2020 Annual Report

College of Agricultural, Consumer and Environmental Sciences

NMSU | Box 30003, MSC 3AG
Las Cruces, NM, 88003-8003
Phone: 575-646-3748 | Fax: 575-646-5975
Website: http://aces.nmsu.edu
Email: **agdean@nmsu.edu**

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PREAMBLE

This annual report highlights impacts and accomplishments from our three main areas and special programs in the College of Agricultural, Consumer, and Environmental Sciences (ACES). These areas and programs include Academic Programs - Student Services, Agricultural Experiment Station, Cooperative Extension Services, Indian Resource Development, Center of Excellence in Sustainable Food and Agriculture Systems, and Global Initiatives Program - Aggies Go Global. It provides an overview of multiple accomplishments from 2020 such as impacts, productivity, contributions, and goals for each unit. The year 2020 has been challenging due to the special COVID-19 circumstances, however thanks to the ACES staff, faculty and students a wonderful job and teamwork achieved the objectives for the College of ACES.

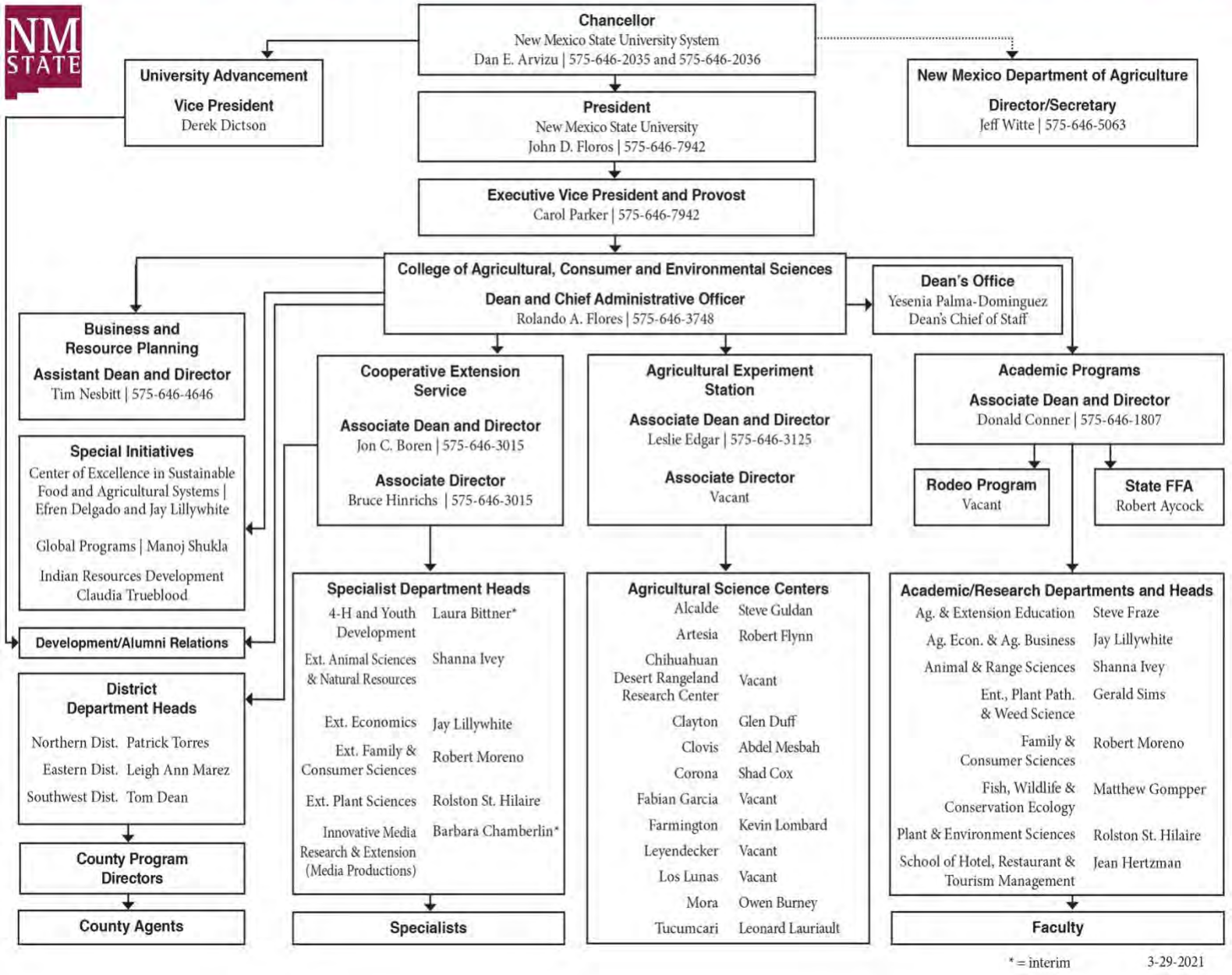
Rolando A. Flores Galarza
ACES Dean and Chief Administrative Officer

Mission

The ACES College is an engine for economic and community development in New Mexico, improving the lives of New Mexicans through research, teaching and extension.

NMSU COLLEGE OF ACES

ORGANIZATIONAL CHART



* = interim

3-29-2021

2020 ACADEMICS ANNUAL REPORT

Executive Summary

While 2020 started with a vision of developing and implementing a number of goals aimed at optimizing student services and academic programs in the College of ACES, the evolution of the COVID-19 pandemic over the year caused significant redirection of efforts. Thus, accomplishments reflect the necessity to adapt academic programs as well as continued efforts to strengthen ACES undergraduate and graduate instruction. Our College maintained effective instruction under these new terms of reference and remained focused on meeting our teaching mission. The vision for ACES Academic Programs (AP) continues to be focused on effectively integrating key functions as illustrated in Figure 1. Progress was made in making this vision a reality. Namely, efforts to enhance alumni engagement and career placement were established. Our future aim is to leverage this integrated system to achieve the College's strategic goals related primarily to enhancing student success and supporting a robust College.

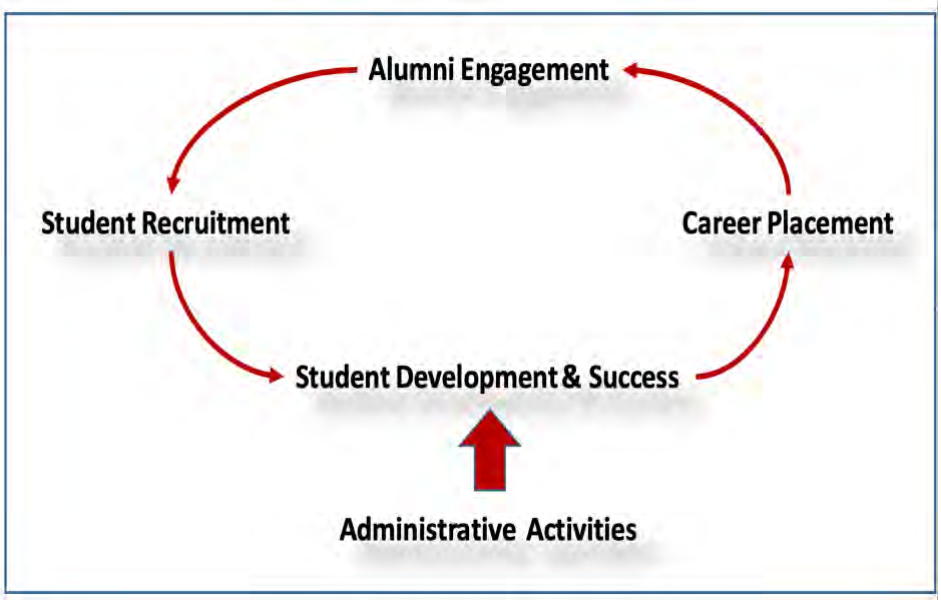


Figure 1. Illustration of Integrated Systems for ACES Academic Programs

STUDENT RECRUITMENT

2020 Accomplishments

Although traditional means of student recruitment were significantly hampered in 2020 due to the pandemic, enrollment remained strong and reasonably steady with a total enrollment of 1,642 (1,427 undergraduate + 215 graduate students) in Fall. Contact with potential students was done primarily via virtual means, which represented a major shift for the AP Office. In Spring, a new cohort of 13 ACES Ambassadors was recruited, and in Fall these Ambassadors established recruiting efforts including assistance with an in-person College open house for students and virtual high school visits. In summary, efforts were pivoted from in-person to virtual means and in doing so, many lessons were learned. It is envisioned that many of these lessons (new methods of delivery) will be incorporated in future recruitment efforts to enhance our reach to target audiences.

2021–2024 Goals

In support of ACES Strategic Goals 1.1 and 1.3, the AP Office will continue to bolster its recruitment efforts. As effects of the pandemic subside, undergraduate and graduate recruitment events will be re-established, with a particular focus on in-person statewide events.

Strategies to engage stakeholder groups directly in recruitment will be developed. Groups that AP could effectively partner with include Sam Steel Council, 4H, FFA, Cooperative Extension Service and ACES Ambassadors. To help develop effective strategies and tactics, a College Recruitment Committee will be established in early 2021. The ACES AP Office will continue to work with ACES departments to develop effective recruitment strategies for each program.

