

THE

HARVEST

COLLEGE OF AGRICULTURE
ANNUAL MAGAZINE
2021



Food for Thought

From the Dean's Desk



It is hard to believe we are about to wrap up 2021 and culminate our fall semester... This has been an incredible year, one that has certainly showed how resilient and malleable we all are, as we have been able to adjust our lives to fulfill our responsibilities and, more importantly, to pursue our goals and dreams.

At the personal level, this has been a year of changes. At the end of July, I moved with my husband from Tucson, Arizona, where I served for over 20 years as a faculty member and administrator at the University of Arizona, to join the wonderful College of Agriculture at California State University, Chico. I am thrilled to have returned to California, a state that I adopted almost 30 years ago when I came from Argentina. California offers so much, not only for its magnificent geography, climate, and natural resources, but for the grandiose of the agricultural industry and the wonderful people who make it all happen.

Having dedicated almost three decades to research and instruction in agricultural science, this is a new and exciting opportunity for me as the leader of this College. Agriculture in the 21st century requires our graduates to gain skills and expertise that cross boundaries and disciplines. My goal is to create multidimensional academic programs that intersect knowledge across many disciplines and engage our students, faculty, and staff not only in our college, but across Chico State, and connect urban and rural communities at the regional, national, and global scale.

I also want to take this opportunity to acknowledge the efforts of our faculty and staff, who have gone above and beyond adjusting and adapting their courses to different modalities throughout the year to help students succeed and return to campus for in-person experiences while being safe. They have spent immense amounts of time behind the scenes and outside the classroom to make this possible. So, kudos to all and my sincere gratitude!

My appreciation and recognition go as well to all our supporters and donors who in one way or another contributed through scholarships, fellowships, and many other activities to the success of our College's mission. I am deeply thankful to those who opened the doors to welcome me, sharing time to show me your farms and operations. It has been a pleasure to meet you all, and I hope to continue my interactions and collaborations in the years to come.

I hope you enjoy the stories outlined in the 2021 *Harvest*, they certainly reflect the hard work and dedication by the faculty, staff, and students at our College. Enjoy the winter break!

Be safe, stay healthy, and happy holidays to all!

A handwritten signature in black ink, appearing to read 'Patricia Stock'.

Patricia Stock
Dean, College of Agriculture

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SHARE YOUR STORY

Are you a Chico State Ag grad with a story to share about how your time at Chico State transformed/influenced your life? If so, please email sdeforest@csuchico.edu.

Cover photo: Constantin Raether analyzes plant extracts for nutrient density in the Regenerative Agriculture Demonstration (RAD) Lab at the University Farm.

What's Growing On

News and Events



Farewell Dean Unruh

Dean John Unruh, who served five years at the helm of the College of Agriculture, retired June 30, 2021. Among his many accomplishments, Unruh led the College of Agriculture through extraordinary challenges, including the Oroville Dam crisis, the Camp Fire, and the COVID-19 pandemic. Through all of that, he started the Excellence in Agriculture reception and established the student-driven faculty and staff of the year awards; expanded experiential learning opportunities and student competition teams, including the establishment of a Chico State Meat Judging Team; engaged enthusiastically in development and fundraising; helped to grow scholarships; and put the College of Agriculture at the top of the University's fundraising charts.

Unruh and his wife, Judy, are enjoying retirement near his childhood home and family farm in eastern Washington.

COMMENCEMENT COMMENCES

Following more than a year of social distancing, a week of Commencement ceremonies brought 2,800 graduates of the Classes of 2020 and 2021 back to the Chico State campus for in-person celebrations this May. Agriculture education major Breanna Holbert served as the Commencement speaker for the May 21 evening ceremony featuring the 2021 graduates from both the College of Agriculture and the College of Natural Sciences. Holbert urged her fellow graduates to take time to reflect on all that they accomplished during their time at Chico State, appreciating their many struggles and achievements before charging on to the next opportunity.

In addition to nine in-person Commencement ceremonies, the University also produced a series of virtual celebrations available for viewing at <https://csuchico.stageclip.com>.



Peach Sale Brings \$35,000 to University Farm

The popular annual University Farm Peach Sale was back to its traditional u-pick format this year, and the community loved it. They picked 17,500 pounds of peaches in four days, coming from as far away as Trinity County for the beloved summer tradition. The u-pick peach harvest at the University Farm usually takes place around mid-August. To stay on top of future openings, call the Peach Hotline beginning in July at 530-898-4989 or follow us on social media @ChicoStateAgriculture.



Holbert Becomes AGDAILY Columnist

Agriculture education credential student Bre Holbert (Agricultural Education, '21) has expanded her advocacy for diversity in agriculture by becoming a monthly columnist for Agdaily.com. Her first article, published April 29, 2021, was titled "Diversity in Agriculture: Will we strive for something bigger?"



Altier Receives Fulbright Scholar Award

Agriculture professor Lee Altier was awarded a Fulbright U.S. Scholar Program award for the fall 2021 academic semester from the U.S. Department of State and the Fulbright Foreign Scholarship Board. One of the most widely recognized and prestigious scholarships in the world, the Fulbright allowed Altier to travel to Izmir, Turkey, in fall 2021 to join Ege University's agriculture faculty as a visiting professor, where he is also seeking to examine how farmers in the region address the agricultural challenges of water scarcity, protecting soil quality, and food security.



Samantha Jackson Receives Golden Scholar Award

Senior agricultural business major Samantha Jackson was selected as a 2021 Golden Opportunity Scholar by the American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America. This award recognizes students' academic achievements, leadership, and interest in a career in agronomy, crop science, or soil science. Jackson was formally recognized at the associations' joint annual meeting in Salt Lake City in November.



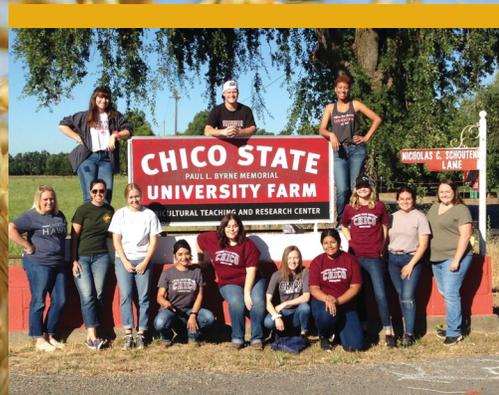
Chico State Makes List of Best Sustainable Agriculture Degree Programs in 2021

California State University, Chico was listed as No. 3 among the 30 Best Sustainable Agriculture Degree Programs in 2021 by *BestValueSchools.org*. The rankings are based on a formula that combines yearly tuition and graduation rate.



CRARS Receives Grant of Nearly \$7 Million from USDA

The Center for Regenerative Agriculture and Resilient Systems (CRARS) at Chico State, in collaboration with 12 other conservation partners, has been awarded a coveted Regional Conservation Partnership Program award totaling nearly \$7 million for 2020–21 through the USDA’s Natural Resources Conservation Service. The Center and its conservation partners will receive \$6,995,463 to support “Soil Health Management Systems for Northern California,” a five-year project designed to help orchard and vineyard, rangeland, dairy, and row crop producers in Northern California build food and fiber production resiliency to counter climate change challenges. The grant will fund four California Resource Conservation District Hub positions to support the development of producer-based soil health management plans, implementation strategies, and protocols in three distinct regions in Northern California.



Student Poster Accepted for NACTA

2020 agricultural education graduate Sarah Richardson was invited to present a research poster at the 2021 NACTA Virtual Conference held June 21–24. Richardson’s poster, “The Benefits of an Ag Summer Camp on Career Awareness for Underrepresented Populations,” was the result of her work with Professor Tommy Henderson in 2019 to coordinate a three-day summer camp at the University Farm for high school students from Madera Community College District. The goal of the camp was to expose high school students to career opportunities in agriculture through a variety of Chico State and industry-led activities.

Excellence in Agriculture

The Excellence in Agriculture Awards Reception was held virtually on May 14, 2021 to recognize the achievements of the College of Agriculture's students, faculty, and staff. The full ceremony can be viewed online at www.csuchico.edu/ag/announcements/2021-excellence-in-ag.shtml.



Outstanding Student Leader

Each year, the College of Agriculture selects one student to receive the Outstanding Student Leader Award. The 2021 recipient is Michelle Borges. Michelle was the College of Agriculture's 2020–21 Student Senator and is now serving as the 2021–22 AS Commissioner of Sustainability Affairs. She is also the College of Agriculture's public information intern and a founding member of Ag Ambassadors, and she chaired the statewide agriculture ambassadors annual conference public relations committee.

STAR

Each year, the Chico State College of Agriculture recognizes one exemplary student within each discipline as a Star Student. To view articles on all of our past Star Students, visit www.csuchico.edu/ag/students/star-students.

STUDENTS



JESUS BARBA
Major: Agricultural Business
Hometown: Salinas



ANGEL DE TRINIDAD
Major: Plant and Soil Science
Hometown: Orange



SYDNEY FRAZIER
Major: Agricultural Science and Education
Hometown: Redding



JULIE BROWN
Major: Animal Science
Hometown: Potter Valley

FACULTY AND STAFF OF THE YEAR

The Faculty and Staff of the Year Awards are nominated and selected by students. They include donor-funded monetary awards for continued professional development.

Agricultural education professor Tommy Henderson received the Richard and Marian Baldy Faculty of the Year Award. Henderson has made his mark on Chico State with his trademark enthusiasm and dedication to student success. In addition to teaching agricultural education and ag mechanics, Henderson advises Collegiate FFA and Ag Ambassadors.

