ACES NM STATE MAGAZINE

COLLEGE OF AGRICULTURAL, CONSUMER AND ENVIRONMENTAL SCIENCES

VOLUME 10 | FALL 2023

INNOVATION *on* INDIGENOUS LAND

VIEW FROM THE TOP

Gerald Thomas Hall has served as the home of the College of ACES since 1963. Named after former NMSU President Gerald W. Thomas, the iconic building marks its 60th year as the heart of NMSU's agricultural district. Read more on Page 10.

Josh Bachman

FROM THE DEAN

Dear Aggies and friends,

Welcome to the 10th issue of *ACES Magazine*! We proudly deliver this vibrant magazine showcasing our groundbreaking work for the people of New Mexico to readers from all over the world. I hope you have enjoyed reading it over the past five years.

In this issue, we take you to our Agricultural Science Center at Farmington, a hub of innovative research and outreach, building agricultural resilience across the Four Corners region and beyond. Founded in 1967, the center sits on 254 acres of land leased from the Navajo Nation in San Juan County and exemplifies our commitment to full engagement with local communities.


Josh Bachman

Read on to learn about a trio of new department heads, native and non-native grass research, the Anna, Age Eight Institute, Indian Resources Development and much more. And, if you're a middle-school student or educator, please read about our Virtual Insect Collection Lab – it might help in your next science class.

We are delighted that Fabiola Cabeza de Baca, who was featured in our previous issue, was inducted into the National Agricultural Center and Hall of Fame in October. An outstanding Extension agent, author and mentor, she is the first Hispanic woman to be thus honored.

Finally, this fall, we mark a milestone for our college as we host a ribbon-cutting ceremony for our new Food Science Learning and Safety Center and feed mill. These facilities will enhance student education and labor training, benefiting New Mexico and its agriculture industry.

Thanks for your support! Here's to many more issues of *ACES Magazine*!

Rolando A. Flores Galarza
Dean and Chief Administrative Officer

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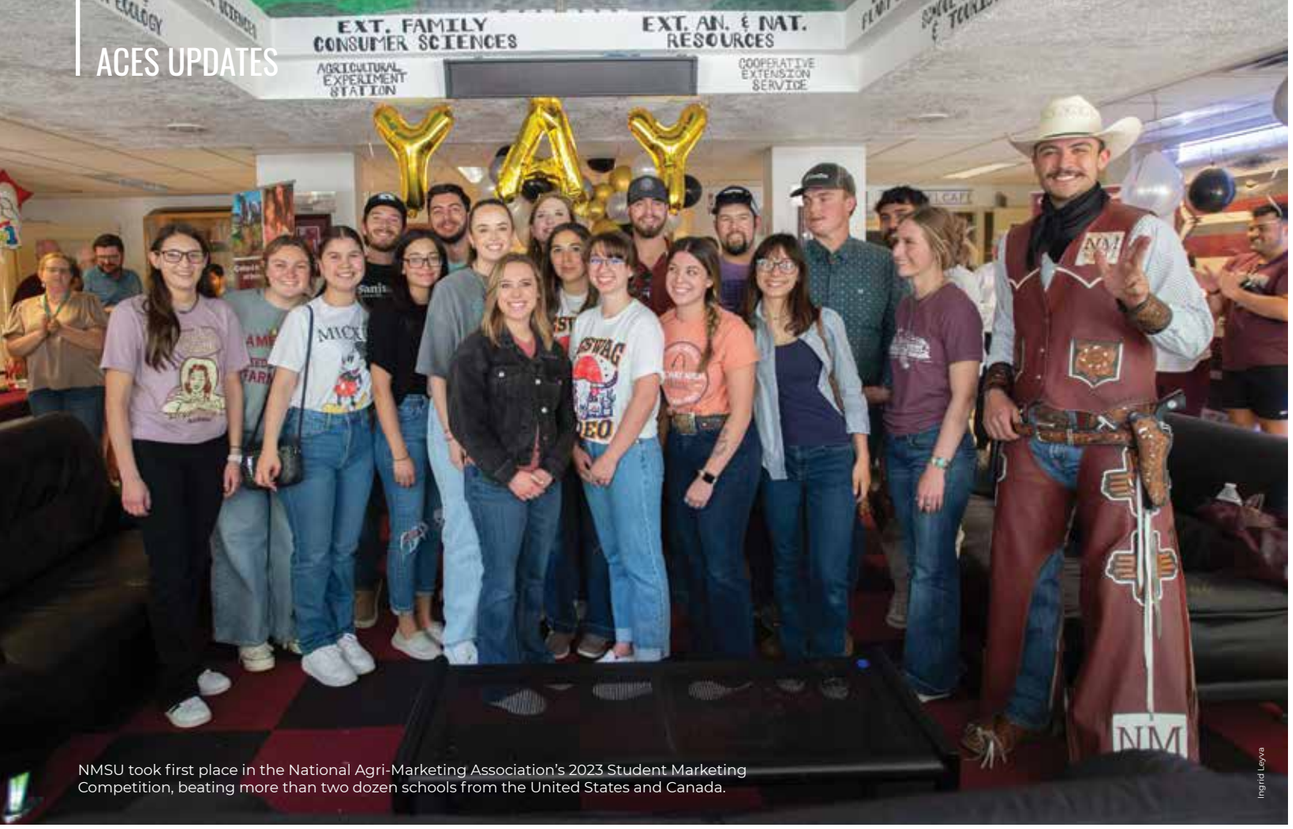
FALL 2023

Bug bytes

Innovation on Indigenous lands

ON THE COVER

Korbin Nakai, an intern at NMSU's Agricultural Science Center at Farmington, prunes a vineyard growing table grape varieties.
Photo by Josh Bachman



NMSU took first place in the National Agri-Marketing Association's 2023 Student Marketing Competition, beating more than two dozen schools from the United States and Canada.

Ingrid Loya

TEAM **TRIUMPH**

NMSU students upset high-profile rivals to take top prize in NAMA competition

BY CARLOS ANDRES LÓPEZ

A group of NMSU students bet big on freeze-dried salsa and came out on top in a highly competitive marketing competition at the National Agri-Marketing Association convention in Missouri.

Earlier this year, 19 students from NMSU's NAMA chapter took first place in NAMA's 2023 Student Marketing Competition, outperforming more than two dozen schools from the United States and Canada.

NMSU's NAMA chapter brings together students from all majors interested in agribusiness marketing. With support from faculty mentors from the Department of Agricultural Economics and Agricultural Business, the chapter hosts mock job interviews, etiquette dinners and other events to build students' marketing skills. It also sends a team to NAMA's national convention to compete in the annual student competition.

For this year's competition, the students developed a detailed marketing plan for an agricultural product of their choice, using skills in agribusiness marketing, sales, public relations and advertising. Their plan centered on a freeze-dried salsa product developed by High Desert Chile Co., a Las Cruces company. Their executive report described the product – Badlands Salsa – as an "authentic, bold and flavorful freeze-dried New Mexican salsa" perfect for outdoor enthusiasts seeking "tasty, nutritious, convenient, light-weight food options when exploring the great outdoors."

In April, the students traveled to St. Louis to represent NMSU in the competition. During the first round, the team presented their plan to a judging panel of marketing professionals and secured a spot in the semifinals. NMSU then sailed past the semifinals and was among the top six teams to make it to the finals. NMSU ultimately prevailed over the other finalists, including Purdue, University of Guelph, University of Wisconsin-Madison, University of Nebraska-Lincoln and Iowa State.

Ingrid Loya

Supporters filled the Gerald Thomas Hall lobby to congratulate the team of NMSU students who won the National Agri-Marketing Association's 2023 Student Marketing Competition. It was the first time NMSU took first place in the competition in more than a dozen years.

"We were just so thankful to make the finals and be in the top six," said Charles Peraza, who served as the chapter's president. "We were just really blown away that we got first and beat all these really good teams."

It was the first time NMSU took first place in the competition in more than a dozen years.

"We're up against schools like Purdue University, Iowa State and Kansas State, so we are absolutely the underdogs," said Chaddy Robinson, assistant professor in the College of ACES and NAMA's adviser since 2012. "To win in that environment is priceless and gives the students perspective on the quality of their education and program."

In the separate sales competition, NMSU students Elizabeth Hodnett and Carmina Jaramillo Martinez placed in the top six – and Hodnett took first place. Another student, Marisol Olivas, won a $4,000 scholarship.

Other students who competed in this year's event included Hunter Alcon, Marissa Cereceres, Kari Dominguez, Sophia Flores, Gabriel Gregory, Kaleb Herndon, Analisa Jeffers, Emily Johnson, Brandon Larrañaga, Maggie Long, Antonio Ethan Ian Ortiz-Ulibarri, Morgan Owen, Chyanne Rael, Sarah Roderick and Patrick Torres.