Figure 2. FFA is a Key Stakeholder Group of ACES Academic Programs.

Equity Inclusion and Diversity (EID) Initiatives Related to Student Recruitment

ACES is home to eight academic departments that offer 23 different undergraduate majors. Therefore, our College appeals to and supports students representing diverse backgrounds and academic interests. This is a message that needs to be well communicated to a broader audience. To that end, recruitment efforts will be enhanced to target underrepresented students, with an initial effort to increase recruitment of tribal students and military veterans.

STUDENT RETENTION

2020 Accomplishments

Kudos go to ACES faculty for transitioning 178 courses from in-person to online delivery in a two-week window! The AP Office worked to ensure that this transition was successful and timely for the second half of Spring '20, and that COVID-safe course offerings/modalities were in place for the Fall Semester. The AP Office also facilitated College- and campus-wide faculty task forces who developed resources for faculty to ensure effective teaching. At the College level, a website (https://aces.nmsu.edu/employee/zoom.html) entitled *Support of ACES Online Teaching* was launched within weeks of the announcement that March 13 would be the last day for in-person instruction for the semester. At the university level, a faculty task force developed a website, www.dl.nmsu/shared-resources/, which provides faculty with vetted information on alternates to typical experiential learning methods. The websites remain available to NMSU faculty. A major obstacle to moving courses to an online format was the lack of internet access to students in certain areas of New Mexico. The AP Office worked with the Cooperative Extension Service to identify wifi access points in all New Mexico counties, and wifi was made available to NMSU students at CES county offices.

This information was made available to all NMSU students. These collective efforts were essential in enabling the successful transition of the entire ACES instructional program in 2020.

Figure 3. ACES Orientation and Mentoring Classes Help Welcome Students to the ACES Family.

The College continued its commitment to student success through its ACES courses: ACES 1120 Freshman Orientation, ACES 1210 Financial Fitness for College Students, ACES 1220 Academic Excellence, ACES 301 Agricultural Leadership Development (ACES Mentors), and ACES 305 Advanced Leadership and Communication (ACES Ambassadors). These courses provided a means to develop students' personal and professional success skills.

With the hindrances brought about by the pandemic, it was a major accomplishment that 361 ACES students earned their degrees in 2020 (294 BS, 56 Masters and 11 PhD). This speaks highly of the resolve and grit of our students and faculty.

In support of student success, GTH 295 was renovated to provide study spaces for ACES students. This room, ACES Student Center for Attainment, Achievement & Advancement (SCAAA), has a large space to accommodate individual students, and three small spaces designed for student group learning. With the transition to online courses, this room provided wifi-equipped space where ACES students were able to "attend" their online courses while they were required to be on campus (Fall semester).

Financial support is also critical to the retention of many ACES students and to that end, the AP Office maintained a strong scholarship program. In 2020, the College provided scholarships to 1,075 students, totaling $624,985. This continues to one of the strongest scholarship programs at NMSU. In addition to awarding scholarships, we streamlined the overall process and through our linkages with Development, we improved our stewardship reporting.

2021–2024 Goals

In support of ACES Strategic Goals 1.1, 1.2 and 1.3, the AP Office will continue to work to improve student success and professional growth. To improve students' degree progression, improvements will be made to the efficiency and timeliness of STAR Degree Audit process (degree checks). Relatedly, the AP Office will continue to develop its use of new NMSU databases, namely Ad Astra to optimize course scheduling/rotations and Curricular Analytics to reduce degree complexity resulting in enhanced student success, including retention and graduation rates. The Gray Associates Program Evaluation System is already being used to examine the economic efficiency of ACES degree programs and to explore the potential development of new degree programs. Ultimately, achieving solid student learning outcomes that support degree completion by our students is a primary goal of the ACES teaching mission. In support of

this goal, the AP Office will work closely with each ACES academic department to improve its academic assessment process and make appropriate improvements in curriculum complexity. Additional goals will include making improvements in the timeliness of scholarship decisions and awards; continuing to strengthen our support of College-wide professional development courses (ACES courses); and improving visibility and use of the SCAAA in GTH.

EID Initiatives Related to Student Retention

Consistent EID messaging is critical to current and potential students. The AP Office will work deliberately to ensure that consistent positive EID messages are provided during all College-wide student programs (Orientation, Recruitment, etc.). The goal of this consistent messaging is to welcome and make each and every ACES student feel respected and valued, as well as provide an environment in which they can thrive and achieve personal and professional aspirations. Additionally, we will explore the possibility of chartering an NMSU chapter of Minorities in Agriculture, Natural Resources and Related Sciences (MANNRS) and explore establishment of a NM JR MANNRS (grades 7–12) chapter through school ag programs.

Figure 4. Pistol Pete Signs in at the New ACES SCAAA.

CAREER PREPARATION AND PLACEMENT

2020 Accomplishments

The ACES AP Office continued to work with potential employers, but with centralization of Career Service/Experiential Learning, interaction was primarily via NMSU career events and not directly with employers at the College level. Individual departments did host career fairs, but due to Covid, these were primarily virtual events.

2021–2024 Goals

Many traditional employers of ACES students are seeking a stronger connection at the College level; therefore, in the future the AP Office will take a leadership role in establishing career fairs at the College level. This goal will support ACES Strategic Goal 1.1. Specifically in Spring 2021, a proposal will be developed with the goal of hosting an ACES Career Fair in Fall 2021. To this end, the College has already begun working with NMSU Career Services/Experiential Learning, ACES departments and potential employers.

In addition to these career placement efforts, the AP Office will continue to support efforts to enhance the preparation of our students for lifelong career mobility and success. Specific tactics related to this goal will include:

- Promote internship and entrepreneurial opportunities to ACES students, including working more closely with the NMSU Arrowhead Center.
- Engage alumni in promoting career opportunities to students.
- Use the NMSU system for tracking Social Mobility and set benchmarks for ACES.
- Promote and support faculty participation in grant programs related to workforce development.

EID Initiatives Related to Student Placement

Given NMSU's status as an HSI, ACES already works well with a variety of government agencies related to internships and permanent placement. We are now focused on determining how to best align our EID efforts with those of Non-Governmental Organizations and Industry, primary employers of our graduates. Chartering a MANNRS chapter at NMSU would allow our students to tap into the many employment opportunities provided at the national level. The possibility of partnering with emerging programs such as Together We Grow, a consortium of ag/food companies, NGOs, and academia, centered at Colorado State University will also be explored. The goal of the latter organization is to help build a skilled, diverse and inclusive workforce to support American agriculture. Alignment of ACES efforts with the goals of our employers will assist in insuring good placement and mobility of ACES graduates.

ALUMNI ENGAGEMENT

2020 Accomplishments

In late 2020, ACES Alumni Relations (Sam Steel Society/Council) was assigned to the AP Office. This aligns well with our missions related to recruitment and career placement. Even though this is a recent organizational change, goals and activities designed to engage ACES alumni have already been identified.

2021–2024 Goals

By developing a strong working relationship between the AP Office and the Sam Steel Council, achievement of ACES Strategic Goal 1.3 will be facilitated. Specifically, the AP Office will meet monthly with the Council and provide updates related to achievement of recruiting and placement goals. The AP Office plans to engage alumni in specific student recruitment and placement events, especially as Covid restrictions are eased. A particular activity will be to engage ACES alumni in hosting NM regional recruiting events. Alumni will be very effective in promoting the College and career opportunities to students and potential students.

EID Initiatives Related to Alumni Engagement

Given that alumni know and represent the "traditions" associated with the College of ACES, alumni will be engaged in a conversation on how to improve the College's ability to attract and include a broader representation of students from diverse backgrounds. These conversations will focus on ensuring that the College continues to meet the educational and workforce needs in New Mexico and beyond.