One of his nominators said, “Dr. Henderson has put so much time and effort into creating classes that are informational and interactive. He has not let COVID-19 slow him down with his lessons and labs. In his AGET 120 course, he has created to-go bags that contain items to create projects that students would have completed in the lab, allowing students to be somewhat interactive during the online labs. He is always available for students and takes time out of his lessons to ensure that students are physically and mentally doing well.”

The Staff of the Year award went to Lindsey Jeffery. As the student success and retention support specialist and Chico STEM Connections Collaborative (CSC2) coordinator, Jeffery epitomizes the College of Agriculture’s commitment to student success. One nominator wrote “Within her role as CSC2 coordinator, Lindsey has created and expanded upon the many opportunities students receive. From improving the communication between students and the student success office/CSC2 program, to creating a brand-new college-specific tutoring program that helps students with difficult agriculture courses, Lindsey has time and time again provided exemplary service to our college. Ask almost any student within our college—especially students who are first generation or low income—who their biggest supporter is within the College of Agriculture, and I am certain Lindsey will be the first person to come to mind.”



CLUB OF THE YEAR

The 2021 Club of the Year is the Chico State Pre-Vet Club, who was recognized for its outstanding leadership and service with a \$500 award from Superior Ag.



Commencement Awards

Graduating seniors with exceptional academic achievement earned medallions to wear at Commencement.

CUM LAUDE

- Tania Burrone, Agricultural Science and Education
- Zoe Halliday, Animal Science
- Autumn Hausman, Agricultural Business
- Miranda Iverson, Agricultural Business
- Joel Mendoza, Agricultural Business
- Maura Rasmussen, Crops and Horticulture

MAGNA CUM LAUDE

- Matthew Hamon, Crops, Horticulture, and Land Resource Management
- Natalie Kinney, Agricultural Business
- Kara Lipke, Agricultural Business
- Marissa Patton, Animal Science
- Rachael Wilson, Agricultural Business

SUMMA CUM LAUDE

- Jesus Barba, Agricultural Business
- Miranda Jachens, Agricultural Business
- Jacquelyn Kesting, Agricultural Science and Education

Outstanding Graduates

Each program in the College of Agriculture selects three students to recognize as outstanding graduates. These students have made an impact on their disciplines with their involvement, service, and contributions inside and outside of the classroom.

Agricultural Business

- Taylor Gallaty
- Autumn Hausman
- Easton Mattos

Agricultural Education

- Breanna Holbert
- Jacquelyn Kesting
- Alexandra Nisson

Animal Science

- Monica Carter
- Mary Holbert
- Marissa Patton

Plant and Soil Science

- Marco Giron
- Maura Rasmussen
- Alexandria Tucker

An Agricultural Abundance

Four Students Receive Prestigious Rawlins Awards

Each year one student in the College of Agriculture is selected to receive the prestigious University-wide Lt. Robert Merton Rawlins Merit Award for major achievements in the classroom and community. Some years, two agriculture students are selected. For the 2021–22 academic year, a record four students in the College of Agriculture are among the 12 students campuswide to receive the \$5,000 award named in honor of Lt. Robert Merton Rawlins, who died piloting a B-29 bomber over Tokyo Bay during World War II.

Michelle Borges

A junior majoring in agricultural communication and leadership with minors in agricultural business and public relations, Michelle Borges has her sights set on a career in agricultural advocacy. Since first walking on to the Chico State campus in 2018, she has impressed her faculty with her passion for agriculture, commitment to service, and willingness to take on more than might reasonably be expected of a student.

“Michelle has a genuine desire to affect others and the industry through her initiative,” Professor Tommy Henderson said. “She is determined in completing any project or assignment to the highest quality, and she is a cognitively bright individual who uses this gift to benefit others even when it means more work for her.”

Michelle’s resume at Chico State includes serving in student government as the College of Agriculture student senator and now Associated Students commissioner of sustainability affairs.

She is a founding member of the Chico State Ag Ambassadors and chaired the statewide Ag Ambassador Conference public relations committee. She’s also the public information intern for the College of Agriculture and is working with Henderson to coordinate the next Agricultural Explorations in Puerto Rico field trip.

Haeryeong Cheong

An international student from South Korea, Haeryeong “Harry” Cheong transferred to Chico State from Sierra College in fall 2020 to major in animal science. He immediately stood out to Professor Logan Smith, who taught anatomy and physiology of domestic animals that semester.

“Harry systematically worked harder and demonstrated competence more fully than most other students, earning him the highest grade in my class. The joy of having Harry in class was his contributions to the University learning environment through engaging discussions about research applications,” Smith said.

After learning about Cheong’s academic and community service contributions as a dean’s list student who volunteers at veterinary clinics and animal shelters and served in the Korean military, Smith nominated him for the Rawlins Award.

“As an international student, this award means so much to me,” Cheong said. “International students usually pay more to attend college in California, and we don’t have many opportunities to work off campus. Plus, as a pre-vet major, I have a lot of schooling still ahead of me.”

Breanna Holbert

Credential student Bre Holbert (Agricultural Education, ’21) has an impressive record of leadership accomplishments. She came to Chico State after serving a year as the California FFA secretary, then took a year off college when she was elected the national FFA president. Upon returning to Chico State, she entered student

government, running and winning as, first, the Associated Students director of legislative affairs and then, as president, where she led the campus community through a challenging year of virtual operations. Meanwhile Holbert worked as a College of Agriculture advising intern, helping other students to find their way at Chico State.

Professor Mollie Aschenbrenner said, “I am confident she is one of the most deserving students to be recommended for the prestigious Rawlins Award. Miss Holbert demonstrates outstanding academic commitment and superior leadership skills.”

Co-nominator Professor Garrett Liles agreed.

“She deserves any and all praise and gratitude for her impacts to our community. She truly represents what Chico is known for and exports to make the world a better place,” he said.

Emmanuel Lopez

Animal science major Emmanuel Lopez came to Chico from Smith Valley, Nevada, after meeting Professor Celina Phillips during a tour his freshman year of high school. Phillips invited him to come work for her at the Sheep Unit, where he has demonstrated his work ethic and passion for livestock care over the past three years.

“He is currently serving as our lead shepherd at the sheep unit and was a steadfast student leader through the past year of the pandemic. During our time of virtual learning, Emmanuel supported the faculty whenever there was filming or pictures needed. His commitment to the sheep unit and his education is exemplary,” Phillips said.

During his time at Chico State, Lopez has been involved in the Rangeland Management Club, Chico Sheep Association, and the Pre-Vet Club. In his free time, he enjoys playing the guitar and piano as well as learning new languages. He is currently studying French and American Sign Language, and he plans to enter veterinary school upon graduation. ■

Since the program's inception, more than

\$1 million

in scholarships has been awarded to more than 800 deserving Chico State students.



1 MICHELLE BORGES
Major: Agricultural Communication and Leadership
Hometown: Oakdale

2 HAERYEONG CHEONG
Major: Animal Science
Hometown: Anyang, South Korea

3 BREANNA HOLBERT
Major: Agricultural Education, '21
Credential Program
Hometown: Lodi

4 EMMANUEL LOPEZ
Major: Animal Science
Hometown: Smith Valley, Nevada

MEET THE STUDENT SENATOR

TYLER JENKINS

Written by Michelle Borges



T Tyler Jenkins has built a reputation in the College of Agriculture for his involvement and leadership. In his final year as an undergraduate, the senior agricultural education major and 2021–2022 College of Agriculture student senator is excited to serve his fellow students and help them discover the many opportunities to get involved at Chico State.

Jenkins' hometown is Rancho Cordova in Sacramento County. Despite visiting his great uncle's ranch regularly while growing up, he did not become interested in agriculture until he was placed into an earth science class during his freshman year of high school. By attending the Greenhand Leadership Conference and learning about the FFA program, Jenkins found his passion in agriculture. He enjoyed learning about the leadership opportunities within FFA and was able to incorporate science from his agriculture classes, creating the perfect balance of leadership, agriculture, science, and personal growth within the agriculture community. Being part of the FFA and agriculture department for four years proved to be very rewarding and led him to pursue his degree in agricultural education. Jenkins' goal is to provide a safe and positive classroom for future students to learn how important the agriculture industry is in our nation.

Chico State was Jenkin's first choice for college. One of his high school ag advisors, Bret Harnden (Integrated Animal Systems, '99), encouraged Jenkins to check out the University. Jenkins felt so welcomed and excited when he toured the campus, the College of Agriculture, and the Wildcat Leadership Institute.

"My advisor provided a positive experience for me in the classroom, so I knew I wanted to attend Chico State to follow in his footsteps. Also, the students were so welcoming, and the campus was beautiful. I knew exactly where I wanted to go," Jenkins said.

Once at Chico State, Jenkins found no shortage of extracurricular activities. Inside the College of Agriculture, he is involved in Collegiate FFA, Agriculture Ambassadors, and Alpha Zeta. Outside the college, he serves as the vice president for the Tau Kappa Epsilon fraternity and vice president of scholarship and administration for the Interfraternity Council.

When not in the classroom or participating in all his activities, he enjoys painting, hiking, and swimming. He values the connections he has made ranging from faculty members to student government and everything in between.

Jenkins had the opportunity to be a lab assistant for the introductory courses in plant science and animal science. He was able to explore a different side of agricultural education with industry experience and collaborating with the faculty members.

"I learned that industry experience is so important when teaching," Jenkins said. "Attaching a story from industry experience to your teaching makes the students want to listen while adding more credibility to yourself."

This opportunity led Jenkins to find a job at the University Farm. While working at the Organic Vegetable Project, he has learned a lot about plant science and knows the knowledge he is gaining from working on campus will be to his advantage.

"From weed identification to learning how to properly harvest a crop, I am gaining real experience that I know will be so beneficial in the future," said Jenkins.