When the students returned to campus after winning the competition, many of their biggest supporters, including College of ACES Dean Rolando A. Flores Galarza, New Mexico Agriculture Secretary Jeff Witte and NMSU Regent Dina Chacón-Reitzel, gathered in Gerald Thomas Hall for a surprise celebration.

"Thank you very much for your dedication and hard work," Flores Galarza told the students. "You really made my day. A few years ago, we were national champions. But now, we are international champions."

Educators flock to Las Cruces as NMSU hosts NACTA conference

BY ELIZABETH MCCALL

The College of ACES hosted the 69th annual North American Colleges and Teachers of Agriculture conference in June at the Las Cruces Convention Center.

Agricultural researchers, mentors and teachers gathered in Las Cruces this summer for the 69th annual North American Colleges and Teachers of Agriculture conference. Hosted by the College of ACES, the conference was the first in-person NACTA gathering since 2019.

NACTA is a professional society that works to advance agriculture, curriculum improvement and teaching techniques and reward excellence in agriculture and research.

"NACTA is an organization of major importance to all the land-grant universities," College of ACES Dean Rolando A. Flores Galarza said. "Agricultural literacy is fundamental to all of us in agriculture, and NACTA plays a fundamental role in promoting agricultural literacy. We are very proud and happy to have hosted this annual meeting."

NACTA's annual conferences offer opportunities for networking across agricultural education. Members also connect and learn from others who share similar passions to improve teaching and learning in agriculture, food and the natural resources.

"The NACTA national conference was a huge success," said John Campbell, animal and range sciences college associate professor who coordinated this year's conference. "The NMSU-hosted event was the first in-person meeting since 2019 and received many compliments. Convention attendees were surprised at the agricultural diversity of the Mesilla Valley."

Over five days in June, the conference offered workshops, meetings, poster sessions and oral presentations that addressed global education, new technology, and academic and faculty development.

"The poster and oral presentations were excellent," Campbell said. "Dr. Barbara Chamberlin from NMSU's Innovative Media Research and Extension was our keynote speaker at the opening session, and she really set the tone for the rest of the week. There was something for everyone to learn and apply to their teaching."

Lacey Roberts-Hill, assistant professor in NMSU's Department of Agricultural and Extension Education, attended this year's conference and has been a part of NACTA since 2018.

"Attendees were able to learn about the breadth of NMSU research activities and the importance and heritage of various agricultural products, like chile and pecans," Roberts-Hill said. "It is a great time for college educators across various disciplines to come together and grow."

Richard Pratt, a professor of plant and environmental sciences and director of NMSU's Cropping Systems Research Program, holds the New Mexico Agroecosystems Innovation Professorship.

New professorship supports cropping systems research

Richard Pratt spent the past decade leading an effort to establish an endowed professorship to support cropping systems research at NMSU. After a successful fundraising campaign, he became the inaugural chairholder of the newly established New Mexico Agroecosystems Innovation Professorship earlier this year.

Pratt, a professor of plant and environmental sciences and director of NMSU's Cropping Systems Research Program, launched the endowment effort in 2013, recognizing a need to support innovative crop production research in perpetuity.

"Developing new holistic crop strategies and identifying drought-resistant crops in the face of limited natural resources, especially water, will be critical to the long-term sustainability of crop production in New Mexico," he said. "This endowment will ensure future success in sustainable crop production research across the NMSU system."

Over his three-year term, Pratt aims to grow NMSU's semi-arid cropping systems research portfolio, build partnerships with researchers and stakeholders throughout the region, and lead interdisciplinary efforts to address the challenges of developing sustainable and regenerative cropping systems across the Southwest.

"I will also engage stakeholders in initiatives that strengthen regional food and fiber crop production, while sustaining and protecting the environment with ecologically sound practices and improved natural resource management," he said.

ACES-developed apps, interactive tools earn national honors

Engaging educational apps, animations and interactive tools developed at NMSU have received national recognition. NMSU's Innovative Media Research and Extension won seven awards this summer at the Association for Communication Excellence conference in Asheville, North Carolina.

"Game Over Gopher" won best in class for information technology and a gold award in innovative use of communication technology. "Game Over Gopher" is a math game that was reprogrammed for accessibility to different audience needs.

The "Don't Wash Your Chicken" campaign earned a gold award in the social media campaign category. The campaign aims to educate the public about the hazards of rinsing raw poultry.

The "Vietnamese Nail Salons and Workers' Rights" campaign received a gold award in electronic media for diverse audiences. The campaign included an animation and poster series in English and Vietnamese about the responsibilities and rights of those working in nail salons.

The "Here to Help New Mexico" campaign won a gold award in graphic design for logos. The campaign supports mental health resources in agricultural communities.

Josh Bachman

Longtime NMSU faculty members Wendy Hamilton and Paul Bosland co-wrote "The Official Cookbook of the Chile Pepper Institute," which celebrates the diversity of chile peppers.

Chile Pepper Institute cookbook celebrates diversity of chile

Chile pepper enthusiasts now have a definitive guide for cooking and eating chile peppers. This spring, two long-serving professors from the College of ACES, Paul Bosland and Wendy Hamilton, released a new cookbook featuring recipes developed by the NMSU Chile Pepper Institute.

"The Official Cookbook of the Chile Pepper Institute" pays homage to the institute's Teaching Garden. Published by the University of New Mexico Press, the cookbook features more than 80 recipes celebrating the world's diversity of chile peppers.

"Many of our visitors asked for it," Bosland said. "They wanted a cookbook, and we give tours in the garden, and people ask how to use certain chile peppers from Hungary, Turkey and other places like that. So, it was always something we wanted to do, and we're really pleased to get it done."

Bosland wrote about each chile pepper in the Teaching Garden, which has been part of the institute's teaching and outreach efforts since 1992, while Hamilton provided two recipes for each chile pepper.

"We have suave fish tacos, pepper pizza, Mexican street corn, Jamaican curry chicken, quinoa tuna, chile rellenos, baked eggs, stuffed peppers and, of course, bhut jolokia brownies, which Paul made famous from the ghost pepper," Hamilton said.

Reforestation center awarded $8.5 million in state funding


Josh Bachman

A year after catastrophic wildfires scorched more than 900,000 acres across New Mexico in a single fire season, a proposed center designed to meet the state's current and future reforestation needs is one step closer to becoming a reality.

In April, Gov. Michelle Lujan Grisham signed a spending bill for the 2024 fiscal year that earmarked $8.5 million to kick-start the development of the New Mexico Reforestation Center.

The funding marks a major milestone in the yearslong effort to create a regional center that would significantly increase reforestation capacity across the Southwest. Once built, the center will produce up to 5 million tree seedlings per year.

Funding from the state bill will support the center's first development phase, which focuses on land acquisition and infrastructure design. A proposal from the team developing the center calls for completing the estimated $65 million facility over four phases.

The founding NMRC partners include the New Mexico Department of Energy, Minerals and Natural Resources' Forestry Division, New Mexico Highlands University, the University of New Mexico and NMSU.

Gaming guru guides Innovative Media to engage learners in new ways

BY AMANDA BRADFORD

To Barbara Chamberlin, learning and fun are serious business. Chamberlin stepped into her role as the department head for Innovative Media Research and Extension on an interim basis in 2020, following the retirement of Jeanne Gleason, and accepted the position permanently earlier this year.

The department is a key part of the missions of NMSU's Cooperative Extension Service and Agricultural Experiment Station – using university research outcomes to improve the lives of everyone in New Mexico.

"I feel that mission deeply," Chamberlin said. "University classes and research are very important, and Extension is the way we take what we learn and change people's lives."

Chamberlin, who earned bachelor's and master's degrees from NMSU and a Ph.D. in educational technology and instructional design from the University of Virginia, has spent her career designing learning tools in the field of education technology, and Innovative Media Research and Extension develops those tools for a wide variety of content and audiences.

"Our job is to take things that are hard to understand, or often unclear, or require complex thought, and make those accessible and meaningful," she said. "We do that with interface and design, writing and art, and gameplay and video – and we're changing how people learn."

As the educational games field continues to grow – guided by the kind of research that her department has long been on the leading edge of – Chamberlin wants to see her team continue to explore how emerging technologies like virtual reality can change the learning experience.

"The most exciting thing is being able to transform learners in new and meaningful ways, whether our users change as a result of playing a game, putting on a virtual reality headset, or visiting a website or watching an animation," she said. "Our department is full of professional developers and designers who know how to craft products that are beautiful and effective. Leading that team is its own reward."