ACADEMICS–2020

by the numbers

178

F'20 in-person ACES Courses Transitioned to Online Delivery Due to Covid-19

361

ACES Students Earned Their Degrees

28,508

Student Credit Hours Taught by ACES Faculty

2:1

Ratio of Female To Male Students

1,642

Students Enrolled in College of ACES

55

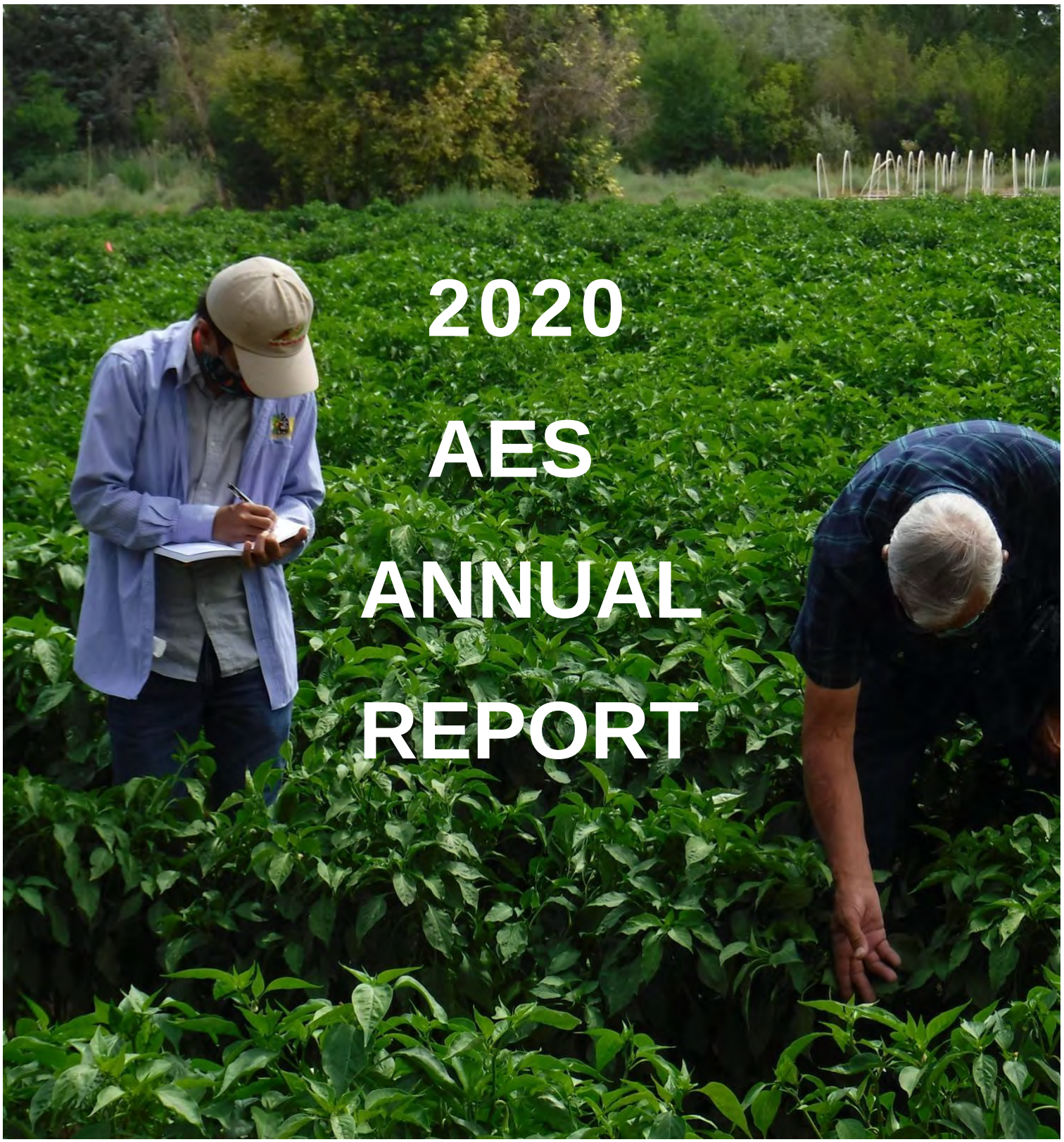
Percentage of Hispanic Students

1,075

Students Received an ACES Scholarship - This is over 65% of all ACES students!

$624,985

Total Amount of Scholarships Awarded to ACES Students



2020 AES ANNUAL REPORT

NM STATE

BE BOLD. Shape the Future.
College of Agricultural, Consumer and Environmental Sciences
Agricultural Experiment Station

NMSU's Agricultural Experiment Station (AES) is the principal research unit of the College of Agricultural, Consumer, and Environmental Sciences (ACES). The NMSU AES System—the largest landholding land-grant university in the nation—supports fundamental and applied science and technology research to benefit New Mexico's citizens in economic, social, and cultural aspects of agriculture, natural resource management, and family issues. All research faculty in ACES have appointments in the Agricultural Experiment Station. AES is not a physical site, but rather a system of scientists who work on facilities on the main campus in Las Cruces in nine academic departments and at 12 agricultural science and research centers located throughout the state. The AES system also interacts with other university research units and various state and federal agencies to provide opportunities for research that benefits New Mexicans. In 2020, there were 365 faculty and staff associated with AES.

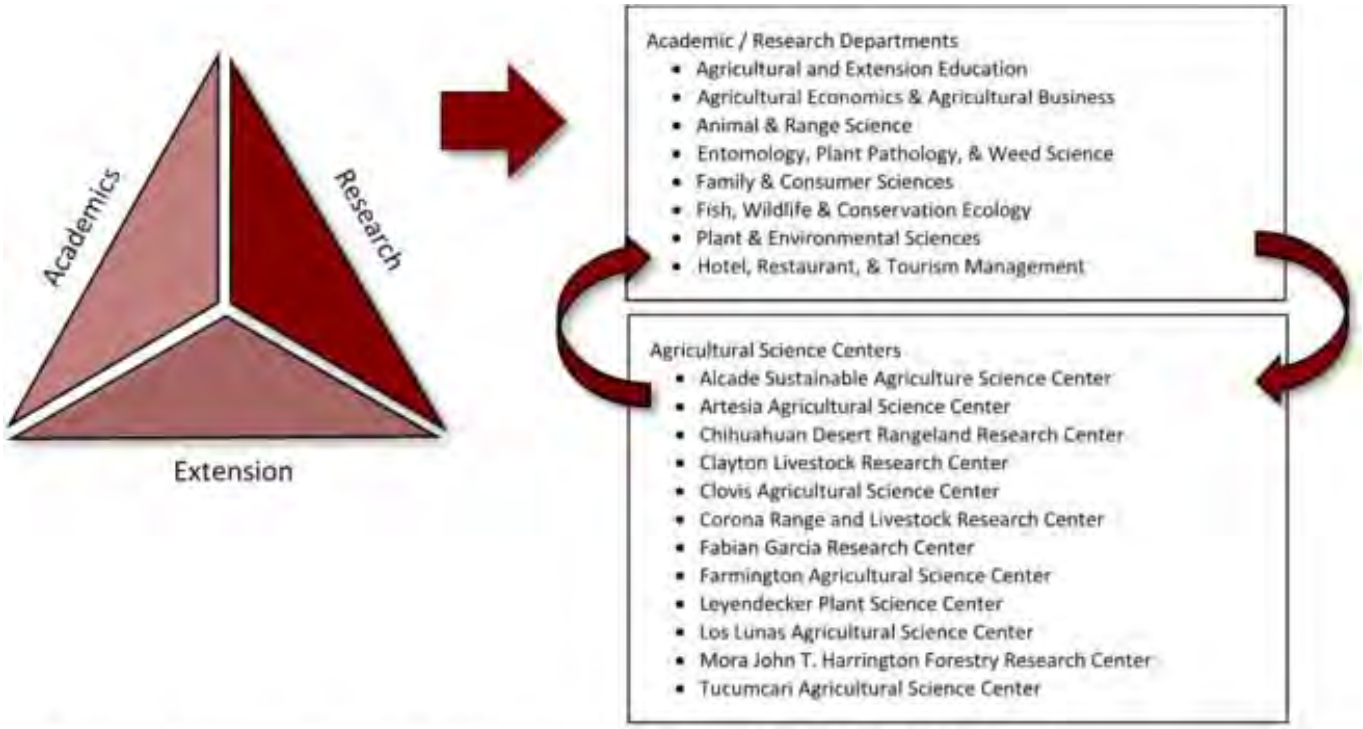
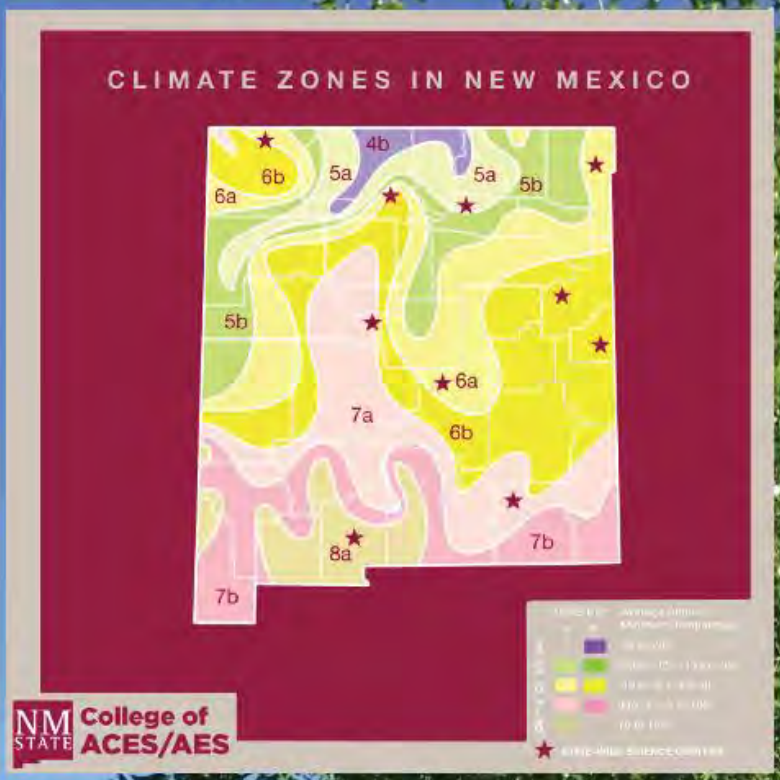


Figure 1. Research within the Land-Grant University and College of ACES Missions.