Jenkins credits his role model, Professor Alyssa Schager, for pushing him to where he is today. Schager taught his first agriculture education class, and he appreciates how genuine, honest, and positive she is.

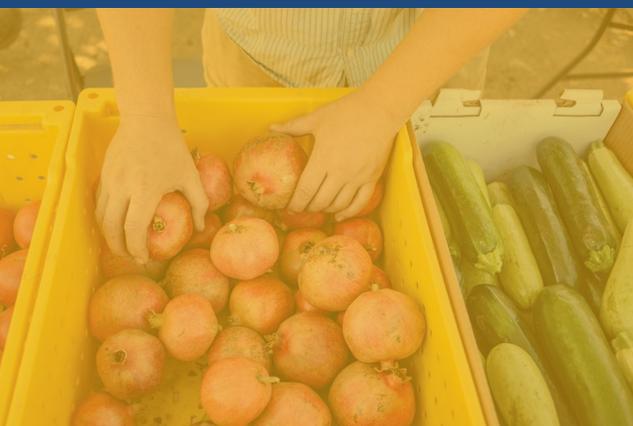
Upon graduation, Jenkins would like to pursue a master's degree in educational leadership from University of California, Davis. His ultimate career goal is to be a high school administrator or work in student affairs at a university.

Jenkins has some words of encouragement for his fellow students.

"Cherish all the connections you made in college. You never know if someone could be a future coworker or teaching partner. Also, there are a ton of experiences and stories to appreciate within the college. The clubs in the college offer amazing experiences, field trips, and guest speakers. The opportunities are endless in the College of Agriculture," Jenkins said.

As the College of Agriculture senator, Jenkins is committed to showing students the opportunities that the Associated Students and the College of Agriculture have to offer.

"I want to support extracurricular activities like never before. I know there is a desire to get involved especially from the classes of 2020 and 2021. I am looking forward to being a liaison for students between the College of Agriculture and Associated Students so that they can find their passion," Jenkins said. ■



A Perfect Blend

NEW DEGREE PROGRAM PREPARES STUDENTS LIKE MICHELLE BORGES FOR AGRICULTURAL ADVOCACY



Beginning in fall 2021, the College of Agriculture and the College of Communication and Education at Chico State launched a new degree program in agricultural communication and leadership. One of the first students to declare the new option is College of Agriculture Public Information Intern Michelle Borges.

We asked her to share her own perspective on the program.

Since I was a young child, agriculture has been an important part of my life. Starting as a young 4-H member to now a college student, it has been an amazing ride. Living in the country with my two agriculturally influenced parents has helped instill this passion within me to live a life serving the agriculture community. I am currently a junior at Chico State and majoring in agricultural science with an option in agricultural communication and leadership and two minors in agriculture business and public relations. I am beyond excited about the new agricultural communication major.

My passion for agricultural communication started when I was a young member in 4-H. By participating in community events like farmers markets and school agriculture days, I began to realize the need to educate the public about agriculture. I remember at one elementary school agriculture day, I asked students where chocolate milk comes from. They all responded "From brown cows." I realized that there are several misconceptions agriculture faces.

Fast-forward to being an active member in FFA, my passion grew even more for wanting to educate people on where their food comes from. Agriculture faces many misconceptions, so I want to be the voice to help ensure the positive message of agriculture. I strive to be the liaison between the producers and the consumers.

In my major, I can learn about agriculture as well as enhancing my communication and leadership characteristics. I am taking a variety of classes in animal science, plant science, and agricultural business. In addition, I am taking communication and journalism classes through the College of Communication and Education.

The variety of this coursework has provided a strong foundation for my dream. I am perfecting my skills in public speaking, interviewing, and journalistic writing that will have a positive return in my future. Through the ag communication major, these skills will be a valuable tool as I educate the public about the agriculture industry. I had the opportunity to help faculty develop the curriculum by enrolling in a variety of classes then giving my input after the completion of the classes.

Within both colleges, I have had amazing faculty and staff members. I feel comfortable in each college because of the encouragement everyone has provided me. This major is so diverse and will benefit the College of Agriculture as well as the agriculture industry.

After my undergrad degree, I would like to earn a master's degree in business administration or agriculture leadership. The foundation of my agricultural communication major is preparing me for my passion for pursuing a master's degree.

My ideal job would be to start in marketing and public relations in agriculture but then work my way up in a company to a president or CEO position. I want to continue promoting agriculture, so in addition to managing an agriculture company I want to become an active member of my community, supporting local 4-H clubs, FFA programs, and other organizations such as California Women for Agriculture and California Farm Bureau.

I am excited to be one of the first students majoring in agricultural communication. I am looking forward to seeing this major grow and listening to students' success stories within the major. I am so thankful to have this opportunity and I look forward to completing my undergrad degree in this new major. ■

Beyond Bachelor's Growing Opportunities for Master's Studies at Chico State

When plant and soil science professor Hossein Zakeri secured grant funding to hire three graduate students last spring, it was an exciting moment for him and for the students. For Zakeri, who together with research collaborator Kyle Brasier has been steadily building his applied agricultural research program since arriving on campus in 2014, the ability to fund graduate students will elevate his research and teaching capacity even further. For the students he hired, it means \$24,000 per year for tuition and living expenses while they earn their interdisciplinary master's degrees.

"I'm already hearing from undergraduates who didn't realize the potential to get funding to pay for graduate school, so this is a great opportunity for us to get more students excited about research," Zakeri said.

Undergraduate education is the driving force within the College of Agriculture, and with no formal in-person graduate program for several decades, it has been up to a handful of intrepid students and faculty to navigate the interdisciplinary studies program to put together their own personalized master's degrees. While that is still the case, expanded faculty research funding and the ability to design interdisciplinary programs that are aligned with the Center for Regenerative Agriculture and Resilient Systems (CRARS) have shown promise among students.

One of Zakeri's paid graduate students, Erik Spitzer (Crops, Horticulture, and Land Resource Management, '19) is combining agronomy and biology into an interdisciplinary studies master's program focusing on plant physiology. His research is investigating the water use efficiency of various fava bean genotypes for cover crop purposes.

"I loved doing research as an undergrad, and that inspired me to continue my studies as a graduate student," Spitzer said. "It's really exciting to see the application of what we learn and how it applies to real world agricultural production."

Students such as Spitzer in the interdisciplinary studies master's program create their own degree by drawing from at least two distinct disciplines. Graduate-level classes are a limiting factor in the College of Agriculture, so students may take classes from other colleges and universities, or develop their own special projects, to meet the 30 units of course requirements for a master's degree. They also assemble an advisory team of faculty to serve as their graduate committee.

Eric Houk, professor of agricultural business and program coordinator for the College of Agriculture, has worked with interdisciplinary master's students in the past and said Chico State can be a good fit for the right person.

"It takes a level of independence and creativity to create their curriculum, but for those who are interested in a professional master's degree customized to their interests, particularly if they are looking to stay in this region, Chico State can be a good option," Houk said.

Soil science professor Garrett Liles has taken on the role of coordinating a new Master of Science in interdisciplinary studies with a focus on regenerative agriculture that draws upon agriculture, environmental science, nutrition, and communication and education, depending upon the student's personal and professional objectives. Six graduate students are currently working with the Center for Regenerative Agriculture and Resilient Systems.

"What I pitch to all students I interact with is that the interdisciplinary nature of our program will allow them to build a skill set that will be marketable and useful," Liles said. "We offer them the ability to develop an innovative set of experiences and skills to prepare them for the complex problems we deal with in agriculture."

The interdisciplinary master's degree option complements another well-established master's program in the College of Agriculture—the online master's degree in agricultural education. First launched in 2012

through the nationwide AG IDEA consortium, the program allows working professionals to complete their degree online while taking courses from some of the top agriculture schools in the United States. Coordinated at Chico State by agricultural education professor Mollie Aschenbrener, the program has grown from just a few students in the early years to 64 enrolled this fall.

"We've expanded beyond just secondary teachers to other agriculture professionals such as farm bureau staff, community college instructors, insurance professionals, and more," Aschenbrener said.

For some students, earning their master's degree will boost their pay and open new professional opportunities. But beyond that, Aschenbrener said she is witnessing tremendous personal growth among her students.

"I had one graduate, a teacher, who contacted me after a yearly goal meeting with her principal where she was talking about assessment tools she was using in the classroom, and he stopped her and said, 'Do you see what you've done? Do you see what a different person you are?' I think that's really stuck with me, that we're not just providing a degree, but offering students a process and an opportunity to gain skills and grow in their own ability to be effective and efficient in their chosen professions," Aschenbrener said.

Houk agrees.

"Between the growth of the ag education master's program and the growing interest in interdisciplinary studies, we're seeing the impacts of our strong history of undergraduate research and student engagement," he said. "Whether it's here at Chico State or by opening the doors for students to explore other graduate schools, our faculty are committed to helping interested students continue their education beyond their bachelor's degree." ■



Erik Spitzer was one of three students to receive a graduate student stipend to work with Professor Hossein Zakeri while earning his master's degree in interdisciplinary studies

Michelle Bartley (Agricultural Science and Education, '04) graduated with her master's degree in agricultural education in 2020. She works at Lassen Community College.



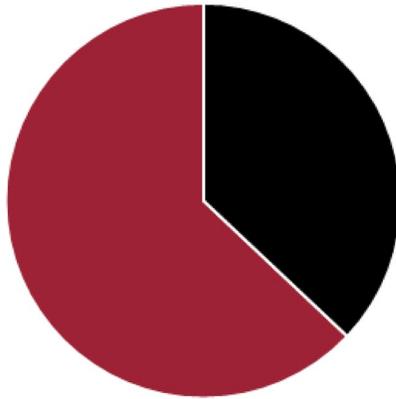
Hossein Zakeri (second from right) and some of his undergraduate and graduate research assistants met with Chico State Provost Debra Larson and President Gayle Hutchinson during a tour of regenerative agriculture projects in August.