Josh Bachman

As the head of Innovative Media Research and Extension, Barbara Chamberlin oversees a team that develops educational learning tools for a wide variety of content and audiences.


NMSU Archives


NMSU Archives


Josh Bachman


Round Up
The student-run newspaper of New Mexico State University
Ag building christened
Former president honored
By JAMEY L. SIMPSON
Finally Named
NMSU Archives

Clockwise from top left: An architectural rendering of Gerald Thomas Hall; former NMSU president Gerald W. Thomas, who led the university from 1970 to 1984; the Sept. 8, 1988, edition of the *Round Up*, which features a report on the naming of Gerald Thomas Hall; and Gerald Thomas Hall pictured in 2023.

60 AND COUNTING

Gerald Thomas Hall marks milestone

The heart of NMSU's agricultural district turns 60 years old this year. Completed in 1963, the three-story Gerald Thomas Hall contains more than 143,000 square feet of space and houses more than 300 spaces for classrooms, offices and laboratories, including a student-run restaurant.

The origins of Gerald Thomas Hall go back to the 1950s. By then, the New Mexico College of Agriculture and Mechanic Arts – now NMSU – had been without an agriculture building for many years after Wilson Hall burned down during the 1930s. Plans for a new building got underway in 1955. At the time, the NMSU Board of Regents signed off on a $2 million "hollow square" facility with four wings, and construction began around 1962. But only one wing was built at a cost of $624,177.

In 1988, NMSU formally named the building after Gerald W. Thomas, who served as the university's president from 1970 to 1984. The dedication ceremony included an non-traditional "barbed wire" cutting at Thomas' suggestion, according to a report from the *Round Up*.

"To … name this building in my honor is just beyond imagination," Thomas said at the time.

A familiar face takes helm of Family and Consumer Sciences

BY TATIANA FAVELA

Efren Delgado is no stranger to the College of ACES. He joined the college in 2016 as a tenure-track faculty member in the Department of Family and Consumer Sciences. Four years later, he became a co-director of the NMSU Center of Excellence in Sustainable Food and Agricultural Systems.

Now, he's taking on a new role as the department head for Family and Consumer Sciences and Extension Family and Consumer Sciences, a position he began in April.

"I am thankful to the faculty, staff and students for the welcoming, generous and supportive atmosphere they have created in our department," he said. "I am looking forward to working with the different academic and Extension programs and supporting their production environment."

Before joining NMSU, Delgado was a professor at the Instituto Tecnológico de Durango in Mexico and an assistant professor at the Georg August University in Germany. He earned undergraduate and graduate degrees from Humboldt Universität in Berlin and a Ph.D. from the Technische Universität in Berlin.

Throughout his career, Delgado has authored more than 73 peer-reviewed articles and 10 books or book chapters on bioprocessing and engineering. He has also accomplished five patents and participated in more than 100 bioprocessing conferences.


Josh Bachman

As the head of Family and Consumer Sciences and its Extension arm, Efren Delgado seeks to transform his departments into international hubs for research, teaching, Extension and outreach.

"I am a renowned expert in food science and bioprocessing engineering research, development and value-added product development," he explained. "I have over 20 years of experience directing and supervising graduate and undergraduate students, and I have demonstrated leadership for strong and relevant programming in research, teaching and Extension."

As department head, Delgado envisions transforming Family and Consumer Sciences and Extension Family and Consumer Sciences into international hubs for research, teaching, outreach and Extension.

"A special emphasis will be placed on supporting online programs, interdisciplinary teaching and research collaborations with multiple departments and colleges at NMSU and other national and international universities," he said.

Program trains Hispanic students for ag-related careers

A five-year program dedicated to training Hispanic students to become the next generation of agricultural leaders is now underway at NMSU.

The program, funded by a $20 million grant from the United States Department of Agriculture, brings together a coalition of four Hispanic-serving institutions under a mission to prepare Hispanic students for agricultural science careers in the federal workforce. The collaborating schools include NMSU, Texas State University, the University of Puerto Rico-Mayagüez and Texas A&M University-Kingsville.

"It comes down to helping Hispanic students learn the skills they'll need to enter the workforce in ag-related careers," said Clint Löest, a professor of animal science at NMSU and a co-director on the grant.

In addition to student mentoring, the program provides experiential learning opportunities such as internships, leadership conferences, paid research opportunities, professional development seminars, as well as scholarships and graduate assistantships.

"Our goal is to increase opportunities for Hispanic students to pursue studies in agricultural sciences or hopes of establishing a federal employment pipeline," said Shannon Norris-Parish, an assistant professor of agricultural and extension education at NMSU and a grant collaborator.

NMSU faculty members Shannon Norris-Parish, left, and Clint Löest, are collaborators on a five-year program developed to train Hispanic students for agricultural science careers in the federal workforce.

NEW FACULTY

Sawssan Boufous, *Extension specialist*, Department of Extension Economics
Christina K. Dimitriou, *assistant professor*, School of Hotel, Restaurant and Tourism Management
Alwin Dsouza, *assistant professor*, Department of Extension Economics
Joan T. King, *assistant professor*, Department of Extension Plant Sciences
John W. Norris, *assistant professor*, Department of Agriculture and Extension Education
Santiago A. Utsumi, *assistant professor*, Department of Animal and Range Sciences

RECENT RETIREES

Gloria Castillo, *nutrition educator*, Bernalillo County Cooperative Extension Service
Steven Guldan, *professor and superintendent*, Sustainable Agriculture Science Center at Alcalde
Frank Hodnett, *professor*, Department of Agriculture and Extension Education
Jeanne Narramore, *nutrition educator*, Cibola County Cooperative Extension Service
Robin Mack Haynes, *family and consumer sciences extension agent*, Lea County Cooperative Extension Service
Pam Robeson, *senior fiscal assistant*, Department of Agriculture and Extension Education
Laura Rodriguez-Uribe, *senior research scientist*, Department of Plant and Environmental Sciences
Delia Sanchez, *intermediate administrative assistant*, Cooperative Extension Service Computer Support Services
Rolston St. Hilaire, *department head*, Department of Plant and Environmental Sciences
Carlos Valdez, *county program director*, Los Alamos County Cooperative Extension Service
Rachel Valdez, *general administrative assistant*, Santa Fe County Cooperative Extension Service

A first-generation college student comes full circle

BY CARLOS ANDRES LÓPEZ

Ricardo Ramirez has taken the reins of the department he once navigated as a first-generation college student at NMSU. An entomologist with El Paso roots, Ramirez began serving as the head of NMSU's Department of Entomology, Plant Pathology and Weed Science in August.

"For me, it was a homecoming to be a part of the program where I was initially trained and to bring my additional experiences back to share," he said. "I am particularly excited about the opportunity to lead the department, develop collegial partnerships and contribute to the foundational training of the next generation of applied science professionals."

Ramirez started his academic career a quarter century ago at NMSU. As an undergraduate student, he followed an interest in animals and neuroscience to the pre-veterinarian program in the College of ACES. But, while working in his mentor's research lab, he discovered a passion for entomology and switched majors.

As head of the Department of Entomology, Plant Pathology and Weed Science, Ricardo Ramirez aims to grow recruitment and retention efforts.

After completing a Ph.D. in entomology at Washington State University, Ramirez joined Texas A&M University as a postdoctoral researcher. He then spent 12 years as a faculty member at Utah State University, where he served as an Extension entomologist and biology professor.

Ramirez said his background as a first-generation college student has shaped his career.

"Entomology was not in my vocabulary before finding my major, but now I look for ways my field links with others I may be less familiar with to solve problems," he said. "Learning to be empathetic with those from different backgrounds was key in establishing relationships with clientele in my Extension career and continues as I engage people from diverse backgrounds."

Ramirez said his top priorities at NMSU include growing his department's recruitment and retention efforts.

"To do this, we will continue our efforts to provide hands-on experiences and training by growing the department and expanding on the research enterprise of our interdisciplinary work that positively impacts New Mexico residents and communities beyond," he said.

FLOURISHING FIELDS

Agricultural Science Center at Los Lunas examines benefits of native and non-native grasses

BY ADRIANA M. CHÁVEZ

Josh Bachman

NMSU's Agricultural Science Center at Los Lunas has several ongoing projects investigating grass varieties, including how various types of perennial grasses contribute to the sustainability of natural resources and local economies in New Mexico.

NMSU's Agricultural Science Center at Los Lunas is home to a number of research projects. But one has garnered great interest and highlights a decades-long collaboration between the center and the United States Department of Agriculture's Natural Resources Conservation Service.

The center has had a long-standing cooperative agreement with the NRCS Plant Materials Center that has been active and fruitful for more than 65 years, said Mark Marsalis, NMSU Extension forage specialist.