AES was created by the federal Hatch Act of 1887 and was constitutionally mandated in New Mexico in 1915. In 2020, the Agricultural Experiment Station's total budget was approximately $36.4 Million, with more than 75% of the state appropriations budget in personnel services costs. Our state appropriations were approximately 41% of the AES budget, with the remainder of our funding from federal appropriations (7%), sales (8%), and grants and contracts (44%). In 2020, we expanded our AES funding portfolio and for the fifth conservative year, ACES led NMSU in grants awarded and expended. Our faculty, staff, and students work hard to ensure our state's investment in AES is matched by more than a 1:1 ratio. This fiscal year, AES felt a 4% reduction in state appropriations. AES shifted to be fiscally conservative as requested by ACES and NMSU. As we plan forward, we will continue to be thoughtful and intentional with our ACES and LEADS 2025 strategic plans. Additionally, in 2020, all 12 of the Agricultural Science Centers (ASCs) across the state updated their strategic plans used to guide the research enterprise. These plans are posted on the AES and ASC websites and help us focus and revisit the vision of each ASC and assist with prioritizing the needs of agricultural research in New Mexico. All ASCs have specific research, teaching, and outreach priorities for each community written into these strategic plans. We look to our strategic plans to determine priorities, future hires, programmatic initiatives, and identify additional opportunities to elevate research and creativity. An overview of the NMSU AES ASCs follows.



All 12 Centers in the College of Agricultural, Consumer and Environmental Sciences system do research on the agricultural and natural resources needs for the area. Each one also has projects or features unique to that center, including:

Sustainable Ag Science Center at Alcalde: First center that carried out research on certified organic land. Features research in fruit orchards, including AmeriZao jujubes. Housed at the hacienda once owned by Carol Bishop Stanley, who also later owned Ghost Ranch.

Artesia Ag Science Center: Unique soil conditions of Pecos Valley cannot be replicated elsewhere, so research in other parts of state not a reliable indicator for crops in the Pecos Valley.

Chihuahuan Desert Rangeland Research Center: Livestock grazing pastures have been observed and recorded for over 80 years to measure changes without livestock influence to study the long-term nature of grazing and climate impact. No other studies of this magnitude exist.

Clayton Livestock Research Center: The only feedlot research facility in the western United States with a focus on animal health of ranch cattle.

Clovis Ag Science Center: Valencia peanut breeding. About 60 percent of the Valencia peanut acreage is dominated by varieties developed by NMSU. The Valencia peanut industry adds $4.5 million to the state economy annual.

Corona Range and Livestock Research Center: A 28,000-acre self-sustaining working ranch laboratory where research is conducted on a larger scale.

Farmington ASC: Only NMSU science center west of the Continental Divide and only 1862 land-grant to work directly on sovereign First Nations – Navajo – land. Unique research includes potatoes, hops and hemp.

Fabian Garcia Research Center/ Leyendecker Plant Science Center: NMSU main campus experimental farms where a wide range of plant breeding research is conducted, including on New Mexico chile peppers.

Los Lunas ASC: Located 20 miles south of Albuquerque, which allows for unique urban programing from on-site faculty, including Urban Integrated Pest Management and Urban Horticulture specialists. Soil conditions, ranging from very sandy to very heavy clay, allows for broad applicability of research results on projects conducted on diverse planting media.

John T. Harrington Forestry Research at Mora: Only research program in the southwest United States that focuses on forest nursery technologies, tree improvement and ecophysiology of young forest trees to facilitate ecological restoration, especially of forests. Largest producers of forest seedlings in the US Southwest with a current capacity of 300,000 per year, primarily used to restore forest after severe wildfires and mining operations.

Rex E. Kirksey Ag Science Center at Tucumcari: Infrastructure to conduct both crop and livestock research, including the Tucumcari Bull Feed Efficiency Test. Tucumcari Irrigation Project, in partnership with the City of Tucumcari and the New Mexico Water Trust Board, is permitted to reuse treated municipal wastewater for irrigation.

AES continues to work to increase our rural economic development. By more fully utilizing our research, information, and network infrastructure, we can assist the university in returning to an R1 Carnegie classification. We are committed to supporting the university with technology transfer opportunities for rural and agricultural regions and advancing our ASCs as research hubs. AES and our researchers are positioned to increase our collaborations with public-private partnerships.

In 2020, AES engaged in an economic impact assessment to enhance our understanding of our contributions to the state and economy. There are two primary ways in which the Agricultural Experiment Station system contributes to New Mexico's economy. The first contribution comes from each AES unit (academic department or ASC) that uses funds provided by the state, combined with funds provided by the federal government and other organizations, e.g., non-profit foundations, to conduct research. The research expenditures circulate through the economy creating economic activity and generating economic output. These impacts are relatively easy to identify and measure. The more difficult contributions or impacts to measure, which in fact may be impossible to measure in their entirety, are those that result in new or improved agricultural products (or other products, e.g., pharmaceuticals) resulting in greater agricultural productivity or increased efficiencies leading to production cost reductions. These benefits, which have been referred to as "functional impacts" or "functional contributions" (Tripp, Grueber, and Cummings, 2018) are significant, likely much more significant than those created by research expenditures, but they are much more difficult to measure. However, AES is in the process of measuring these impacts annually.

In the 2020 Association for Public and Land-grant Universities (APLU) assessment, NMSU had more than 42% of its agricultural-based buildings being older than 50 years. In the assessment, more than 55% of these buildings are used to support the AES research enterprise. This degraded infrastructure creates challenges for completing cutting-edge research and innovation. In 2019, New Mexico's total value of agriculture was $3.44 billion. In the future, we must continue to work on our aging infrastructure while supporting our competitive research and discovery. AES is committed to enhancing our research efforts and enterprise by ensuring New Mexico's agricultural industries remain competitive in a global economy, protecting New Mexico's water and natural resources, and building healthy communities across the state.

The AES research enterprise continued during the 2020 pandemic outbreak. In many instances, NMSU leadership looked to ACES processes to understand best practices and integrate system-wide modifications. We worked closely with AES Directors in other states to learn from and apply best practices to our laboratory and open land protocols. In 2020, ACES led NMSU in return to research approved protocols with 180 active research projects. AES faculty continue connecting with Sandia National Laboratory to collaborate and address food-related issues. The National Impacts Database (NIDB) had 383 impact statements submitted in 2020; 182 were tagged as COVID-19 related impacts. NMSU is part of the national land-grant system and this reflects our national research impact, even during challenging times. AES will continue to respond proactively in research and community involvement in 2021. We can only do this with your support and commitment to research and creative scholarship.

AES METRICS

EXTERNALLY FUNDED RESEARCH AND CREATIVE ACTIVITIES

The total sum of AES grant awards and modifications processed in 2020 was $22,406,737.11. For the fifth consecutive year, ACES led NMSU in grants and contracts sought.

RESEARCH PRODUCTIVITY

OTHER INTELLECTUAL CONTRIBUTIONS

Abstracts Published: 62
Abstracts Accepted: 5
Book Chapter in Scholarly Book - New Accepted: 7
Book Chapter in Scholarly Book - New Submitted: 2
Book Chapter in Scholarly Book - Revised Published: 3
Book Chapter in Textbook - New Accepted: 1
Book, Edited Volume Scholarly Published: 2
Book, Scholarly- New Published: 1
Conference Article Accepted: 2
Conference Article Published: 5
Conference Proceeding Accepted: 23
Conference Proceeding Published: 18
Conference Proceeding Submitted: 3
Experiment Station, Research Bulletin Accepted: 1
Experiment Station, Research Bulletin Published: 3
Experiment Station, Research Report Accepted: 4
Experiment Station, Research Report Published: 10
Experiment Station, Technical Report Published: 3
Journal Article, Academic Journal Accepted: 66
Journal Article, Academic Journal In Preparation/Not Submitted: 67
Journal Article, Academic Journal Not Accepted: 9
Journal Article, Academic Journal Revising to Resubmit: 25
Journal Article, Academic Journal Submitted: 87
Journal Article, Academic Journal Working Paper: 13
Journal Article, Professional Journal Accepted: 10
Journal Article, Professional Journal In Preparation, Not Yet Submitted: 7
Journal Article, Professional Journal Revising to Resubmit: 3
Journal Article, Professional Journal Submitted: 15
Magazine Article/Interview Published: 7
Magazine/Trade Publication Published: 9
Manuscript Accepted: 2
Manuscript Published: 3Newspaper Article/Interview Published: 9

Other Publications Published: 69 Research/ Technical Report

Accepted: 9 Research/ Technical Report Published: 32

In 2020, the ACES faculty and staff submitted 177 grant and contract proposals for a total request of $78,453,435. AES faculty and staff submitted 131 proposals for a total request of $57,866,957.