“It takes a level of independence and creativity to create their curriculum, but for those who are interested in a professional master's degree customized to their interests, particularly if they are looking to stay in this region, Chico State can be a good option.” –Eric Houk



OUR STUDENTS BY THE NUMBERS

566 (63%)
FIRST-
GENERATION
STUDENTS



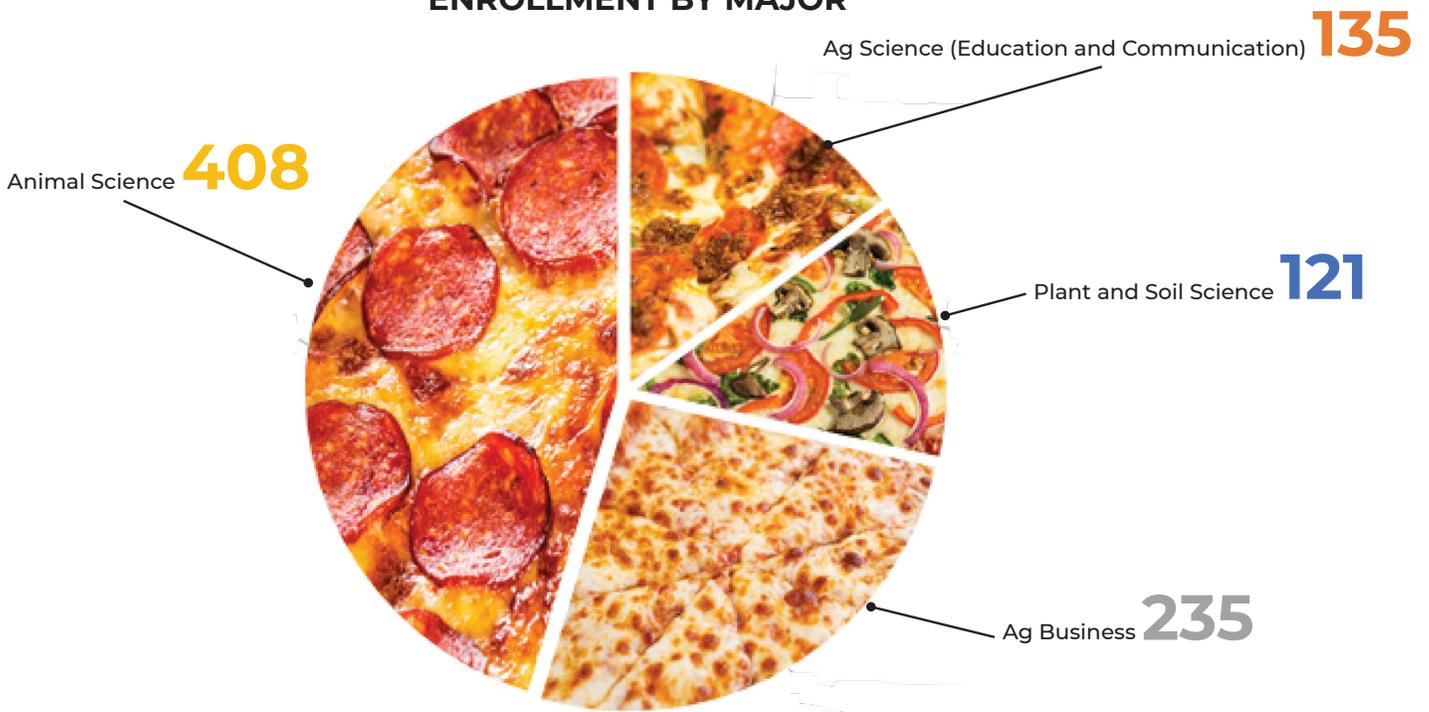
ETHNICITY

- American Indian/
Alaskan Native **0.4%**
- Asian **1.9%**
- Black/African American **1.7%**
- Hispanic **49.2%**
- Two or More Races **3.1%**
- White **39.8%**
- Unknown **3.9%**

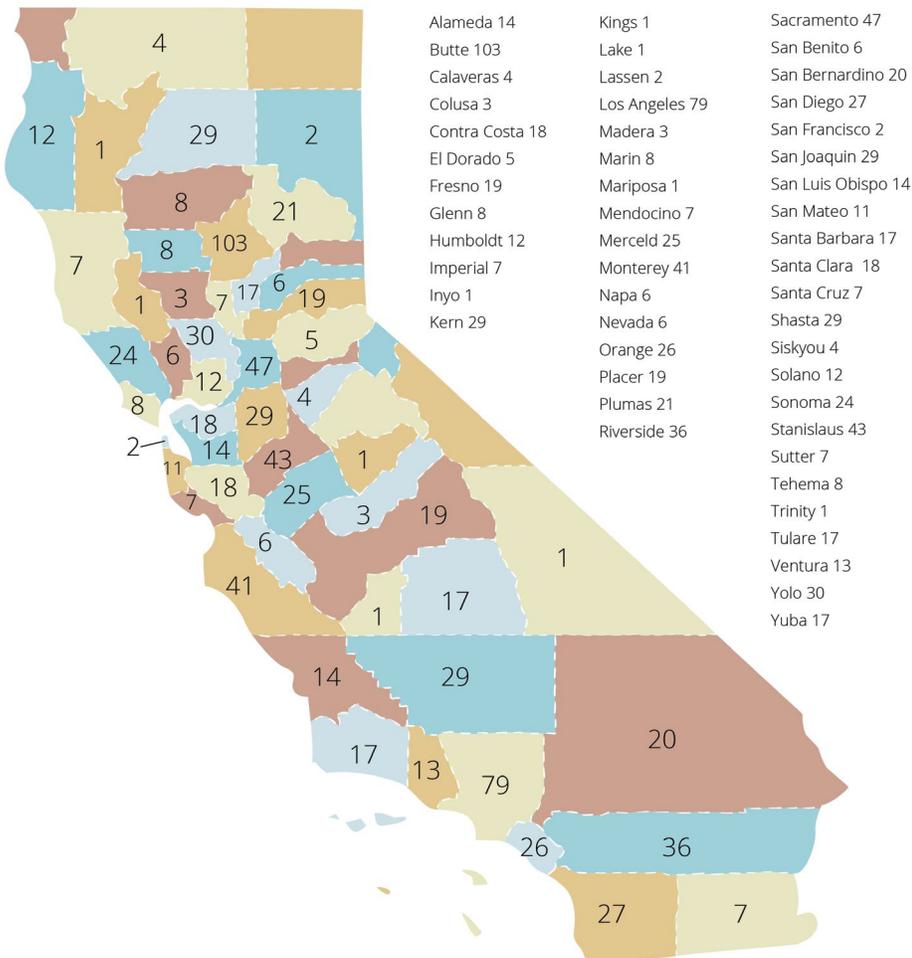
352 STUDENTS
ENROLLED IN
16+ UNITS



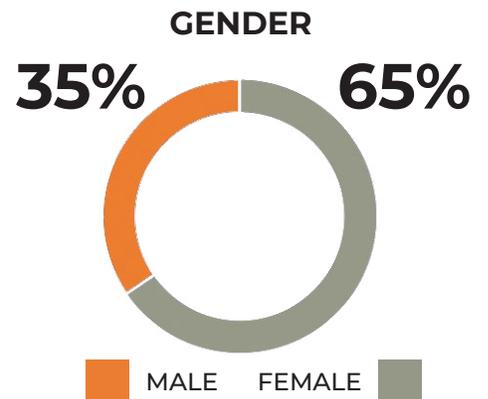
ENROLLMENT BY MAJOR



CALIFORNIA COUNTIES REPRESENTED



VETERANS 2



WELCOME NEW FACULTY and STAFF

With two new faculty in agricultural education and a new student success office coordinator, the College of Agriculture continues to expand its service and support of students.



**DENISE
CROSSWHITE,
COLLEGE
ADVISING AND
RETENTION
SPECIALIST**

With an 18-year career in student services at Chico State, Denise Crosswhite brings a wealth of experience to the College of Agriculture's Student Success Office as the new college advising and retention specialist. A Chico State graduate herself (Organizational Communication, '03; MA, Social Science, '17), and one who was already married with three children when she transferred from Butte College, Crosswhite has a deep affinity for students who are trying to figure out how college works.

"More than 60 percent of our students in the College of Agriculture identify as first-generation college students," Crosswhite said. "Their potential is truly untapped, and I love working with these students who are so open to the support we offer and eager to learn how to navigate college life."

Crosswhite's career at Chico State has included serving as a programming coordinator for Associated Students as well as coordinating residential life programming within University Housing. The past three years she has served as the campus's associate director for residential life, and now she's thrilled to get back to working one-on-one with students and supporting their academic journey in the College of Agriculture.

"Over the years I've worked with some amazing faculty and student leaders in the College of Agriculture, and I'm excited to really focus in on this college where there's such a tradition of student leadership and service," she said.

As the College of Agriculture's advising and retention specialist, Crosswhite will help lead the Student Success Office's broad array of support services from student recruitment clear through graduation. Using comprehensive data and building personal connections with students and faculty, Crosswhite aims to remove some of the barriers to student success and help students find resources they may not even know are available to them.

With her three grown children out of the house, Crosswhite is now a self-described "plant parent," having taken up plant care as a hobby during COVID-19.



JESSICA TOOMBS, AGRICULTURAL EDUCATION PROFESSOR

When it came time to choose a college major, all Jessica Toombs knew was that she wanted to do something in agriculture. She grew up on a small family farm in northwest Missouri, raising hogs and later longhorn cattle, and she had loved her high school agriculture classes. So checking “agricultural education” as her major at University of Missouri was really just a placeholder until she figured out what she truly wanted to do. Fifteen years later, Toombs is now a professor in agricultural education at Chico State, helping students discover the passion for agriculture education that she found as soon as she started student teaching.