"Since 1957," he said, "both entities have collaborated to address natural resource, agronomic and horticultural issues in the Middle Rio Grande Valley and the broader Southwest region."

NMSU and the NRCS Plant Materials Center have several ongoing, long-term projects investigating grass varieties and how various types of perennial grasses contribute to the sustainability of natural resources and local economies in New Mexico.

The USDA-NRCS research highlights native grasses that can lower soil surface temperature, reduce soil erosion, decrease soil compaction and improve water infiltration. However, a project headed by Marsalis is looking at how improved, non-native grass species can provide a greater yield and quality potential under irrigation than traditional native grass.

"In addition, large tracts of potentially productive land are going unutilized or have been abandoned in much of the region," he said. "Understanding how these lands can be put into the production of resilient forage systems will allow for improved utilization of our natural resources, thereby stimulating local economies, including on tribal lands."

During the center's 2023 field day, USDA-NRCS Plant Materials Center Manager Jarai Mon discussed major steps for developing improved native grass cultivars and producing native grass breeder seed.

"Throughout New Mexico and surrounding states, this breeder seed serves as the base of commercial production," Mon said. "The commercially produced seed is then used within USDA conservation programs, including the Environmental Quality Incentives Program and the Conservation Reserve Program."

Because of their physiological adaption to drought and poor soil environments, Mon said, native grasses are effective conservation tools for soil erosion control, stabilization of roadsides, disturbed areas and steep slope sites, and reclamation of abandoned cropland. In addition, native grasses provide food sources and habitat for wildlife and high-quality forage for livestock.

In recent years, some forage producers in the Southwest have converted parts of their irrigated pastures to native grass pastures due to drier weather and less irrigation water availability. Native grasses grow well in the areas of their natural adaption with minimum inputs of water, fertilizers and pesticides. However, the maximum productivity potential is generally less than non-native species.

But Marsalis' NRCS-funded project examines options that may provide greater yield and quality in higher elevations and irrigated areas, compared to native grass species, even under less-than-ideal growing conditions.

"Introducing non-native grasses may help improve the utilization of natural resources, while increasing land output and economic impact," he said.

For his project, Marsalis is comparing the productivity of non-natives to native species under various irrigation scenarios and locations. Several of these grasses and legumes were on display during this year's field day at the Los Lunas science center, including non-traditional, cool-season species like meadow fescue, meadow bromegrass, hybrid green wheatgrass, pubescent wheatgrass, falcata alfalfa and others. Current tribal sites growing the non-native species include Ohkay Owingeh and Santa Clara pueblos.

Josh Bachman

Because of their physiological adaption to drought and poor soil environments, native grasses are effective conservation tools for soil erosion control, stabilization of roadsides, disturbed areas and steep slope sites, and reclamation of abandoned cropland.

NRCS is also assisting the project by providing conservation technical assistance and programs to American Indian and tribal governments. NMSU Tribal Cooperative Extension agents are also playing a critical role as coordinators to ensure the success of the project, Marsalis said.

Josh Bachman

A team at NMSU developed the Virtual Insect Collection Lab in 2021. The lab is an interactive web module designed for middle school students and educators to practice pinning, pointing and spreading insects for scientific study.

BUG BYTES

NMSU team develops virtual lab to help middle-schoolers create insect collections

BY TIFFANY ACOSTA

Getting near insects may be a scary thought for some, and for many years, seventh-grade students in New Mexico were required to create an insect collection. Now, a team from NMSU has developed a project to help calm those fears and illustrate the importance of insect science.

In 2021, Scott Bundy, entomology professor and director of the NMSU Arthropod Collection, and the NMSU Innovative Media Research and Extension team created the Virtual Insect Collection Lab for middle school students and educators. This interactive web module allows learners to practice pinning, pointing and spreading insects to preserve them for scientific study.

"Insects are the most diverse group of organisms on the planet," Bundy said. "They impact the world and science in both positive ways and negative ways and are extremely important to us. Yet, they are understudied. And they are very cool to look at up close."

Barbara Chamberlin, department head of Innovative Media Research and Extension, said the lab allows learners in formal

Anastasia Hames, a senior multimedia specialist for NMSU Innovative Media Research and Extension, was part of the team that designed the Virtual Insect Collection Lab.

Josh Bachman

and informal settings to practice accurate scientific pinning practices in a friendly virtual environment.

Becky Smith, a teacher in the Roy Municipal Schools in Roy, New Mexico, has used the lab in her classroom.

"My class had a very positive experience with the virtual lab," Smith said. "It was quite intuitive and engaging for my students. They were able to navigate the lab independently and truly enjoyed interacting with the technology. After completing the virtual lab, they felt confident and eager to create their own real-world insect collection."

Funding for the virtual lab came from the Secondary Education, Two-Year Postsecondary Education, and Agriculture in the K-12 Classroom Challenge Grants progam, which is part of the United States Department of Agriculture's National Institute of Food and Agriculture. New Mexico Farm and Livestock Bureau's New Mexico Agriculture in the Classroom and the Asombro Institute for Science Education also collaborated on the project.

Research shows middle school students often arrive with minimal science backgrounds from elementary school, and teachers struggle to find resources for hands-on, engaging projects that spark student enthusiasm, Chamberlin said.

"Online tools facilitate learning that can't be done in person," she said. "In the case of insect study, it may help learners to overcome bias, build familiarity with the topic and foster interest in insect-related activities."

Smith added: "I think the Virtual Insect Collection Lab is a great way to allow students to explore an area they might not

Josh Bachman

Scott Bundy, entomology professor and director of the NMSU Arthropod Collection, teamed up with NMSU Innovative Media Research and Extension to create the Virtual Insect Collection Lab.

otherwise have the desire or opportunity to learn about. It also provided me an opportunity to differentiate lessons within my classroom of diverse learners, thanks to the easy-to-navigate interface and interesting mix of video, text and illustrations."

The Virtual Insect Collection Lab has also earned national praise, winning two gold awards from the Association for Communication Excellence in 2021.

"We wanted to get the representation of the insects as real as possible, and we decided the best way to achieve this was with 3D," said Pamela Martinez, a grant co-principal investigator and Innovative Media Research and Extension assistant professor. "I was really proud of the way the project turned out and how the design team was able to move forward in learning new processes."

In a pilot study to evaluate the impact of the lab, researchers found that youth felt comfortable pinning insects in the lab and felt that using the lab helped increase their confidence in learning science. The study also found that youth enjoyed the lab experience and became curious to learn more about insects.

For information about the Virtual Insect Collection Lab, visit nmsu.link/Insect-Collection-Lab.

Josh Bachman

Josh Bachman

In 2021, Hames, right, and the entire team that developed the Virtual Insect Collection Lab won two gold awards from the Association for Communication Excellence.

ENDING THE SILENCE

Here to Help New Mexico tackles mental health stigma in agricultural communities

BY TIFFANY ACOSTA

Josh Bachman

Here to Help New Mexico aims to reduce mental health stigma in agricultural communities. It supports producers like Jamie and Cole Viramontes, who own a farm in Luna County.

Sunsets, humor, horseback riding and group text chats are just some of the stress-reducing tactics agricultural producers use in their daily lives.

Farmers and ranchers face issues such as extreme weather events, supply-chain shortages and operational difficulties that can affect their livelihoods and businesses. But now, a project aims to tackle mental health challenges and reduce suicide rates in New Mexico's agricultural communities.

Here to Help New Mexico – established through NMSU's Southwest Border Food Protection and Emergency Preparedness Center – seeks to enhance existing efforts to increase stress prevention and wellness and health resources available in agricultural communities. NMSU's Cooperative Exten-

Craig Ogden, a farmer and rancher from Eddy County, encourages other agricultural producers to speak about their mental health struggles.

Courtesy

sion Service, the New Mexico Department of Agriculture and the New Mexico Farm and Livestock Bureau joined forces to support the project when it launched in 2022.

"There's so many uncontrollable risks that are associated with farming. And I don't think you realize it until your boots are on the ground within the fields," said Jamie Viramontes, who owns a third-generation farm in Luna County with her husband, Cole Viramontes.

Funding for Here to Help New Mexico came from the New Mexico Farm and Ranch Stress Assistance Network via a grant from the United States Department of Agriculture's National Institute of Food and Agriculture.

NMSU Extension agents across New Mexico support the program by delivering educational programs directly to communities.

The first step is helping people open up and discuss topics such as behavioral health.

"The collaboration between the three entities has been a good partnership in trying to reach out to all of the folks across the state. We still have a long way to go to be at the forefront of these issues. But definitely, we're starting to have more and more conversations," said Tom Dean, co-director of NMSU's Southwest Border Food Protection and Emergency Preparedness Center.

