because they enrich the students' education.

"The students get two degrees from two universities," Henneberry said, "one in the U.S. at OSU and one in Mexico."

The dual master's degree program

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Five students double their educational experience

is advantageous for graduate students because they receive a master's degree from OSU in addition to their master's degree from UPAEP or UACh, Henneberry said. Currently, no American MIAP students are enrolled in this program.

Carlos Somoza Vargas, Susana Martinez Lopez and Juan Cuellar Sandoval of El Salvador are MIAP students involved in the UPAEP dual master's program.

"These three graduate students went to UPAEP through a study-abroad program to get a degree," Henneberry said. "Then, they got into this dual master's program with MIAP."

David Cuautle Parra of Puebla, Mexico, also is a UPAEP-MIAP student.

Erika Leon Ledesma from Mexico City is a UACh-MIAP student. She said she will earn her dual master's degree from UACh in agricultural economics and natural resources. Her MIAP degree focus is in rural development, she said.

"Chapingo is an agricultural university, so it was an easy choice to come to OSU to continue my progress in agricultural economics," Leon Ledesma said.

Graduate students Somoza Vargas and Cuellar Sandoval said they learned about the dual program from their UPAEP professors. Having performed well academically, both received scholarships from the U.S. Agency for International Development Higher Education for Economic Growth project as well as from their home college in El Salvador.

"I have to go back to my country," Somoza Vargas said. "I will have to work for the university for two years."

Henneberry said the rest of the students have received some kind of scholarship or assistantship, which help make the whole program possible.

"If I didn't have an assistantship, I wouldn't have had a chance to study at OSU," Leon Ledesma said.

Somoza Vargas and Cuellar Sandoval said both will receive master's degrees in biotechnology at UPAEP.

Somoza Vargas' MIAP degree is focused in food safety. Cuellar Sandoval's focused study within MIAP is food processing.

"Everything here is bigger," Cuellar Sandoval said. "The Food & Agricultural Products Center at OSU is awesome. It has opened my mind and has expanded my boundaries."

Both agreed their time spent at OSU has been positive and they have enjoyed getting to know new people on campus, including classmates in the same program.

"I never thought I was going to be in two different countries having two different master's degrees," Somoza Vargas said.

Obtaining two master's degrees will look good on a résumé, Martinez Lopez said, adding this will help bring her more job opportunities. She will receive her master's in management and marketing at UPAEP, and her MIAP degree focus is in management and marketing.

"Back in our country, people like it when you have traveled and have studied in other countries, especially in the U.S.," Martinez Lopez said.

Cuautle Parra said having two master's degrees will help make him more versatile when he looks for a job. At UPAEP, he is earning his master's in strategic planning. Cuautle Parra said the MIAP degree is allowing him to focus on his interest: agricultural economics.

"This program will have a positive impact in my career and professional growth," Cuautle Parra said. "It's a really good tool for professional development and personal development."

Cuautle Parra said getting to experience other cultures and people is one of the best tools you can have to help diversify and educate yourself.

"It's very important for your job or relationships," Cuautle Parra said. "Having a broader horizon helps out a lot."

Leon Ledesma said being outside her country knowing little about the place she was going to live was challenging. Getting to know the staff and the professors so she could get a job offer was her first priority, she said.

MIAP staff members have been supportive and helped make getting settled into OSU seamless, Leon Ledesma said.

Having the opportunity to experience two different programs in different countries is a life-changing experience, Leon Ledesma added. She said learning at both schools and from the best teachers and courses has helped her grow as a student and professional.

"The international experience is something that I would recommend to everyone," Leon Ledesma said. "When you travel, it broadens your perspective. The dual master's degree is a great program." CJ

Jamie Carey

Webbers Falls, Oklahoma

CASNR ALUMNI NEWS

WINTER/SPRING 2018

Homecoming 2017

The CASNR Alumni Homecoming festivities took place at the Charles and Linda Cline Equine Teaching Center on Oct. 13, 2017. ***Photo 1:*** *Hannah Palmer (left), Carrie Palmer, Sarah Palmer;* ***Photo 2:*** *Carri Hoffman (left), Rob Terry;* ***Photo 3:*** *Lonnie Sellers (left), Larry Long;* ***Photo 4:*** *Back Row: Tom Cox (left), Losco Hunter, Larry Long, Tobie Titsworth; Front Row: Barry Bloyd, Don Staiger, Lonnie Sellers;* ***Photo 5:*** *Back: Lisa Stejskal, Front: Nataley Stejskal (left), Natalie Baker;* ***Photo 6:*** *Back Row: Brandon Chandler (left), Travis Schnaithman, Raylon Earls, Charles Rohla, Rick Reimer; Front Row: Karen Hickman, Kirby Smith, Haley Nabors, Mechelle Hampton, Amber McNeil, Jeremy Bennett;* ***Photo 7:*** *Amy Cline (left), Linda Cline and Lori Paulsen. Photos by Todd Johnson.*

EARLY CAREER *Achievement Award* NOMINATION REQUEST

The College of Agricultural Sciences and Natural Resources prepares its graduates to succeed at the highest levels of their chosen career path. In recognition of this, the CASNR Alumni Board annually selects alumni as recipients of the CASNR Early Career Achievement Award.

The board is seeking nominations for alumni who have attained prominence through their efforts in agriculture, natural resources, life sciences, or related areas of science, business, education or government and public service early in their careers.

To be eligible, a nominee must possess an undergraduate or graduate degree from CASNR and have earned a bachelor's degree within the past 15 years. Award recipients will be honored during the CASNR Awards Banquet in the spring. Nominations are due by Dec. 31, 2017.

For information or to nominate a deserving individual, visit casnr.okstate.edu/alumni.

New BOARD MEMBER

Although born in California, Rick Reimer grew up in Collinsville, Oklahoma, where he graduated high school. Reimer attended Oklahoma State University and graduated with a Bachelor of Science in animal science with an emphasis in production in 1982.

After graduating, Reimer worked for Ralston Purina and Farmland Industries as a feed and animal health salesman. Later, he owned and operated a feed and supply store until he began a career with Meridian Technology Center, where he worked as an agribusiness management instructor for 17 years. He taught classes and conducted on-farm consultations, providing business advice to farmers and ranchers. Reimer continued his education at Oklahoma City University and received his MBA in 1991.

In 2006, Reimer was selected to serve as the assistant superintendent and campus director of the new Northeast Technology Center campus in Claremore, Oklahoma.

The Claremore Chamber of Commerce honored Reimer as a Business Citizen of the Year in 2010.

Reimer was a member of Oklahoma Agricultural Leadership Program Class V. He served on the Rogers County OSU Alumni Board and was the group's delegate to the OSU Alumni Board. In addition, he has served as the executive director of the Oklahoma Soybean Check-Off Board since 1994, overseeing promotion, education, marketing and research initiatives.

Reimer is a banquet speaker and seminar presenter and worked as a professional announcer for rodeos and horse shows. He was a game show host for a high school academic competition called "I Want Answers" hosted on Rogers State University Public Television.

Reimer also is an auctioneer and has sold more than $2 million through non-profit auctions.

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Featured: John Stotts, Pottawatomie County farmer and rancher

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