Her path to Chico State included seven years as the lone agricultural education instructor in Sikeston, Missouri, where she transformed a program that was on the edge of shutting down into a vibrant and active FFA program where students excelled in the classroom, Career Development Events, and Supervised Agricultural Experience activities. After earning her master’s degree in agricultural education online from Oklahoma State University while still teaching, she was offered a paid graduate teaching associate position at Oklahoma State and made the difficult decision to leave her teaching position and move to Stillwater, Oklahoma, to earn her PhD.

“As much as I loved being in the classroom myself, I found that I really enjoyed mentoring new agriculture teachers and being able to support them in their first few years of teaching,” Toombs said.

That opportunity to focus on students and student learning was what drew her to Chico State this year to accept a tenure-track position in agricultural education.

“I’m a teacher at heart and always will be, and I really wanted a program at a university that was very student focused. That’s what I found at Chico State,” she said.

Toombs is excited to dig into life at the University. She plans to help advise the Collegiate FFA, assist with the Chico State/Butte College FFA Field Day, and work with teachers in the California Agricultural Teacher’s Association. She also wants to continue work she began at Oklahoma State to develop mentoring programs for new student teachers.

Outside of her professional work, Toombs is getting to know Chico and the surrounding area. She enjoys hiking, biking, and exploring various parks and recreational opportunities that Northern California has to offer.



ALYSSA SCHAGER, AGRICULTURAL EDUCATION PROFESSOR

Alyssa Schager (Agricultural Education, ’03) remembers sitting in her agricultural education classes as an undergraduate at Chico State and admiring the role of her professor Brad Dodson.

“I always admired Dr. Dodson’s impact on students and a profession that is dear to my heart,” she recalled.

At the time, she was focused on earning her teaching credential and beginning her career as a high school agriculture teacher. Little did she know that the chance to prepare aspiring teachers like herself was in her not-too-distant future. After a nine-year career as a secondary agriculture teacher, in which she earned California Foundation for Agriculture in the Classroom’s Vocational Teacher of the Year in 2008 and California Association FFA Star Advisor in 2011, Schager moved to Orland when she married her husband Wes (Integrated Animal Systems, ’00) and began teaching part time in the College of Agriculture at Chico State. Part time eventually became full time, and in 2018 she embarked on her doctoral degree through Liberty University, which she completed this year. In August she officially became a tenure-track professor in agricultural education, fulfilling a dream that started back in college.

“It’s incredibly special,” she said. “As an alumna of the College of Agriculture, and as a past secondary teacher, I’m thrilled to serve and train aspiring agriculture teachers.”

In her new role, Schager hopes to blend her dual passions of agricultural education and agricultural leadership, both preparing future agriculture teachers in curriculum development and instruction, while also building upon the existing agricultural leadership classes that serve all majors in the College of Agriculture.

As a researcher, Schager is interested in attrition of novice agriculture teachers.

“We work diligently and intentionally to ensure that pre-service teachers are equipped to enter the profession, but then we lose too many of them within the first five years of their careers. I’m interested in exploring and gaining a deeper understanding of the factors that affect teacher attrition as well as systems that support educator retention,” Schager said.

Schager, along with her husband, Wes, and their two sons, also raises beef cattle and grows walnuts in Orland.



Patricia Stock

Joins the College of Agriculture

Where there's a will, there's a way. This is the philosophy that has guided Patricia Stock her entire life, across two continents, through three decades in academia and research, while teaching and advising hundreds of students, and now to Chico State, where she joined the College of Agriculture as its dean in August 2021.

Dean Stock comes to Chico from the University of Arizona in Tucson where she spent the past 20 years as a faculty member, and most recently as director of the School of Animal and Comparative Biomedical Sciences in the College of Agriculture and Life Sciences. While her path to becoming dean of the College of Agriculture has been distinguished and impactful, it was not a traditional one.

"I didn't grow up in agriculture, I was a city girl," Stock said.

The Argentina native appreciated the agriculture she saw whenever her family drove out of La Plata, the capital of the province of Buenos Aires, contemplating thousands of acres of diverse crops as well as beef and dairy cattle that abound in the wet Pampas. But though she majored in zoology in college, her career interest in agriculture didn't begin until the end of her undergraduate education when she took a class that discussed chemical pesticides and sparked her curiosity about alternative pest management tools. That interest led her to a PhD in natural sciences at the National University of La Plata, where she studied a group of nematodes specific to insects for their potential as biological pesticides. Her research continued as a postdoctoral scholar at UC Davis, where she made her home in California and eventually became the senior museum scientist and assistant curator of the UC Davis Nematode Collection. While the position allowed her to focus on her burgeoning expertise in parasites, she missed being in the classroom.

"I come from a family of educators, and I always wanted to teach," she said. "The best researchers are teachers, and the best teachers are researchers. Each specialty informs the other."

When Stock had the opportunity to join the University of Arizona in 2001 in a non-

tenure-track research position in the former Department of Plant Pathology, with only 65 percent appointment, her new challenge was to build her research capacity and place herself into a tenure-track position.

"Normally faculty in Tier 1 institutions are given a lab and a startup to initiate their research. But I had nothing but an office and a printer," she said.

Although her appointment did not have a teaching component, she volunteered to teach a class on plant pathogens and coordinate lectures in nematology. A few years later she became tenured faculty in the Department of Entomology.

With her trademark grit, Stock set to work applying for grants and setting up her laboratory in Tucson, where over the next 20 years she developed an internationally recognized research program in insect pathology and microbial symbiosis. She earned awards for mentoring, leadership, diversity, and teaching, and she participated actively in professional societies, including the International Symbiosis Society, Society for Invertebrate Pathology, and the Organization of Nematologists of Tropical America, serving in elected leadership positions in each.

Meanwhile she rose rapidly up the faculty ranks and served on a number of committees within the college and university. In 2018 she was appointed interim director of the School of Animal and Comparative Biomedical Sciences and earned the permanent post the following year after a national search.

Stock wasn't looking for a new job when the dean of the College of Agriculture position opened in early 2021 at Chico State upon Dean John Unruh's retirement, but when she saw the opportunity, she felt like she had to apply. It was the perfect chance to return to California, where she had first found her home in the United States and where both of her sons with husband Barry Pryor, also a professor at University of Arizona, now live.

"There were many reasons why Chico State was a great opportunity, most importantly because of the agricultural preeminence of the state. California is the leader in agriculture not only of the country, but of the world, so this was such an amazing opportunity for someone

who is drawn to research and education in agriculture," she said. "Then to learn about the amazing focus on experiential education at Chico State, and the treasures we have in the University Farm and the Center for Regenerative Agriculture and Resilient Systems, everything aligned with my philosophy on agricultural education.

Stock's immediate goal while she immerses herself in learning about the college, campus, and community is to initiate a strategic planning process to align the College of Agriculture with the university's Strategic Plan developed in 2019.

"That will be a great exercise for me to understand the dynamics of the college and for us to collectively define our goals and priorities," she said.

Longer term, Stock hopes to work with faculty, staff, donors, and agriculture stakeholders to expand experiential learning opportunities and prepare students to take on the challenges that agriculture will face in the future with creativity and leadership.

"Students today are already experiencing immense challenges. COVID is an example where one little microscopic organism (SARS Cov-2) can rule everybody's lives and affect the economy, the quality of life, health, everything," she said. "Yes, it's a bad situation, but I think it's also a chance for learning and growing and finding the positive opportunities in a negative situation."

Above all else, Stock looks forward to meeting the people of Chico State, learning their stories, and finding ways to support them on their way to academic and career success.

"The rewards I get are from the success stories of the people with whom I've worked," she said. "Whether it's students or faculty or staff, when someone comes to me, sometimes years later, and says, 'Hey, Dr. Stock, I got admitted to this program,' or 'I got this job,' that for me is the most rewarding thing." ■

Stock welcomes students, faculty, staff, and alumni to contact her any time. She can be reached by email at spstock@csuchico.edu or by phone at 530-898-5844.



**MEET
THE
DEAN**

Where
there's a
will,
there's a
way.



CRARS Corner



THE CENTER FOR REGENERATIVE AGRICULTURE AND RESILIENT SYSTEMS SERVES THE NORTH STATE

*Written by CRARS Communications and
Outreach Specialist Sheryl Karas*

The Center for Regenerative Agriculture and Resilient Systems (CRARS) has been working to position itself as a global research center, demonstration and training site, and policy think tank working to address resiliency with programs that support farmers' and ranchers' transition to practices that improve soil health. This is the year when we're starting to see a lot of that work come to fruition.

Awarded a Grant of Nearly \$7 Million from the USDA

CRARS, in collaboration with 12 other conservation partners, has been awarded a coveted Regional Conservation Partnership Program award totaling \$6,995,463 for 2020–21 through the USDA’s Natural Resources Conservation Service. The award is to support “Soil Health Management Systems for Northern California,” a five-year project designed to help orchard/vineyard, rangeland, dairy and row crop producers in Northern California build food and fiber production resiliency to counter problems caused by challenging weather conditions. The grant will fund three California Resource Conservation District positions to support the development of producer-based Soil Health Management Plans, implementation strategies, and protocols in three distinct regions in Northern California. The project integrates carbon farm planning activities and will report on economic and social outcomes in addition to conservation outcomes. It also supports Agriculture Communities of Practice to disseminate adaptive management knowledge, training, and exchange of ideas. Working together, CRARS will build plans that conserve and regenerate soil while sequestering carbon and building resilience through water use efficiency.