The center, housed in the College of ACES, helps protect food supplies against varying threats by providing educational programs, planning and training to ensure community wellness across the Southwest.

"We have to make people feel comfortable that it's OK not to be OK and to admit that," said Jeff Witte, secretary of the New Mexico Department of Agriculture. "The greatest thing you can do when you're visiting with farmers and ranchers is to listen to them – listen to what they're saying."

Farmers and ranchers acknowledge the obstacles Here to Help New Mexico is confronting.

"We're people of land, and we're full of pride, and if something's bothering us, we're not that type to go out and seek help," said Don Martinez, a seventh-generation rancher in Rio Arriba County. "We'd like to tell our story, but if there's something just not right, we don't really share it with our neighbors and friends."

Craig Ogden, a farmer and rancher in Eddy County, added: "I think the more you hear about it and the more that people are exposed, it'll open some doors where people won't have that hesitation either to get some help or talk."

Cole Viramontes said he found a new connection with peers in an unlikely place during the COVID-19 pandemic.

"By putting ourselves out on social media, we were able to meet a lot of other farmers, not just in our area, but across the nation and whole world," he said. "And the cool thing is, it doesn't matter where you're at, the struggles seem to be similar and being able to have somebody to talk to, whether it's just through a direct message or making silly videos with each other, that really helps a bunch."

Stress management is another emphasis of Here to Help New Mexico.

"Early prevention is something we need to focus on, and people being aware of stress and taking care of it," Dean said.

To learn more about Here to Help New Mexico, visit heretohelpnm.com.

Josh Bachman

Here to Help New Mexico launched in 2022 as a collaboration between NMSU's Southwest Border Food Protection and Emergency Preparedness Center, NMSU's Cooperative Extension Service, the New Mexico Department of Agriculture and the New Mexico Farm and Livestock Bureau.

FINDING HELP

The 988 Suicide and Crisis Lifeline is available nationally and provides 24/7 support for mental health crisis.

SIGNS OF STRESS

Physical: Headaches, backaches, exhaustion, frequent sickness, upset stomach, ulcers, trouble sleeping
Emotional: Irritability, depression, anger, anxiety, lack of confidence, sadness, bitterness, feeling discouraged or hopeless
Mental: Memory loss, lack of concentration, difficulty making decisions
Behavioral: Substance abuse, violence, decline in the care of livestock or domestic animals, increase in farm accidents, overeating or loss of appetite
Relationships: Loss of humor, withdrawal, decreased interest in family activities or community events, verbal outbursts, difficulty communicating

Dallen Begay, the farm manager at the Agricultural Science Center at Farmington, drives a plot combine across a wheat field in July. The center houses numerous research projects involving cropping systems and crops such as potatoes, corn, alfalfa, small grains, fruit and hops.

Josh Bachman

INNOVATION *on* INDIGENOUS LAND

Farmington science center builds agricultural resilience across the Four Corners region

BY ADRIANA M. CHÁVEZ

Bhimsen Shresth, a graduate research assistant at the Agricultural Science Center at Farmington, takes measurements from chip and table potatoes growing in a field at the center.

Josh Bachman

About 400 miles north of Las Cruces sits a science center that plays a vital role in research for NMSU.

The Agricultural Science Center at Farmington operates on 254 acres of land leased from the Navajo Nation, which has also been an important collaborator in several of the center's research and community projects.

It is the only center within the NMSU Agricultural Experiment Station west of the Continental Divide and the only 1862 land-grant science center to work directly on sovereign First Nations land. The center's overall mission is to conduct research and develop educational programs that meet the needs of the San Juan County agricultural community, Navajo Nation, New Mexico and the Four Corners region. Its vision is to build agricultural resilience with innovative science that respects cultural values across the region and beyond.

"For us, the benefit of working with the Navajo Nation, and in the surrounding community, is we have the opportunity to do a lot of community-based research, and not a lot of researchers have that base," said Kevin Lombard, the center's research director. "We have the physical offices and faculty right there in the community, so we're able to be responsive to community requests for assistance."

The center supports the communities it serves through research-driven projects.

One recent project engaged Navajo elementary schools in a program designed to encourage fruit and vegetable eating among students. The project – Yéego! Healthy Eating and Gardening – involved third- and fourth-grade students from the Shiprock

Intern Melvin Cooley uses an iPad to document the harvesting process on a wheat field at the Agricultural Science Center at Farmington while fellow intern Korbin Nakai assists.

Josh Bachman

and Tsaile/Chinle areas who grew fruits and vegetables in school gardens and learned about healthy eating. The project collaborators, which included researchers from the University of Washington/Fred Hutchinson Cancer Research Center and Diné College in Tsaile, Arizona, then rigorously evaluated the interventions through a clinical trial process.

A larger-scale example of the center's community engagement was its response to the 2015 Gold King Mine spill. The center's staff acted as first responders, accessing farm fields and irrigation ditches across the Navajo Nation and Shiprock and sampling soil health for heavy metals. The center has continued long-term monitoring in collaboration with the New Mexico Environment Department and the Navajo Nation Environmental Protection Agency.

"We were able to quickly respond to that event," Lombard said. "Our team was able to get into farmland and take samples from those areas because we were nearby and trusted in the community."

The center also has a long history of hosting interns funded through grants from various organizations and agencies, including the United States Department of Agriculture, National Cancer Institute, National Institutes of Health, NMSU/Fred Hutchinson Cancer Center U54 Partnership for the Advancement of Cancer Research, Bridges to the Baccalaureate programs, National Indian Youth Council, Indian Resources Development and Navajo Agricultural Products Industry, among others. The center also employs many staff from the Navajo Nation.

The center's research work focuses on projects involving cropping systems and crops such as potatoes, corn, alfalfa, small grains, fruit and hops. One current project is a winter malted barley multi-state trial examining cultivars from public and private breeders and heritage and ancient grains. Administered through the University of Minnesota, the project aims to support locally sourced malted barley for craft brewers and distilleries and evaluate small gain options for growers in northwest New Mexico. According to the study, New Mexico has 100 breweries that produced 138,500 barrels of craft beer in 2020, with an economic impact of about $391 million. Project collaborators include Central New Mexico Community College, NMSU Brewery Engineering and the Rex E. Kirksey Agricultural Science Center at Tucumcari.

Some of the center's other focus areas include water conservation, economic viability of cropping systems, genetic diversity, and research and development in controlled environments. Lombard said much of this work will inform farmers of all scales.

"We do hypothesis-based research for the farmers, so that we can test these types of crop system trials, see what works well and disseminate the information to the growers, who are then able to make an informed decision," he said. "We want our farmers to succeed. We should be doing needs-based research, so if a farmer at any scale, from 80,000 acres to a backyard garden, comes to us and asks 'Will this crop work?' we'll come up with a research proposal with the ultimate goal of an objective report."

For more information about the center, visit farmingtonsc.nmsu.edu.

Josh Bachman

Josh Bachman

Above: Kevin Lombard has served as the research director of the Agricultural Science Center at Farmington since 2015. Below: Brandon Francis, a graduate research assistant, discusses soil samples with Lombard. Following the 2015 Gold King Mine spill, the center's staff accessed farm fields and irrigation ditches across the Navajo Nation and Shiprock and sampled soil health for heavy metals.

STEEPED *IN TRADITION*

Farmington science center supports efforts to promote Indigenous agricultural practices

BY CARLOS ANDRES LÓPEZ

Josh Bachman

The San Juan River, as seen from Navajo Ethno-Agriculture, a 14-acre educational farm in the community of Nenahnezad that has close ties to NMSU's Agricultural Science Center at Farmington.

On a clear summer day in July, NMSU's Agricultural Science Center at Farmington buzzed with activity across its sprawling 254-acre research farm.

Interns Korbin Nakai and Melvin Cooley stationed themselves in the vineyard, pruning leafy green vines. Farm manager Dallen Begay drove a plot combine across a field of waist-high heirloom wheat, harvesting grain. A trio of graduate research assistants – Brandon Francis, Emiliano McLane and Bhimsen Shresth – collected data for their thesis projects.

Meanwhile, fellow intern, Gabrielle Henderson, tended to a small orchard of young peach trees inside a greenhouse, taking careful measurements.

The trees are part of a long-running project headed by Utah State University researcher Reagan Wytsalucy, who has dedicated her entire career to restoring traditional crops on Indigenous lands – including fruits like Native American peaches.

"There's a lot of youth my age and younger who have no idea that these peaches even exist, that our people actually ate peaches as a large staple in our diet," Wytsalucy said. "My goal is to repopulate tribal communities with this fruit tree and rehabilitate the orchards that are either no longer existent or struggling to maintain existence."