New Mexico State University's College of Agricultural, Consumer, and Environmental Sciences (ACES) has a mission to improve the lives of New Mexicans, the nation, and the world through research, teaching, and extension. Research programs focus on four identified critical issues for New Mexico that will also have a global impact. These planned programs are Food & Fiber Production and Marketing, Water Use and Conservation, Family Development and Health of New Mexican, Environmental Stewardship, all of which are based on the foundation of education and training of qualified professionals in the field of agriculture.

Below are examples of research impacts from the past year that highlight the work focused on these issues.

FOOD AND FIBER PRODUCTION MARKETING

- To improve sustainability in the southwest U.S.-Ogallala Beef Production Area, an NMSU team of ranchers, researchers, educators, and extension specialists are evaluating three novel strategies: heritage cattle genetics, precision ranching, and range finishing. They are comparing heritage vs. conventionally used desert-adapted cattle via studies of profitability, TFP, ecosystem effects, feed yard performance, and carcass and meat quality. They are developing and field testing a wireless precision ranching system to provide real-time information on weather,water sources, and animal position to improve Southwestern ranch efficiency. Researchers are using systems models and regional telecoupling analysis to evaluate the socio-economic and environmental trade-offs associated with alternative breeds, precision ranching, and range- vs. grain-finishing. They plan to integrate research, extension, and education via a new Western Beef Knowledge System that can support informed decisions underpinning profitability, TFP, climate adaptability, and environmental impacts of alternative beef production systems.

- Simulated human digestion and intestinal cell culture experiments have been used for over 20 years in pharmacological industries to understand how the gut metabolizes, breaks down, and absorbs pharmaceutical drugs. An NMSU research group is modifying this in vitro system to measure the pharmacokineticsof food medicinal compounds. Chile carotenoids, hemp cannabinoids, algae omega-3 fatty acids are a few of the compounds that are being analyzed after human gut digestion and uptake by human intestinal cells. Native plants like sumac berries, Navajo Tea, and New Mexican goji berries will also be analyzed after digestion.

- Field demonstrations found that bioenergy crops could be successfully grown with saline wastewater. Researchers also found that edible produce grown in the Animas River watershed is generally safe to consume, helping to restore confidence in our agricultural markets. A greenhouse study demonstrated that hemp, sunflower, and canola (all bioenergy crops), are capable of extracting uranium and radium from contaminated mine soils and may be effectively usedin phytoremediation efforts and a far reduced cost compared to traditional cleanup methods. Another study showed that adding duckweed (*Lemna minor* L.) to iron-contaminated water helped lower the concentration of the metal, probably by surface sorption and physical removal. COVID restrictions in 2020 limited field and lab access, slowing down collection and analyses of samples and restricting our ability to meet various milestones.

WATER USE AND CONSERVATION

- North America's Rio Grande Basin is cited as the most climate-stressed river system in the US, and people who rely on the river system are among the nation's poorest. Water management in this basin presents opportunities for managers, political leaders, and stakeholders. The daily lives of about 6 million depending on the water that the Rio Grande and its tributaries provide for urban use, agriculture, hydropower generation, and ecosystem services. All residents of the basin benefit from the Rio Grande and bear the costs of its supply extremes, especially droughts and floods that periodically strike the region. NMSU's project is to develop and apply an economic analysis to investigate the impacts of new policies, such as changes in costs of aquifer protection in a conjunctive use system, the Middle Rio Grande Basin of North America. An important objective is its use to discover economic costs of protecting the Basin's major aquifers for each of six scenarios of climate stressed water supplies, two system operation rules, and two water importationcosts.
- Research was conducted at NMSU to develop NM's drought climatology that identified the appropriate drought monitoring tools that can help in determining when drought is developing, which areas are impacted, and how severe the drought conditions are. These tools were identified based on their ability to accurately depict historic drought events (duration and magnitude) and how these events match the corresponding reported impacts. Based on the identified tools, the research developed threshold values of drought indices that can be used as triggers for drought onset.

ENVIRONMENTAL STEWARDSHIP

- The importance of accurate and spatially resolved information on woody vegetation structure has increased in recent decades in relation to climate change and international agreements mandating the assessment of carbon sequestration in forests and woodlands. Baseline datasets, such as this, that allow researchers to document and understand the changing distributions of woody cover and biomass at regional to continental scales will ultimately contribute to our understanding of the global carbon cycle and the impacts of climate change.
- Soil health issues have become increasingly prominent in New Mexico, with many farmlands already degraded. Soil erosion by wind and water are common in many agricultural systems. Yearly off-site erosion costs in New Mexico, including health and property damage, are estimated to be nearly $500 million.These losses exclude those from reduced crop yields and increased cost of inputs due to land degradation. In 2019, the value for crop production in New Mexico was about $706 million, and continued sustainability of the crop production industry in the State is dependent on maintaining and improving soil health of agricultural fields.

2020 CES ANNUAL REPORT

NM STATE

BE BOLD. Shape the Future.
College of Agricultural, Consumer and Environmental Sciences
Cooperative Extension Service

Mission

The Mission of College of Agricultural, Consumer and Environmental Sciences' (ACES) Cooperative Extension Service (CES) is to deliver practical,research-based knowledge and programs that improve New Mexicans' quality of life. A part of NMSU's College of Agricultural, Consumer and Environmental Sciences, CES is a unique federal, state, and county partnership.

COOPERATIVE EXTENSION SERVICE

The Cooperative Extension Service exists to serve all New Mexicans, wherever they live. We reach every corner of New Mexico thanks to our offices statewide. CES has staff in all 33 counties and many Tribal areas in New Mexico, and collaborates with over 1,000 organizations, state and federal agencies, other universities, and 10,000 volunteers.

Every year, Extension faculty reach over 550,000 New Mexicans—more than one-third of the state's population—who benefit from wide-ranging CES educational programs in areas such as economic and community development, human nutrition and health, agriculture, environmental stewardship, and family and child development.

ANNUAL PERFORMANCE METRICS

Faculty and Students

Tenure track faculty headcount: 117

Extension Faculty FTE appointment: 274

CES faculty working with off-campus ASC:55

Undergraduates employed by CES: 25

Graduate students employed by CES: 22

Publications and Presentations

Refereed journal articles (non-duplicative): 42

Extension publications: 520

Invited scholarly presentations (professional meetings): 37

Contributed scholarly presentations (professional meetings): 77

Extension/ Outreach presentations, workshops, trainings, (professional meetings): 3,175

Grants and Expenditures

Grants and Contracts submitted: 135

Grants and contracts awarded: 90

Funding requested in submitted grants and contracts: $40,695,150

Funding awarded grants and contracts: $14,848,822

Foundation gift revenue – cash donations: $364,073

In-kind donations: $406,589

Total expenditure: $26,118,424

Expenditures per T/TT Faculty: $258,036

Contacts and Awards

Clientele contacts (personal contacts): 334,759

4-H and Youth contacts (personal contacts): 106,305

Social Media contacts: 21,662,732

Awards (local, regional, national and international): 66

FOOD AND FIBER PRODUCTION AND MARKETING

Focusing on several key areas that support the growth and improvement of plant and animal agricultural products in New Mexico, CES faculty and staff foster technological innovation to enhance competitiveness and security of New Mexico agriculture, and increase value-added in the state. Extension educators work with farmers and ranchers tohelp improve livestock, safety, production and profitability.

Program Examples

- CES Beef Specialist facilitated a three-part webinar series designed to address beef markets and COVID-19. The series, attended by 330 beef producers, focused on the economic impact of COVID-19 on the beef industry. CES conducted a workshop evaluation after the completion of the series. The evaluations found that 100% of respondents agreed that Extension programming increased their knowledge relative to COVID's impacts on the beef industry.
- As COVID wreaked havoc on the beef industry, NM beef producers also faced worsening drought conditions. CES responded by hosting a series of drought webinars (3) to provide ranch management options during drought; approximately 270 people attended. Post event evaluations showed that training and consultations with producers resulted in 100% of respondents indicating they obtained knowledge that could be utilized in their operations or decision planning.

FOOD AND FIBER PRODUCTION AND MARKETING

- NMSU Dairy Extension and UT Health School of Public Health partnered to develop a training program addressing COVID-19 in the U.S. Dairy industry. COVID-19 training was delivered to dairy owners, managers, and workers representing large-herd farms in the Texas–New Mexico border region and Idaho, two of the largest milk producing regions. Training materials are delivered in both synchronous and asynchronous formats, using live webinars, on farm presentations, and recorded videos.
- CES Dairy Specialist provided safety awareness training to about one-third of the NM dairy workforce. Approximately 3,500 employees have been trained on dairy safety and animal handling. Translated training materials were developed to respond to the needs of all employees (English, Spanish, or K'iche). The Idaho Dairymen's Association (IDA) adopted the program with significant processor and co-op support. Due to processor and customer demands, the National Milk Producers Federation (NMPF) created a Workforce Development Task Force (2017), which developed a Dairy Safety Reference Manual in English and Spanish (2019), co-authored by CES Dairy Specialist. NMSU's dairy workforce development program is now considered a leading example, with program details being utilized on some of the largest dairy operations in the U.S.
- CES partnered with the Southwest Border Food Protection and Emergency Preparedness Center, NMSU School of Public Health, NM Farm Bureau and NMDA to provide information to frontline workers in agriculture. The collaboration developed the "Essential Produce Worker Protocol" to assist produce farmers with OSHA and CDC guidelines for agriculture workers. CES and the NMDA developed Extension articles addressing the needs of NM growers while working closely with the NM Livestock Board to provide online producer education.