Terry Cosby, acting chief for USDA’s Natural Resources Conservation Service (NRCS) says, “The Regional Conservation Partnership Program is public-private partnership working at its best. These new projects will harness the power of partnership to help bring about solutions to natural resource concerns across the country.”

Conservation partners work in collaboration with NRCS to help farmers, ranchers, and forest landowners throughout the nation implement systems that conserve water and soil resources, improve the health of wildlife habitats, and increase resiliency in adverse conditions. These projects offer impactful and measurable outcomes so the NRCS is investing \$330 million in 85 locally driven, public-private partnerships to protect agricultural viability in the face of challenging weather incidents. The award received by CRARS is one of these projects.

CRARS CONSERVATION PARTNERS INCLUDE

- California Association of Resource Conservation Districts (CARCD)
- The California Department of Food and Agriculture
- Carbon Cycle Institute
- Fibershed
- Glenn County Resource Conservation District
- Humboldt Resource Conservation District
- Lassen Resource Conservation District
- Lassen County Farm Bureau
- Mendocino County Farm Bureau
- Mendocino Resource Conservation District
- Modoc Resource Conservation District
- University of California Cooperative Extension

Technical Service Provider (TSP) Training Program

Technical Service Providers work one-on-one with individual ranchers and farmers to help them plan, design, and implement conservation practices or develop conservation activity plans to improve their agricultural operations. But with the increase in demand for these services in regions experiencing traumatic drought, weather, and fire events, there are often not enough TSPs to go around. Because CRARS partners with so many local, state, and federal agencies, nonprofit organizations, and independent agricultural consultants, this breadth of experience presents a unique opportunity to enhance conservation delivery in California by increasing the availability of Technical Assistance (TA) to producers, using the proven framework of the NRCS conservation approach. It also makes it possible to provide practice-specific workshops to increase design and implementation expertise and facilitate sustained adoption of these practices.

CRARS has created a TSP Training Program to certify TSPs in specific resource categories. These include soil health management, nutrient management, grazing management, forest management, wildlife habitat & pollinator habitat and carbon farm plans. The project builds on the science to implement site-specific forest management, soil health, and water conservation. But it also values the producers by creating participatory learning environments that support and facilitate group learning and innovation, community building, the development of shared values and producer ownership of management systems critical to sustained conservation efforts. CRARS will also assess the environmental and economic impacts of this work by analyzing soil samples, pest/pollinator data and economic data.

The program builds on current certification pathways that deliver conservation planning process content by adding the diversified expertise of training partners and the practical knowledge of producers, including individuals who have successfully implemented conservation plans and practices. It has the potential to impact resource conservation planning throughout the Northern California region. Long-term, increased adoption of soil health practices could restore and regenerate thousands of acres of working lands.

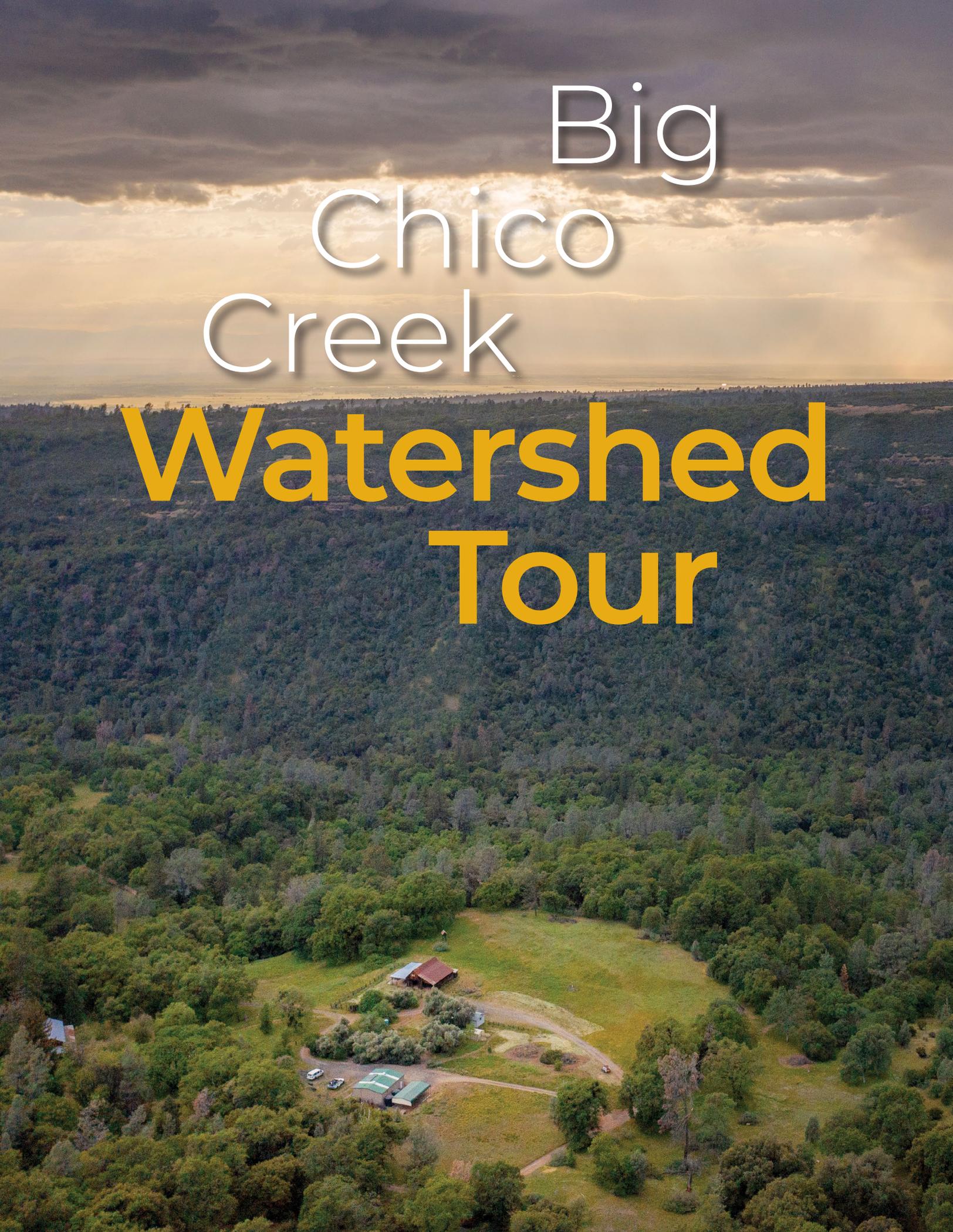
World Class Research and Graduate Student Opportunities

CRARS, its faculty affiliates, and graduate students are currently working on numerous projects locally and nationally. One of these, the Johnson-Su Bioreactor Registry, has engaged the support of 142 citizen science participants in 26 US states and 31 countries around the globe. They are all attempting to replicate the breakthrough work of Chico State Adjunct Faculty **David Johnson** on the effect of fungal-dominant compost on both carbon sequestration and crop growth and resiliency, some with spectacular results. CRARS is doing multiple-year research using this compost along with cover crops and no-till practices with the Metropolitan Water District in Southern California; a regenerative cotton production project at Bowles Farm in Los Banos, California; and a rangeland study funded by the California State Agricultural Research Initiative. Johnson, along with CRARS and the Howard G. Buffett Foundation, is currently studying the effect of this compost as a soil inoculant on corn production in Willcox, Arizona.

Closer to home, Assistant Professor and CRARS Faculty Affiliate **Hossein Zakeri** and Postdoctoral Researcher **Kyle Brasier** have been studying the use of fava beans as an edible cover crop. 63 accessions from 25 countries are being evaluated to identify the most suitable fava bean varieties for cover crop mixtures. Other studies are working to estimate the economic value of this approach and quantify potential soil nitrogen benefits. Approximately \$1 million in research grants were obtained for these projects from the California Department of Food and Agriculture, CSU Agriculture Research Institute, and Western Sustainable Agriculture Research and Education. Multiple local sites have been participating including Chico State, Fresno State, Lundberg Family Farm, Terra Nux, Chico Flax, and Kimmelshue Orchards.

Additionally, our undergraduate and graduate students have been engaged in research in regards to other types of cover cropping and compost. **Clayton Handy** and **Raquel Krach**, two of our graduate students, are studying regenerative practices on the farms they manage or own. Clayton works for California Olive Ranch and is working with CRARS and the Glenn County Resource Conservation District to explore the impact of cover crops in olive orchards. They’ll be doing soil testing and water infiltration testing every year of a three-year trial. Economic inputs and returns will be collected to establish gross/net profit per acre and overall return on investment. Raquel Krach of Massa Organics received a California Department of Food and Agriculture Healthy Soils Initiative grant to study the use of multi-species cover crops and compost on her almond orchard for three years with yearly soil testing as well.

That’s just a taste of what’s been happening at CRARS! Many more projects are in the works with reports on those developments sure to come. ■



Big
Chico
Creek

**Watershed
Tour**

From its 6,000-foot elevation headwaters at the top of Colby Mountain to its confluence with the Sacramento River 45 miles to the southwest, the Big Chico Creek watershed may not often cross many students' minds. Perhaps they give it some thought while they are walking across any of the nine bridges that span Big Chico Creek as it winds its way through the Chico State campus. But beyond simply noting its water level (mostly dry of late), the Big Chico Creek watershed influences their lives every day. Its impacts can be found in the water they drink in the City of Chico, in the shaded tranquility and rugged beauty of lower and upper Bidwell Park, in the educational opportunities at Big Chico Creek Ecological Reserve to the east, and the popular summertime floating tradition along the Sacramento River to the west. There's a good chance it's even a critical link in the food they eat.