Gabrielle Henderson, an intern at the Agricultural Science Center at Farmington, discusses an ongoing research project involving Native American peaches. The project is a collaboration with Utah State University researcher Reagan Wytsalucy.

Josh Bachman

Wytsalucy, an assistant professor for Utah State's Extension office, is one of more than three dozen collaborators and cooperators actively engaged in research with the Agricultural Science Center at Farmington. Today, the center collaborates with an array of public and private organizations in nine states, plus New Mexico.

"Working with folks from other institutions and organizations elevates our research enterprise," said Kevin Lombard, the center's research director. "It also allows us to share and expand our knowledge and contribute to scientific breakthroughs that support our mission to improve communities across New Mexico."

Lombard and his researchers have also forged partnerships with experts working to revive and preserve traditional agricultural practices in Native American communities throughout the Four Corners region. Those partners include Wytsalucy and the founders of a nearby educational farm dedicated to sustaining Navajo farming methods.

Native American peaches

Wytsalucy, a Navajo researcher who grew up in Gallup, teamed up with Lombard in 2022. By then, she had completed the initial phase of her pursuit to restore Native American peaches on Indigenous lands. Now, she wanted to expand her research and start a network of experimental peach orchards, using seeds germinated from Navajo, Hopi and Zuni origins.

Josh Bachman

The Agricultural Science Center at Farmington is one of four test sites growing peaches for Wytsalucy's project. Wytsalucy is working to restore traditional crops on Indigenous lands, including Native American peaches, which were once abundant on Navajo land but were essentially eradicated around 1863.

She reached out to Lombard, who agreed to house a set of test trees at the science center in Farmington, one of four test sites. Currently, the center has about 50 tree seedlings.

"Right now, we're germinating trees to expand on the genetic population that I originally gathered from 2017 to 2019," she said. "Kevin and his team are basically the current caretakers of the trees at this time."

The project gives interns like Henderson, a college student, exposure to hands-on research and field experience, Lombard said.

"Gabrielle has done an excellent job collecting data and caring for the trees all summer," he said. "Her contributions will have a major impact on the project, and she will carry this experience throughout her educational journey."

The project also teaches younger generations about the tragic history of Native American peaches. For centuries, peach orchards flourished on Navajo lands in the Four Corners area. But, around 1863, the United States government destroyed many of the orchards when Navajo groups refused to join the "Long Walk" to Fort Sumner in New Mexico.

Today, Wytsalucy said, much of the history surrounding these small, elusive peaches is lost.

"The Navajo people traded peaches just as much as corn, beans and squash," she said. "Through my research, I hope to bring back the knowledge of something that nobody knows exists."

Traditional Navajo farming

One of the science center's closest collaborators sits along the San Juan River

Josh Bachman

Pioche holds amaranth grown at Navajo Ethno-Agriculture, which has had a collaborative partnership with the Agricultural Science Center at Farmington since the 2015 Gold King Mine spill.

in the community of Nenahnezad, about 15 miles west of Farmington.

Navajo Ethno-Agriculture, a 14-acre educational farm founded by Navajo Nation members Gloria and Harry Lane and their children, Nonabah and Bruce, teaches Navajo culture to young adults and children through traditional farming and bilingual education.

A relationship between the farm and science center developed in the aftermath of the Gold King Mine spill of 2015, Lombard said, and has blossomed in the years since. Students in the farm's college courses and youth camps regularly visit the science center to see research in action, and Lombard's interns split their time between his center and the farm.

"Our interns work here part-time to get a feel for how an agricultural science center operates, and then they go down part of the week to the Lanes' farm to get a whole different perspective," he said.

Lombard attributes the lasting partnership to Nonabah Lane, a Navajo educator and environmental sustainability specialist. Before her passing last year, Lane often collaborated with the science center and even helped secure a grant from the Nation Science Foundation to fund an NMSU graduate research assistant, Emiliano McLane, who is now studying agrovoltaics.

"Nonabah would come up here, and we would brainstorm projects all the time," Lombard said. "It's such a loss for the community that she's no longer here."

Since establishing Navajo Ethno-Agriculture, the Lanes have passed down agricultural knowledge steeped in 400 years of tradition to hundreds of students eager to embrace their cultural heritage. One of those students is the acclaimed Navajo chef Justin Pioche, who has worked at the farm for three years as part of an AmeriCorps program.

A rising culinary star, Pioche runs Pioche Food Group, a Navajo food service company that stages pop-up dinners and catering events throughout the region and beyond. He launched the business in 2020 with his sister, Tia, who once interned at the science center, and earned a James Beard Award nomination for best chef in the Southwest earlier this year. He became involved with AmeriCorps and Navajo Ethno-Agriculture through family encouragement.

"I was super-interested in learning about agriculture," he said over the summer.

Pioche spent his first years on the farm learning all aspects its operation. Now, he's teaching what he learned from the Lanes to other students and interns, including many from NMSU – work he said has deepened his passion for food.

"Gloria and Harry have taught me a lot about our history and culture, land rights, water rights, native rights, irrigation and so much more," he said. "I respect farmers more than ever now and understand the importance of passing down this knowledge to younger generations."

Josh Bachman

Justin Pioche, a Navajo chef, has worked at Navajo Ethno-Agriculture for three years. Pioche, who runs Pioche Food Group with his sister, Tia, earned a James Beard Award nomination for best chef in the Southwest earlier this year.

LIFTING LIVES

Anna, Age Eight Institute uses 'powerful data' to break down barriers to help children and families thrive

BY JAMES STALEY

Doña Ana County

Josh Bachman

Otero County

Josh Bachman

Much of the work NMSU's College of ACES does can be found in aisles, produce bins and freezer sections across New Mexico and beyond – food near the end of its journey.

But for one unit headquartered in the Department of Family and Consumer Sciences, its work often begins at grocery stores.

Researchers for the Anna, Age Eight Institute conduct surveys in stores, schools and other community gathering places as part of a multi-faceted process that strives to ensure all New Mexico children and families can thrive – an initiative dubbed 100% New Mexico.

Through this data collection and analysis, the institute aims to understand barriers that keep New Mexico residents from vital services, the absence of which can cause profound childhood trauma and adversely affect health and safety.

"Every county has a report that shows what percentage of people needed services, what percentage of people couldn't access those services and why," said Katherine Ortega Courtney, co-director of the Anna, Age Eight Institute. "So, it's really powerful data."

New Mexico has many programs and providers in place to deliver essential services such as food security, housing, all types of health care, early childhood learning, job training and more. But, Ortega Courtney said, there's often a disconnect between the services and the people who need them.

It happens for a variety of reasons – explanations that are as diverse as New Mexico itself.

"It's not just availability, it's accessibility," said Gregory Sherrow, the institute's director of information technology. "Things you don't even think of until you go to use these services. … It's incredible what people say."

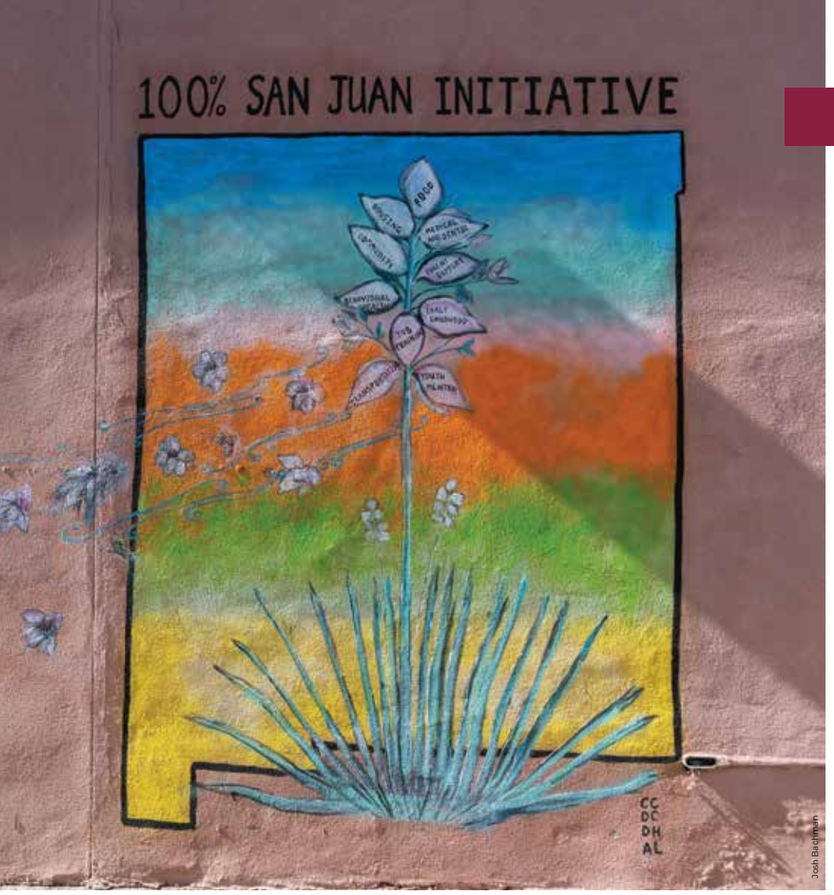
Things like transportation, conflicting business hours, language barriers and long waiting lists are common.