FAMILY AND HEALTH OF NEW MEXICANS

The family is the fundamental institution of society. CES develops educational programs in mental health wellness, human nutrition, food science, and family resource management. Extension programs on human nutrition and wellness are aimed at keeping people from becoming ill and are likely considered "preventive medicine" programs.

Program Examples

- Cooperative Extension Service is entering a new partnership with the CDC. This system-wide engagement is with the CDC's Vaccinate with Confidence communication campaign. CES is applying for funding to promote COVID-19 vaccinations through relevant messaging and innovative models for community action. The priority audience is rural and other hard-to-reach audiences. A team is being formed to guide this statewide initiative and work on the program application with funding available in April. The team is comprised of Extension agents and specialists, 4-H health ambassadors, producers, various industry representatives, and Tribal Nations.
- The NM EDGE (Education Designed to Generate Excellence) encourages better government through education and has provided certifications to over 5,000 New Mexicans, including elected and appointed officials and public employees in local and state government. Employees of other public services such as school and water conservation districts also take advantage of EDGE training. The program has awarded close to 1,000 certifications to public officials as well as 1,500 Chief Procurement Officer certifications to state employees.

FAMILY AND HEALTH OF NEW MEXICANS

- CES and the NM Department of Health Diabetes Prevention and Control partnered to deliver the Chronic Disease Self- Management Education Program (CDSMEP) to increase participation in, access to, reach and effectiveness of evidence-based programs in our communities (offered in English and Spanish). Nationally, the CDSMEP has shown a $714 per person savings in emergency room visits and hospital utilization. This equates to a $364 per person net savings after considering estimated program costs of $350 per participant. CDSMEP has been improving lives since 2011, graduating approximately 1,100 participants for a potential economic impact of $785,400 in reduced health care costs.

- Ideas for Cooking and Nutrition (ICAN) is a CES program funded by federal grants to provide nutrition education to SNAP-eligible audiences in New Mexico. ICAN serves diverse SNAP-eligible audiences, with 58% of clients being Hispanic, and another 22% Native American. Prior to COVID, ICAN met with over 50,000 New Mexicans at 159 community sites around the state. In response to current needs, the program added 2,000+ virtual clients. In addition, 1,817 clients participated in a virtual food gardening course, ICAN Seed to Supper. ICAN operates in 22 counties across New Mexico, providing 55+ job opportunities to local residents and contributing $1.8 million to the state's economy in salary and benefits. In 2020, ICAN made over 160 partnerships with community leaders, schools, and non-profits. Nutrition education programming resulted in healthier food and lifestyle choices among participants. SNAP-Ed clients improved diet practices (95%), improved their ability to choose and prepare healthy foods (91%), and increased their physical activity behaviors (78%). SNAP-Ed families save an average of $30 on their month-to-month grocery budget.

FAMILY AND HEALTH OF NEW MEXICANS

- As a result of the COVID-19 pandemic, individuals and families are experiencing significant amounts of stress which can negatively affect social, emotional and physical health and wellness. To help alleviate increased stress, a team of CES Extension educators developed a four-part weekly webinar series to increase knowledge and use of stress management and resilience strategies. Workshop topics emphasized building family resilience, how stress impacts the brain and body, tools to positively leverage stress, and the importance of self-care. All sessions were recorded and posted on the NMSU ACES COVID-19 Response website. Post event evaluations showed the series was useful (96%) and knowledge of stress management and resilience strategies increased (94%). Most of respondents increase their knowledge of stress management and resilience and intended to do things differently as a result of participation in the webinar series.

- In response to emerging concerns for the financial well-being of NM families, NMSU CES facilitated a workshop series to help individuals and families navigate the COVID-19 outbreak from a financial standpoint, access resources and adapt household budget and practices, as effectively as possible. The four-part series was offered weekly and through Zoom (163 participants). Financially Navigating the COVID-19 Outbreak program participants increased their understanding of financial options and resources available to them during the pandemic (88%) while increasing confidence (96%) and decreasing stress (96%) related to finances. Participants found the material to be very useful (94%) and continued using resources three months following the series (42%) and shared information with others.

4-H YOUTH DEVELOPMENT

The New Mexico 4-H Youth Development program has provided young people opportunities to develop leadership, citizenship, and life skills so they can give back to their communities in meaningful ways. Nationally, participants of 4-H are five times more likely to graduate college, two times more likely to join STEM programs, and almost three times as likely to engage in civic involvement. Extension educators enhance curricula on interdisciplinary aspects of STEM and STEM-based skills, create seamless pathways from PK-12 to higher education, increase engagement of underrepresented populations in STEM education and increase the number of STEM-skilled individuals entering the workforce.

- Over the past four years, New Mexico schools have ranked last by National Kids Count. Academic success is challenging for many students in traditional school settings; the ongoing pandemic has increased the challenges facing our education system and students. Academic success is vital for continuing education and pursuing a career. Learning the skills directly linked to improved academic performance is key for student success and persistence throughout their academic career. NMSU 4-H and Youth Development Aggie Next Step program, Take it to the Next Level: Skills for Student Success provided a series of five 30-minute virtual workshops focused on skills important for academic success. After the series, 65% of students reported an increase in identifying learning styles and 50% increase in understanding goal time frames and recognizing sources of responsibility.
- The NMSU Extension and Research Youth Agricultural Science Center has played an important role in supporting youth academic achievement through public education school enrichment programs and reducing community food insecurity in partnership with the 100% Community initiative. The Center has modified programming by organizing STEM trunks for Extension educators to facilitate statewide 4-H school enrichment and special interest activities, developed climate science curriculum and published related journal articles. The Center is a long-standing community partner, actively decreasing food security by donating fresh food to Las Vegas food banks (excess of 1000 pounds), donating over 800 fruit and vegetable plants in the community, and expanding Center food production capacity by 10%. Research indicates Center programs effectively close the educational achievement gap in STEM for minority and underserved populations. As a result of the program, 75% of students could correctly identify the steps of the scientific method, 80% correctly identified temperature and precipitation changes were contributing to environmental issues, 59% correctly identified greenhouse gasses, and 90% correctly identified the impacts of drought on plant growth.

ENVIRONMENTAL STEWARDSHIP

- Soil health issues have become increasingly prominent in New Mexico, with many degraded farmlands. An integrated research and Extension program was developed to address soil heath issues in cropping systems of New Mexico. Two major workshops (over 2000 participants, 15 counties) were conducted in the past year with participants both within and outside the state. Over 80% of participants indicated increased knowledge on how to use various soil health practices after the training events. About 50% of land managers have indicated willingness to adopt soil health management practices for improving their land. Soil health awareness created by this Extension program and other state entities led to the passing of the Health Soil Act during the NM legislative session in 2019.

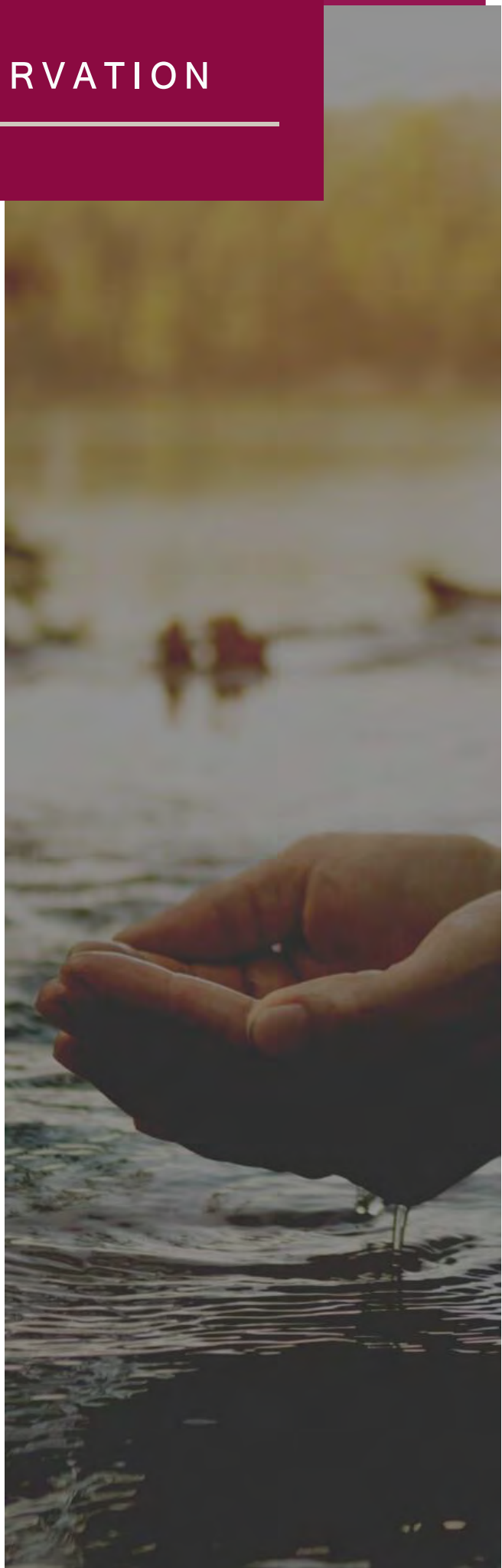
- Many turfgrass managers and people in the turfgrass industry faced economic uncertainty during the public health crisis and economic recession caused by COVID-19. Industry professionals were forced to re-evaluate or pause maintenance on public parks and golf courses to extended closures and significant loss of revenue. NMSU CES Turfgrass Specialist in partnership with Extension specialists from seven other land grant universities published two papers outlining the critical role of turfgrass and natural green space in promoting health and well-being during the pandemic and how to maintain green spaces with limited resources due to closures. By adopting minimal maintenance practices throughout closures, public golf courses were ready for reopening in May.