To understand a watershed—to grasp even a hint of the complex interplay of precipitation and geography, natural and engineered habitats, wildlife, forestry, and recreational and agricultural uses—takes a multidisciplinary, hands-on approach. It also



takes some serious critical thinking skills. Since 2018, that has been the premise of an innovative one-unit course made possible by the Center for Water and the Environment.

The Big Chico Creek Watershed Tour is an outdoors experiential learning course offered by faculty from agriculture, biology, civil engineering, geography, and geological

and environmental sciences. Student participants metaphorically follow a drop of water from the headwaters of the creek to its confluence with the Sacramento River over several daytrips during the spring semester. Activities include wildlife camera retrieval using GPS navigation, plant identification, forest health and prescribed burning, aquatic bioassessment, water quality measurements, salamander surveys, geology, groundwater monitoring, and restoration of riparian areas.

College of Agriculture soil science professor Garrett Liles has been involved in the course since its inception and hopes the tour helps students understand not only what a watershed is, but also how it influences—and is influenced by—the land uses that take place there.

“Every watershed has agricultural elements in it, sometimes including forestry,” Liles said. “Since most of the students in this course are not agriculture majors, it’s important that they understand the impact of agriculture on their lives. It’s important to bring land management to the table.”

In 2021, the College of Agriculture’s role in the course expanded with a portion of the tour conducted at the University Farm. Civil

Since most of the students in this course are not agriculture majors, it’s important that they understand the impact of agriculture on their lives.



engineering and agriculture professor Jeff Davids led a half-day session on agricultural water use and the challenges of managing such a critical resource that is so erratic in its supply.

“When it comes to managing our water resources, we have three main challenges: too much, too little, and too dirty, with too little water being our primary challenge right now,” Davids said.

The visit included a walk around the farm, with the goal of really driving home the purpose of irrigation.

“I wanted to make sure they really understood the process of evapotranspiration, and how we want soil to hold the water temporarily for plants to be able to take it up and ultimately transpire moisture through their leaves,” he said. “The point of irrigating is not to get the soil wet but to allow that process of transpiration to occur to produce biomass—our food and fiber—for the world.”

When senior plant and soil science major Melvin Quezada Haro embarked on the Big Chico Creek Watershed Tour last spring, he was really thinking about another watershed 20 miles to the north in Vina, where he works as a ditch tender for Deer Creek Irrigation District.

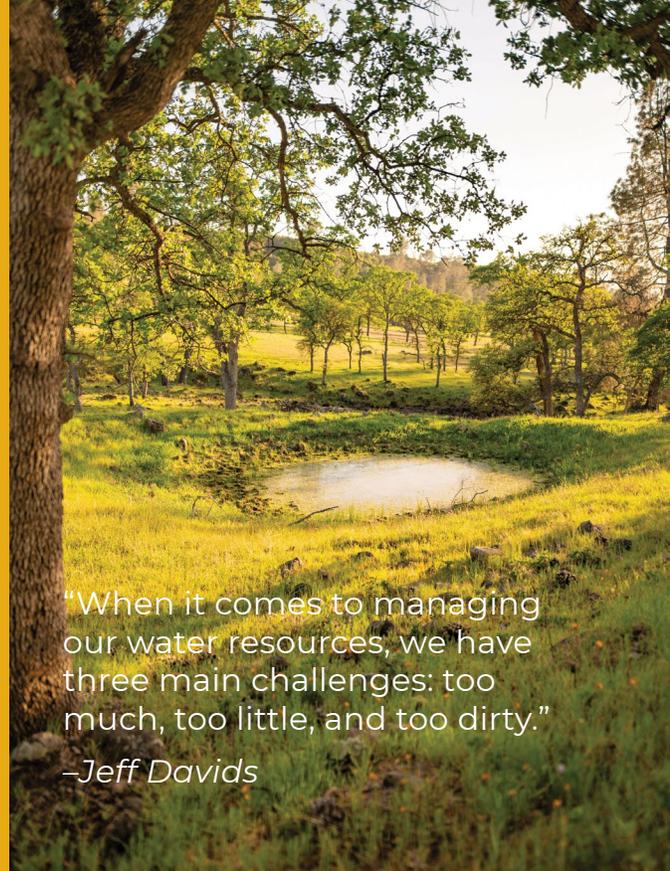
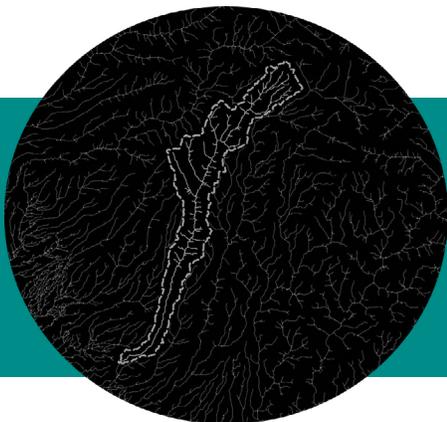
“I was very interested to know and understand how a watershed worked and how it changes as we apply different uses to the landscape,” Haro said. “It’s allowed me to make decisions and recommendations with a stronger sense of the ecological implications of how we manage our water resource to ensure it’s there for future generations.”

Haro also enjoyed interacting with students from a variety of majors who each brought their own experiences and perspectives to the watershed tour.

“As an agriculture major it made me appreciate how other majors have very specific knowledge and how we can all learn from each other. I enjoyed talking to the biology majors, the engineering majors, the ecology majors, and expanding my view through those conversations,” he said.

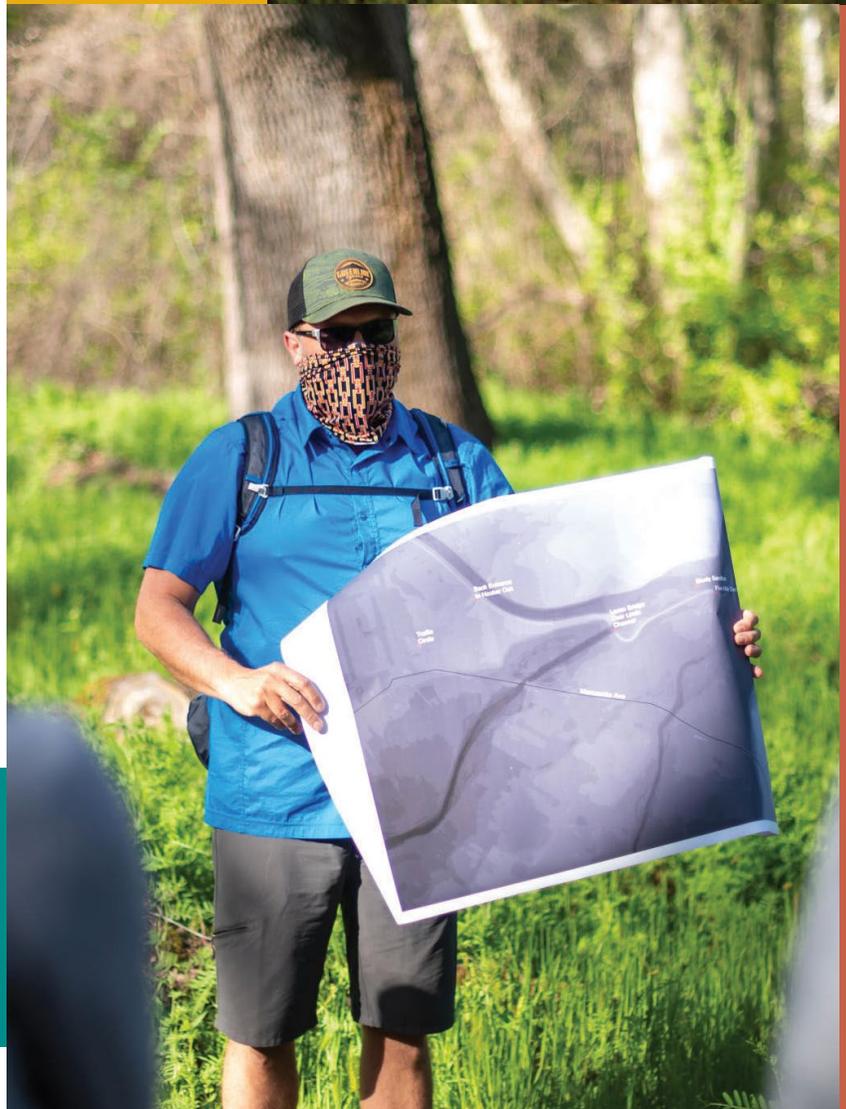
The Big Chico Creek Watershed Tour is offered annually during the spring semester as a special problems course in the Geological and Biological Sciences Department. For more information contact College of Agriculture faculty Garrett Liles at gcliles@csuchico.edu or Jeff Davids at jcdavids@csuchico.edu. ■

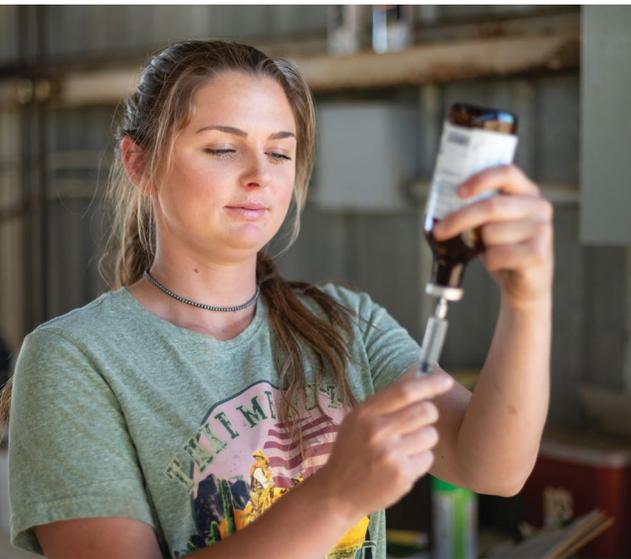
Big Chico Creek Watershed image courtesy of Jeff Davids.