"There are all kinds of hurdles that we identify," Sherrow said. "And then part of what we do is have our local initiative leaders work with those service providers to reduce those barriers. There's no point starting up whole new services if you've got something that's already there."

In short, the Anna, Age Eight Institute acts as a conduit, connecting people to essential services and programs – and the College of ACES supports those connections.

A key element of that support comes from the ACES Business and Resource Planning office, led by Tim Nesbitt, whose unit manages the institute's finances, Ortega Courtney said.

"We really get a lot of administrative support from the college," she added.



Josh Bachman

100% MURAL PROJECT

The 100% Mural Project aims to raise awareness for the 100% New Mexico initiative and the need to address adverse childhood experiences, trauma and social adversity. The project brings together artists, muralists and community members from counties across New Mexico to create powerful messages about the importance of caring for one another. Murals have been designed and painted in nine counties, including Curry, Doña Ana, Otero, Rio Arriba, Roosevelt, San Juan, San Miguel, Taos and Valencia. Learn more about the 100% Mural Project at www.100nm.org.

San Juan County

Currently, the institute has a presence in 18 of New Mexico's 33 counties. The three newest are in the "ramp-up" stage, something Sherrow described as well-organized and quick but unique for every county "because the needs are so different in every single county."

The institute is based on and named after the book "Anna, Age Eight: The data-driven prevention of childhood trauma and maltreatment," written by Ortega Courtney and fellow co-director of the institute, Dominic Cappello.

After reading the book, Las Cruces Mayor Pro Tem and City Councilor Kasandra Gandara hosted community conversations about the issues addressed in its pages. Thanks to her background in social work, Gandara, an NMSU alumna, knew she could start a program in Las Cruces. That ultimately led to the beginning of Doña Ana County Resilience Leaders.

Working with other programs and agencies, Gandara's group has pushed for initiatives that have led to improvements in transportation, health literacy and affordable housing throughout Doña Ana County. It also helped secure funding for the Anna, Age Eight Institute.

For all those involved, these initial years of work are only the beginning.

"We can show that we have developed deep relationships with each other," Gandara said. "We're really, truly in this together."

Ortega Courtney added: "This is a very long-term initiative. … We're seeing silos getting broken down. We're seeing people coming together in new ways – people who never would have talked to each other before."

Andrés Leighton

In this 2018 photo, Sara Fuentes-Soriano, center, from the Department of Animal and Range Sciences shows plant samples to Native American high school students during the Dream Keepers summer program organized by Indian Resources Development.

EXPANDING HORIZONS

Indian Resources Development supports educational experiences and internships for Native American students

BY TIFFANY ACOSTA

Native American high school students participate in the 2018 Dream Keepers summer program organized by Indian Resources Development. IRD, a statewide program housed at NMSU, offers educational and professional development opportunities for Native American students in high school and college. It also supports tribal nations in New Mexico in advancing their economic development goals.

Internship opportunities offer students a chance to explore a possible career, learn innovative skills, experience different places and meet new people on their academic journey. For some Native American high school and college students in New Mexico, the experience can be life-changing.

"I feel like I found what I want to do with my life," said Izabella Leija, a senior at Española Valley High School. "This program helped me engage with my land as well as my passion for STEM."

Leija attended the 2023 Northern Stewards Field School at Northern New Mexico College through NMSU's Indian Resources Development. The 12-week internship inspired her future college plans.

"It made me realize that I want to look more into environmental science as a major," she said. "I also learned a lot about what you can do with drones and how much technology is very easily available."

Through IRD, students work with industry leaders, tribal nations, government agencies, higher education institutions and other organizations.

Established in 1978, IRD offers educational and professional development opportunities for Native American students in high school and college in New Mexico. It also supports tribal nations in the state in advancing their economic development goals in agriculture, natural resources, engineering, energy, business, workforce development and education.

For NMSU graduate Bailey Tom, the internship offered an opportunity to conduct a feasibility study about a multi-species meat processing facility on the Navajo Nation.

"This helped advance my professional development because I have met with other meat-processing managers and discussed the necessary steps it takes to open a meat-processing facility," said Tom, who earned a bachelor's degree in agricultural business and agricultural economics. "I learned there are many other aspects besides financial analysis that should be included, such as animal availability, skilled labor availability and funding."

"IRD is committed to linking Native American students to educational and experiential opportunities that can strengthen their skills and, in this way, increase their chances of achieving social mobility and contribute to the well-being of their communities and New Mexico," IRD Director Claudia Trueblood said.

Talajhna Hobson, who's pursuing a liberal arts degree at San Juan College, had the chance to discover how a local greenhouse operates. Hobson said she enjoyed learning about local farmers and growers, and her responsibilities included transplanting chile peppers, watering and fertilizing plants, cleaning weeds and assisting with customer needs.

"It's a 12-week internship that gives you a look of owning a farm, and what type of business you're dealing with, more so what you'll need for a farm and what it takes," Hobson said.

Tanda McCombe, a coordinator for San Juan College's Center for Student Careers and Employment, believes the internship program is a huge benefit to students.

"The IRD program has taken our students into areas where they never saw themselves before," McCombe said. "Whether it was a community-serving foundation, a natural greenhouse or a burgeoning small business, the interns become valued employees, widened their worldview, and meet lasting friends and mentors."

Advised by a committee of tribal representatives from around the state, IRD also supports scholarships, student research experiences, professional development opportunities, career exploration camps and entrepreneurial endeavors.

"By providing crucial exposure, valuable resources and a nurturing community, the IRD program has empowered our students to break barriers and inspired them to pursue higher education with confidence," said Chris Gomez, who serves as the education manager for Ysleta del Sur Pueblo's Department of Tribal Empowerment. "We are deeply grateful for this partnership, which exemplifies the power of prioritizing Native American inclusion in academia."

With offices in Las Cruces, Albuquerque, Taos and Gallup, Trueblood said she hopes IRD can expand to have a full-time program coordinator in Gallup and a program specialist in Farmington. The program wouldn't be where it is today without the people who've helped build it over the years, she said, and having the current team positioned around the state is critical to IRD's continued success.

"Some of the most important plans are to continue our geographical expansion so staff members are closer to the people they serve," she said. "We also want to continue our outreach commitment to high schools that serve the majority of Native American students in New Mexico and continue our commitment to expanding and solidifying partnerships with higher education institutions in the state."

To learn more about IRD, visit ird.nmsu.edu or email ird@nmsu.edu.

To accomplish its mission, Indian Resources Development connects Native American students from New Mexico with opportunities for internships, on-the-job experiences and education in the fields of agriculture, the natural resources, engineering energy and business. It also builds collaborations and networks that promote self-directed and self-sustaining economic development and management of resources by tribal nations in New Mexico.

Josh Bachman

Omar Holguin, a three-time NMSU graduate who joined the College of ACES as a faculty member in 2012, is currently an associate professor in the Department of Plant and Environmental Sciences.

PAYING IT FORWARD

Omar Holguin strives to make an impact through research, teaching and mentoring

BY ELIZABETH MCCALL

Growing up on his family farm in Vado, New Mexico, Omar Holguin developed a passion for the environment at a young age. Memories of picking vegetables on the farm were not the only factors that inspired Holguin to study plant and environmental sciences at NMSU.

"My parents met at NMSU," he said. "When I grew up, my parents were still doing their master's degrees, and we actually lived in married student family housing."

When Holguin's father became an agent for the Cooperative Extension Service in Valencia County, the family moved to Los Lunas, New Mexico. After graduating high school, Holguin returned to the Las Cruces community to attend NMSU.

"I always had a close contact to the farm and my family, so that was something always calling me to go back," he said.

Holguin eventually received a bachelor's degree in environmental science, a master's degree in agronomy and a Ph.D. in plant and environmental sciences – all from the College of ACES.

In 2019, Holguin began serving in his current position as an associate professor in the Department of Plant and Environmental Sciences. He became a faculty member in 2012. He previously worked as a research assistant in NMSU's former Agronomy and Horticulture Department, a research chemist and laboratory director at NMSU's Physical Science Laboratory, and a senior research associate for NMSU's Center for Animal Health and Food Safety and the Chemical Analysis and Instrumentation Laboratory.