WATER USE AND CONSERVATION

Water is the most limiting resource for New Mexico. All aspects of water use affect agricultural efficiency, profitability, and human health. Water management will become more critical as water demands for urbanization and industrialization increase.

Program Examples

- Frequent droughts have resulted in significant herd reductions for many producers in the desert Southwest. For producers to remain profitable under these difficult circumstances, they must utilize animals that are efficient in both feed and water use. A long-term collaboration with Extension Animal Sciences and Natural Resources, and the NMSU's Klipsch School of Electrical and Computer Engineering, has resulted in the development of a water intake monitoring system that can collect novel data in remote locations throughout New Mexico. Information gathered from this system will be disseminated to producers to help them make improved natural resource management decisions related to water.
- Water is the most limited resource in New Mexico. As water demand continues to increase, Extension agents provide workshops and programs on water conservation and management for youth and adults. As a result, 50% of participants have a better understanding of watersheds and their function, and 82% intended to modify gardening practices. Of the water audits performed, the average water savings were 2,000 gallons per participant after one year.
- CES Innovative Media Research and Extension developed the "Because I Care, I Wash My Hands" handwashing curriculum in collaboration with Michigan State University. The partnership at handwashing.nmsu.edu, hosts a collection of online songs, games, and science experiments for kids. Music videos in the YouTube series "Because I Care, I Wash My Hands" have been watched more than 101.8 million times since 2011. In New Mexico, the videos have been viewed 17,552 times since 2011.



2020 CESFAS ANNUAL REPORT

NM STATE

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College of Agricultural, Consumer and Environmental Sciences

Center of Excellence in Sustainable Food and Agricultural Systems

GOAL 1. ENHANCE STUDENT SUCCESS & SOCIAL MOBILITY

Objective 1.2 *Increase student learning, retention, and degree attainment*

Actions:

- Promote and coordinate the development of online certificates.
    - CESFAS faculty working on online certification for hemp and value-added products

Introduction to Food Microbiology – Online Short Course (Understanding the basics of microbial contamination issues in foods and food processing facilities is one of the most important aspects to ensure implementation of better food safety practices. The course is structured as a combination of several modules covering an overview of historical development of food microbiology and food safety, classification and sources of microbial contamination, microbial reproduction and survival in food products, factors affecting microbial growth, spoilage and pathogenic organisms, and more).

Objective 1.4 *Strengthen Career pathways through service-learning, experiential learning and research engagement.*

Actions:

- Coordinate and organize interdisciplinary workshops to enhance system-wide internship, co-op, and externship opportunities to meet employment and workforce needs.
- Collaborate with business and industry partnerships to expand career opportunities for domestic and international students.

GOAL 2. ELEVATE RESEARCH & CREATIVITY

Objective 2.1 *Facilitate the convergence of research and creative activity to address local and global challenges, integrated with undergraduate and graduate student education.*

Actions:

- Coordinate research strengths across all academic units to create integrated research centers supported with strategic investment and interdisciplinary hires
  Current teams have been developed around the following focus areas:
    - Artificial intelligence;
    - Carbon sequestration;
    - Controlled-environment agriculture / food deserts;
    - Food, water and energy (four functional teams within the larger team); and
    - Hemp production and utilization.
- Encourage and enhance interdisciplinary collaboration:
    - Promoted and supported faculty working on an approved Dual Degree at the Master's level in Food Science and Technology between NMSU and UACH was signed. The first student participating in the program should start in fall 2021.

- Build strategic public–private partnerships (e.g., industry, national labs), with opportunities to integrate student research. Workshops have been conducted and are being developed.
    - The first workshop occurred on December 4, 2020 in collaboration with the New Mexico Tech Center of Excellence in Cybersecurity. Industry experts from the state, region, and country participated in a panel discussion regarding cybersecurity issues related to agriculture. Industry experts from the New Mexico Department of Agriculture, Sunkist Growers, Grimmway Farms (and Cal Organic), and RiskSense participated in the workshop.
    - Center leadership have contacted San Juan Community college to develop and are planning on developing a collaborative workshop relative to agriculture and renewable energy.
- Enrich and expand corporate, industrial, and government relationships to advance research and creative activity.

Objective 2.3 *Amplify impact of research findings by addressing local needs that align with global challenges*

- Coordinate interdisciplinary research that explores local and regional food and fiber supply chain issues.

- Using limited operating funds, the Center funded a “seed grant” in 2020 to a team of researchers in the College of ACES and the College of Engineering to investigate the potential for robotic technology in chile production. It is expected that researchers will apply for external funding based on the results initial research funded by the Center.
- A grant has been received from Tri-State Generation and Transmission and the Electric Power Research Institute (EPRI). EPRI is providing a significant in-kind contribution, e.g., container farm with supplies for the first year of operation. The funds will support a three-year project that will be housed on the NMSU Grants campus. The project will allow faculty members on both the Las Cruces (College of ACES and Engineering) and Grants campus a working laboratory and classroom to explore the potential for indoor agriculture in the state. Project includes funding for two graduate students. Faculty working on the project will work to leverage the project and funding for additional external funds.
- An interdisciplinary team submitted a NIFA-OREI Proposal 2021 “Partnership breeding corn for organic production systems” for $277,433 in collaboration with UW-Madison and the University of Missouri in January 2021.
- A collaborative proposal between the College of Engineering and ACES, UT-Arlington and other USDA-ARS, to create an Artificial intelligence Institute was submitted: AI Institute: Developing AI-driven Innovations to Enhance Agricultural Production and Food Safety under Conservation of Natural Resources. The total budget was for $2,000,000. National Science Foundation (NSF).
- CESFAS collaborated with the submission of the proposal “NSF Engineering Research Center for Food Resiliency through Engineered Supply Chains (FRESCH),” National Science Foundation (NSF) for $ 2,000,000 in October 2020.
- Collaboration with the College of Engineering, ACES and DACC a $ 500,000 grant proposal titled “Training of Next Generation Workforce for Smart Food Science and

Agricultural Technology in the Digital Era (WorkFoS-Ag)" to USDA-NIFA grand and funded. The project will start in 2021.
    - Supporting NMSU faculty on a grant proposal between NMSU and University of Addis Ababa University, Ethiopia on functional properties of *Moringa stenopetala* seeds.
- Incentivize faculty and staff participation in creation of intellectual property. If funding is available resources will be offered to faculty who wants to register intellectual property.

GOAL 3. AMPLIFY EXTENSION AND OUTREACH

Objective 3.4 *Strengthen and elevate public–private engagement*

Actions:

- Create list of NMSU research and innovations aligned with private sector technology needs
    - CESFAS faculty and affiliated faculty participated in the design and execution of an Extension-directed conference "Cultivating a hemp-based business in NM". Conference presentations helped entrepreneurs explore potential business opportunities and identify major operational concerns related to production, processing, and business management.

- Establish an incentive system within NMSU for research, Extension, and outreach that leverages private sector relationships.
    - Promoted cooperation between NMSU researchers and Arrowhead center to support research targeting the small industry in NM. Four companies were helped with shelf-life studies of their food products.
    - Food safety training are conducted every year for producers and processors.
- Promote NMSU strengths to current and prospective private sector partners.