“When it comes to managing our water resources, we have three main challenges: too much, too little, and too dirty.”

—Jeff Davids





EMBRYO DONATION

Benefits Beef Unit

Donations to the College of Agriculture can take many forms. Though cash is most common, it's not unusual for in-kind donations to come in the form of feed, trees, equipment, and even livestock.

The most recent donation to the Chico State Beef Unit arrived in 21 frozen plastic straws. It was a gift of high quality Hereford embryos from Dewar Farms in Bakersfield.



Scott and Andrea Dewar and their daughters Madison and Meagan have raised and shown Hereford cattle all over the country since 2009. When the girls graduated high school and their show schedule wound down, the Dewars decided to share their genetics to help expand the Hereford program at the University Farm.

"This donation has allowed us to show our students one way to add really good genetics to a herd, other than artificial insemination," University Farm Livestock Technician Travis Heffner (Animal Science, '08) said. "The whole process has been new and educational for the students and has been a great teaching tool."

Agricultural communication major Claire Broaddus got to observe the process as a Beef Unit intern in May.

"It was so cool to just watch and take it all in because I'd never seen something like this," said Broaddus, a junior. "I had never really worked with cattle before interning at the Beef Unit, so the whole experience was really interesting and eye-opening as I prepare for a career in agricultural communication."

Two and a half weeks prior to the arrival of the fertilized eggs in early May, the beef unit staff carefully selected about 30 cows as candidates to receive the frozen embryos. They began a synchronization protocol to ensure the cows would be at the correct stage of their estrous cycles when implantation occurred. Embryo transfer technician BJ Macfarlane (Integrated Animal Systems, '01) also donated embryos along with his services of implanting the embryos into the Chico State cows. Macfarlane

implanted 21 eggs with an expected 55 percent pregnancy rate. As of an early fall pregnancy check, Heffner said they seemed on track to hit that target.

When the calves are born in February 2022, they will join a handful of Herefords already at the Beef Unit to complement its primary herd of registered Angus cows.

"I am excited to get these calves on the ground next spring," Heffner said. "I am extremely thankful for the Dewars and Macfarlanes for their donations and help in getting our Hereford herd built back up."

"In my opinion Herefords are the best breed out there, and we are happy to help the Chico State Beef Unit build their program," Scott Dewar said. ■



Professor Establishes Mushroom Unit at University Farm

Mushroom cultivation has been practiced for more than 150 years in the United States, and its popularity is growing. Now for the first time in Chico State's history, mushrooms are adding to the production and education diversity at the University Farm.

Professor and Organic Vegetable Project (OVP) Director Jamal Javanmardi had previously converted three separate abandoned structures into mushroom production sites at his former universities. When he arrived at Chico State in 2019 as a faculty member in Plant and Soil Science, he looked around the University Farm for a suitable mushroom production facility and found a 10-foot-by-20-foot enclosed box that had been used for fodder production at the Organic Dairy Unit. As a fodder unit, the box was too hospitable to fungi to effectively grow cattle feed. Rather than continuing to battle the fungi invasion, Javanmardi and Organic Dairy Director Cynthia Daley decided to embrace it and convert the fodder box into a mushroom unit using a Student Learning Fee grant from the University.

The mushroom unit can hold about 5,000 pounds of compost and will serve as a permanent demonstration site for students and the public to learn about mushrooms, as well as a research and production facility.

"The mushroom unit provides an excellent opportunity for students to get their hands on the growing diversity of edible mushrooms," Javanmardi said.

The first student to work alongside Javanmardi is crops and horticulture major Alexis Paez, a senior who Javanmardi hired on a summer stipend through the Chico STEM Connections Collaborative (CSC2) program.

"This is really exciting," Paez said. "I really knew nothing about mushroom production, but over the summer, I've been able to learn the ins and outs, from setting up the facility and spawning the fungus clear through to harvest."

The first harvest of crimini and white button mushrooms took place in early August 2021. The mushrooms are marketed through the Organic Vegetable Project's CSA boxes and weekly farm stand, with surplus mushrooms going to the Hungry Wildcat Food Pantry. Javanmardi expects to produce mushrooms in four separate cycles throughout the year, with each harvest lasting roughly six weeks. Between harvest cycles, his team will thoroughly clean and sanitize the unit, bag compost, distribute spawn among the bags, and apply a top-dressing known as casing. Controlling the humidity and carbon dioxide for the precise stage of growth, from the first formation of tiny mushrooms, known as "pinning," through harvest, is critical to success of the crop. For his initial production, Javanmardi secured compost from Premier Mushrooms in Colusa, but one of his goals for the mushroom unit is to be able to produce and pasteurize compost on site.

By including mushroom production in the relevant courses he teaches and offering the mushroom unit as a demonstration site for other classes and groups, Javanmardi hopes to inspire a love of mushrooms in students and visitors alike.

"From its health and sustainability benefits to its economic potential, mushrooms are an exciting opportunity for agriculture to embrace, and I'm pleased that Chico State is becoming a leader in mushroom production education," Javanmardi said. ■

Student Alexis Paez and Professor Jamal Javanmardi harvest the first mushrooms from the new Chico State Mushroom Unit.





#ChicoStateAgWorks

These recent graduates are putting their Chico State agriculture degrees to work. Follow us on Facebook and Instagram @ChicoStateAgriculture, and share your own success stories with us using the hashtag #ChicoStateAgWorks.

Julie

Brown
Animal Science/
Agricultural
Business, '21
Senior Appraiser,
Siskiyou County
Assessor's
Office



GRAD SCHOOL



Marissa Patton

Animal Science, '21
Carlson College of Veterinary Medicine,
Oregon State University



Jennifer Tarbell

Animal Science, '21
Texas A&M School of Veterinary
Medicine



Katy Gough

Animal Science, '21
Program Coordinator,
Butte County Farm
Bureau



Sheridan Kusel

Agricultural Business, '21
Land Steward, Feather River
Land Trust

EDUCATION

Taylor Foster

Credential, '20
Agriculture Teacher/FFA
Advisor, Liberty Ranch
High School



Emily Fuller

Agricultural Education,
'20
Agriculture Teacher, Los
Molinos High School



Brandon Reese

Agricultural Education, '21
Agriculture Mechanics
Teacher, Buckholts High
School



Michael Thomas

Agricultural Education, '21
Agriculture Mechanics
Teacher, Riverbank High
School



Adam Wolosz

Agricultural Science
and Education, '20
Agriculture Facilities
Operations Manager,
Feather River College



GOVERNMENT and NONPROFIT

Heather Kuykendall
 Agricultural Business, '21
 Agricultural Loan Assistant/Specialist, USDA Farm Service Agency



Clair Verde
 Animal Science, '20
 Agriculture Aide, California Department of Food and Agriculture

AG PRODUCTION and INDUSTRY

Celeste Espinoza
 Animal Science, '20
 Technical Specialist—Animal Nutrition, JH Biotech



Mary Holbert
 Animal Science, '21
 Field Scout Intern, Wilbur-Ellis

Jessica Godinez
 Animal Science, '21
 Livestock Manager, Starwalker Organic Farms



Kevin Keenan
 Plant and Soil Science, '21
 Field Scout, Wilbur-Ellis

Mariah Harper
 Agricultural Business, '21
 Sales Representative, Capay Valley Ranches



Gerardo Licea
 Agricultural Business, '21
 Management Trainee, Five Rivers Cattle, Kuner Feedlot

FINANCIAL SECTOR



Jonelle Gilardi
 Agricultural Business, '21
 Accountant, Golden State Farm Credit



Haley Neri
 Agricultural Business, '21
 Loan Officer, Farm Credit West



Hannah Neri
 Agricultural Business, '21
 Financial Analyst Intern, Rabo AgriFinance



Lane Pearson
 Agricultural Business, '21
 Financial Analyst, Rabo AgriFinance

Alumni News

Where Are They Now

STAY CONNECTED



1960s

Donald Heinze (Agriculture, '62)
Retired, United States Department of the Interior,
Bureau of Land Management
—Albuquerque, New Mexico
dhhbotany@gmail.com

1980s

Chris Hansen (Animal Science)
Special Investigator, California Department of Food
and Agriculture/Feed, Fertilizer & Livestock Drugs
—Sanger
chansen989@gmail.com

1990s

Mike Hamby (Agricultural Business, '90)
Chief Commercial Officer, AgroFresh Solutions
—Philadelphia, Pennsylvania.
mhamby1968@gmail.com

Ben Goudie (Agriculture, '96)
Director of Member Relations-North, Blue Diamond
Growers—Lodi
BGoudie@bdgrowers.com

**America (Valadez) Garman (Agricultural
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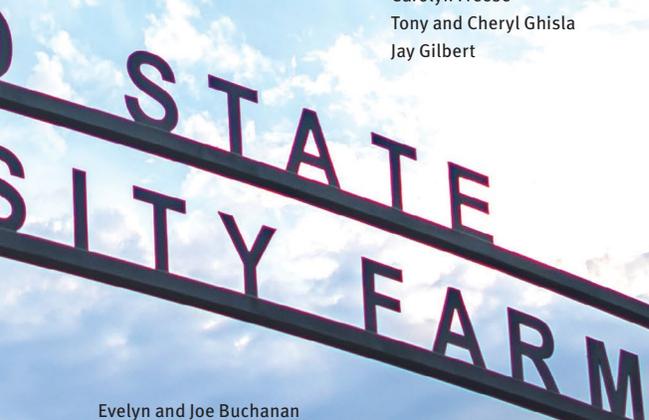
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