As a researcher, Holguin collaborates with other groups to further his research mission. For example, he's working with Bridgestone Americas to improve rubber production from desert plants to produce renewable tires as part of a United States Department of Agriculture collaborative grant with multiple institutions.

"I think the main goal is to do something to make society better in some way," he said. "The main theme in my projects is health-beneficial metabolites from plants, algae or other microbes and supporting renewable feedstocks for fuel. The majority of my research is looking at ways to improve the bioeconomy."

As a teacher, Holguin values mentorship and student-based projects and research. He believes in allowing students to pursue their research interests provides a path for academic creativity.

"We're trying to mentor them to become better problem-solvers," he said. "On a mentoring aspect, I think it is important that there is a level of trust established. Also, allowing the mentee to understand that I am not the sole resource they have. They should be exploring other resources and getting other perspectives."

During Holguin's undergraduate years, one of his professors, William Lindemann, encouraged him to improve his studying and research. Lindemann even offered him an opportunity to work in his research laboratory.

"For me, as a student probably not making the best decisions for myself, having a faculty member care about my well-being, and not only bringing it to my attention but also giving me an opportunity, totally changed everything," he said. "I think I have done my best to model that for my students as well."

Josh Bachman

Holguin's primary research focuses on health-beneficial metabolites from plants, algae and other microbes, as well as renewable feedstocks for fuel. As a teacher, he believes in allowing students to pursue their research interests provides a path for academic creativity.

Holguin and others in the College of ACES strive to deliver that type of mentorship to students.

"They are not just an Aggie ID number," he said. "When students are struggling, the faculty tries to rescue these students if they are making poor decisions. That is what ACES provides to its students – that sense of community and home. It feels like a family, and that is why I wanted to stay."

AG *FOR ALL*

Students reestablish club dedicated to empowering minorities

BY TATIANA FAVELA

Students in the College of ACES banded together over the past year to reinstate a club that provides academic support and professional and personal development for racial and ethnic minorities pursuing degrees in agriculture and the natural resources.

Minorities in Agriculture, Natural Resources and Related Sciences, or MANRRS, is a national organization dedicated to empowering minorities.

Rebekah Roybal, a dual major in animal science and agricultural communications, was one of several students who pushed to reestablish a MANRRS chapter at NMSU. For Roybal, it was important to bring back the chapter in a way that set it apart from other campus groups.

From left: Emmanuel Tovar, April Ulery, Kassandra Valdez, Natalia Molina, Rebekah Roybal, Marisol Olivas and Alwin Dsouza from NMSU's recharted chapter of Minorities in Agriculture, Natural Resources and Related Sciences. Ulery and Dsouza are the group's co-advisers.

"We have other clubs and organizations on campus for professional development, but we strive to go above that and give our students relatability," she said. "Whether that be our relaxed environment, or our efforts to make everyone feel welcome, we emphasize the importance of finding someone you can relate to and pushing each other to become the next generation of leaders."

Roybal is now in her second semester as the chapter's president, a role that has shown her how the program helps students. Now, she and others are working to increase the group's visibility on campus. Their plans include hosting leadership-building workshops and bringing professionals to campus to engage with students.

The chapter also plans to raise money to send students to regional and national MANRRS conferences. Roybal was one of three students from NMSU who attended this year's national conference in Atlanta.

"There were so many times while at the national conference where I was mind-blown at how many opportunities MANNRS provides," she said. "There are so many internships and job opportunities that MANRRS members are given the first chance at – not to mention the scholarships funded through the MANRRS organization."

Roybal said attending conferences can lead to opportunities to meet and interact with industry leaders, and she hopes more NMSU students will get that chance in the coming years.

Marisol Olivas, far right, an agricultural economics and agricultural business major at NMSU, stands with fellow Farm Credit VIP Scholars at the MANRRS conference in Georgia in April. Olivas attended the conference as part of NMSU's MANRRS chapter. Also pictured, from left, are Cherise Davis, Gabrielle Moore and Madison Dains.

"We met so many individuals at the national conference who were really excited to see NMSU reinstate its chapter," she said, adding, "I think everyone knows we have great students, and for MANRRS to highlight them during the conference is something we're all really proud of."

Agronomy major Emmanuel Tovar, who serves as the chapter's treasurer, said MANRRS represents the diversity of students across the different branches of agriculture.

"It helps prepare the next generation of leaders to focus on what agriculture really is about and promotes the agriculture profession in a more exciting way," Tovar said. "MANRRS provides many trades within the agriculture industry and offers academic and professional development by providing support, networking opportunities, mentoring and training in government and other industries. Students who participate in MANRRS also travel all over the world."

April Ulery, a professor in the Department of Plant and Environmental Sciences, serves as the co-adviser of the MANRRS chapter at NMSU.

"It has been rewarding for me to serve as a co-adviser to this chapter as I watch the student officers take on the responsibilities of leading the club and networking with other students from NMSU and around the country," she said.

For more information about NMSU's MANRRS chapter, contact Ulery at **aulery@nmsu.edu**.

Elizabeth Smith

Environmental science alumna keeps close ties to College of ACES

BY CARLOS ANDRES LÓPEZ

Despite living 1,500 miles away from her hometown and alma mater, Elizabeth Smith maintains a close connection to Las Cruces and NMSU.

After graduating from NMSU with bachelor's and master's degrees in environmental science, Smith settled in Pullman, Washington, to work for a company now called Meter Group, a global manufacturer of precision instruments, software and services for food production, environmental research, crop science, indoor cultivation and other areas.

"I started as an application specialist, providing tech support, and then I became a product manager for a software and hardware system called Zentra," she said. "Now, I provide high-end product support, serve as the voice of the customer for our engineers and make sure our customer needs are understood as we develop new products."

As a college student, Smith wanted to study an area that was impactful and would allow her to interact with the world. That desire led her to the College of ACES, where she thrived as an environmental science major in the Department of Plant and Environmental Sciences.

Smith marked her time at NMSU by staying active in student organizations and supporting various research projects. Smith's thesis work centered on identifying cost-effective dust abatement strategies.

After completing her master's degree, Smith worked as a coordinator in the Extension Plant Sciences Viticulture Program. In this role, she helped expand a network of weather stations at commercial vineyards in New Mexico. This work required her to meet with vineyard owners throughout the state and discuss the benefits of installing weather stations on their properties. The stations measured atmospheric changes and tracked local variability at each site.

"My time at NMSU allowed me to stand on my toes," she said. "I was able to defend my thesis, challenge ideas, meet new people, be independent and work on different projects – all of which I bring to my current job."

Today, Smith stays connected her mentors and colleagues from NMSU, including her former adviser, New Mexico State Climatologist Dave DuBois.

"I like to talk with NMSU professors as they're working on studies – even if they're not using our equipment – I love keeping up with them and seeing what they're doing," she said, adding, "Everyone I came across at NMSU wanted me to do great in the world, and I appreciated that every step of the way."

Nick Frank

Arthur Blazer

Trusted adviser connects tribes and students to educational resources

BY AMANDA BRADFORD

After a distinguished career in public service, former Mescalero Apache Tribal President Arthur "Butch" Blazer continues to dedicate himself to facilitating important connections for tribes across New Mexico and the United States.

Though semi-retired, Blazer is still actively engaged with his alma mater, serving on the Tribal Advisory Committee for Indian Resources Development at NMSU and as a trusted adviser on tribal issues to College of ACES Dean Rolando A. Flores Galarza.

He views that role like many others in a career that saw him parlay the range science bachelor's degree he earned at NMSU in 1975 into appointments as New Mexico state forester and deputy undersecretary for the United States Department of Agriculture: It's all part of a network of resources, and he can help ensure those resources reach the people who can benefit from them.

"New Mexico State University is an important part of my network in the work that I do on behalf of tribes," Blazer said. "All of it is education-related, and what I've seen is that in order for those tribal entities to continue to develop and continue to provide quality services to their people – it's all tied to education, and that's why I do what I do."

Blazer uses his expertise and network to help create opportunities for NMSU students and the tribes he advises as a consultant. He has served on numerous boards related to conservation efforts and national resource management, and as an NMSU delegate to the Council for Agriculture Research, Extension and Teaching – a national grassroots organization made up of agricultural producers, local officials, consumers and land-grant university advisory groups.

Courtesy

"I'm there for the university. It's a great school," Blazer said of NMSU. "It gave me the opportunity to do what I've done my whole career, because of the education that I got there. I'm going to continue to do what I can to support NMSU."

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