2020 GIP ANNUAL REPORT

NM STATE
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College of Agricultural, Consumer and Environmental Sciences
ACES Global Initiatives Program

GOAL 2. ELEVATE RESEARCH & CREATIVITY

LEADS 2025: Goal 2.1 *Facilitate the convergence of research and creative activity to address local and global challenges, integrated with undergraduate and graduate student education.*

Following are the specific work done by the College of ACES towards achieving goal 2.1

- ACES is identifying foreign universities for NMSU faculty to teach condensed courses during the fall, spring or summer semesters.
- ACES has established regular summer teaching at China Agricultural University and Northwest Agricultural and Forestry University. COVID related travel restrictions did not allow faculty to travel during 2020.
- ACES is working with Inner Mongolia Agricultural University, China to identify courses that can be taught by faculty during summer.
- ACES is working with Consejero de la Universidad Tecnológica (UTEC), Uruguay's international Office for identifying short courses for teaching and research opportunities.
- ACES (NMSU) faculty is involved in teaching in some Universities in Mexico. We are working with University of Guadalajara, Mexico for teaching condensed courses 2021/22.
- ACES has signed several new MOUs with Universities in various countries: National Agriculture Technology Institute (INTA), Argentina; CQ University Australia; University of Chihuahua, Mexico; University of San Carlos, Paraguay; University of Montevideo, Uruguay; Consejero de la Universidad

Tecnológica (UTEC); Uruguay; University of the Empresa (UDE); Uruguay. The goals of MOUs with International Institutions is to fulfill the vision and mission of ACES Global Programs and LEADS 2025. These MOUs are intended to create partnerships in the areas of teaching, research and extension through student and faculty exchanges, organizing training workshops, and also for student recruitment.

- A new study abroad program is under development with Perrotis College, Greece. ACES and study abroad program are collaborating on the program.

LEADS 2025 Objective 2.3 Amplify impact of research findings by addressing local needs that align with global challenges.

With regard to supporting the LEADS 2025 Objective 2.3, the College of ACES is engaged in the following specific work.

- College of ACES continued to work with graduate students and faculty in China and Mexico. Some of the work was related to water use efficiency, water shortage and soil salinity (which are common problems in both countries) while others are related to particulate matter emissions (major border issue with Mexico) and food science and nutrition.
- ACES faculty is serving as graduate committee members on some student committees in Mexico and China.
- Many joint research papers were published (> 10 with China and Mexico), and some joint research funding opportunities were explored.
- ACES (as Lead) with COE had submitted a grant proposal to BIRD Foundation, Israel on Sustainability Center for Water, Energy and Food Security ($20M). We could make it to the second round only.
- 100K Strong in the Americas “2020 Mexico-US innovation Fund” proposal is under development with La Salle, Colombia. A similar proposal writing is ongoing with University of Chihuahua, Mexico.

- ACES has recently submitted a proposal to USAID with Deloitte Consulting LLP as Lead. This proposal is for Jordan Water Governance and primary responsibility of ACES is related to capacity building and organizing training, seminars, and meetings on water related issues.
- A workshop on "application of AI technologies in agriculture: towards a digital agricultural revolution" was organized jointly by IICA (Inter America Institute for Cooperation on Agriculture) and ACES on Nov 24. IICA Director General Manual Otero, Dean Flores, and Mario Allegri were the organizers and ACES faculty (Derek, Lara and Manoj) presented AI and digital agriculture related research during the conference.
- College of ACES is also involved in developing further collaborations with Jordan through International Arid Lands Consortium (IALC).

LEADS 2025 Objective 2.4 Amplify impact of research on society and the economy and promote international collaboration by accelerating technology and knowledge transfer.

To support NMSU LEADS 2025 objective 2.4, the College of ACES has started following new collaborations.

- A new project on improving water use efficiency was started with two Israeli companies. The research is important for New Mexico with scarce water availability for irrigation.
    - The Ndrip, Israel provided the micro-gravity drip irrigation system. The system operates on a small pressure (25-30 inch) and eliminates the need of pump and filters.
    - ACES will also serve as a lead institute in the USA for testing new Ndrip sensors.
    - The Tal-Ya, Israel provided Mitra system that covers the soil to reduce evaporation and improve micro-climate in the root zone. System also stops weed growth.
    - The research and demonstration site is located in NMSU's Leyendecker Plant Science Center.
    - A webinar was organized with EBID Engineers and local growers.

  - A video on the project is also available online. The project addresses water conservation, which is one of the major challenges of NM. Some pecan growers also visited the site to look at the system in operation.
- CQ University Australia, Rockhampton and College of ACES have an MOU and they are working on a proposal for a 2+2 program. Both are also working on identifying topics for summer internships and training.
- A dual-degree on Food Science and Technology was approved between ACES- FACS and University of Chihuahua. This will help students from both countries to get a dual degree and make them more globally competitive. This has also generated interest by University of Juarez to do a similar MOU. A similar effort is in its initial stages with University of Montevideo, Uruguay. These efforts support the LEADs 2025 objective 1 on enhance student success and social mobility.
- Aggies Go Global sends NMSU students abroad on short trips to increase their awareness of global problems and their solutions. This also supports the LEADs 2025 **objective 1 on enhance student success and social mobility**.
- 2020 – 8 students visited Egypt to attend Women Economic Forum conference.
- Donations and fund raising: $50K is pledged for Aggies Go Global activities in 2021.
- A new student organization “Global Student Alliance” was started in 2019 consisting of all students who have travelled abroad with the support of Aggies Go Global.
- Some country specific videos were prepared for recruitment.
- Videos were also prepared to showcase students’ reflections on international travels and programs.

2020 IRD ANNUAL REPORT

NM STATE

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College of Agricultural, Consumer and Environmental Sciences
Indian Resources Development

INDIAN RESOURES DEVELOPMENT

Indian Resources Development (IRD) is a statewide program that offers educational and professional development opportunities for Native American students from NM who are in middle school, high school, and college; and supports Tribes in NM in developing their own technical and managerial expertise in agriculture, natural resources, engineering, business, and energy. Note: When this document refers to "students," it means Native American students affiliated with Tribes in New Mexico.

Goal	Key Performance Indicators	Accomplished	Collaborators
1	Student scholarships and COVID relief in collaboration with partners	61	UNM, Native American Community Academy (NACA)
	College students supported to participate in Internships	2	Roanhorse
	Funds pursued/secured	$100,000 pursued $45,000 secured	NM 4H NTU, Arrowhead American Indian Business Enterprise (AIBE) and Innoventure
2	Students and representatives supported to attend professional development conferences related to IRD focus areas	16	NMSU, Pueblos of Picuris, Cochiti, Tesuque, San Felipe, Pojoaque, Isleta, Nambe and four groups of the Navajo Nation
	College students supported to participate in research opportunities	2	UNM
	High school students who participated in higher education and career discovery camps, workshops, fairs, presentations related to IRD and focus areas	210	UNM, 4H, Pueblo of Isleta, Pueblo of Pojoaque, ACES-EFCS, NMTech, Thoreau HS, NMSU

Goal	Key Performance Indicators	Accomplished	Collaborators
3	Collaborations with NM high schools	13	NACA, Los Lunas, Santa Fe Indian School, Navajo Prep, Window Rock, Independence, Rehoboth, Socorro, Bernalillo, Mescalero Apache, Pecos, Taos, Thoreau
	Collaborations with NM tribes	7	Pueblos of Pojoaque, Isleta, Santo Domingo, San Felipe, and Taos; 1 chapter of the Navajo Nation; Mescalero Apache Tribe
	Collaborations with NM higher education institutions	11	CNMCC, NMTech, NTU, UNM, SFCC, SJCC, ENMU-Portales, NNMC, Diné College, NM Highlands, NMSU

Goal	Key Performance Indicators	Accomplished	Collaborators
4	Relevant educational and professional development opportunities promoted by IRD via	38	New Mexico Community Capital, AIBE, American Indian Chamber of Commerce (AICC), ACES-CES, ACES-ASC, ICAN, DACC NMSU Star Program, I-CREW, NM Alliance for Minority Participation (NM AMP), ACES-PES Diagnostic Plant, NM Cooperative Catalyst, Southwest Border Food Protection and Emergency Preparedness Center, Taos Pueblo, NMDA, Indian Pueblo Cultural Center, UNM Native American Budget and Policy Institute, First Nations Development Institute, Northern NM College, AISES, American Indian Alaskan Native Tourism Association, NMTech, FoodCorps, Paso Del Norte Health Foundation, Santo Domingo Pueblo, ACES-FWCE, Pueblo of Santa Ana, NTU, NMSU-College of Engineering, Pueblo of Isleta
	Number of professional development hours IRD team invested, not counting formal classes	171	NMSU Teaching Academy, Native American Agriculture Fund, Arrowhead-AIBE, Santa Fe Indian School, NMSU-ACES CES, NMSU-RAS, NMSU-ASC, NMDA, First Nations Institute, NMSU-College of Engineering, College of Business, College of Education, NMSU HR, NMSU Police Department, South Central Climate Adaptation Science Center
	Number of programs and organizations involved in IRD planning and programming	33	IRD Tribal Advisory Committee and ACES Dean, Innoventure, IAIA Museum of Contemporary Native Arts, Indigecomms, CNM FUSE Makerspace, Kirtland Air Force Research Lab, Los Lunas Schools; NM Tech Admissions, Engineering and Student Affairs; NMSU 4-H, NMSU Admissions, NMSU-ACES: Los Lunas Ag Science Center, Animal & Range Sciences; Cooperative Extension Service; Fish, Wildlife and Conservation Ecology; Hotel, Restaurant and Tourism Management; Plant and Environmental Sciences; Innovative Media; Pueblo of Isleta, Pueblo of Jemez, Red Planet; UNM American Indian Students Services and Innovation Academy; USGS Water Science Center, AIBE, NM AMP, NTU, CNM

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