

## **NMSU AGRICULTURAL SCIENCE CENTER AT ARTESIA**

### **Strategic Plan 2020-2025**

#### **MISSION**

The Agricultural Science Center at Artesia (ASC-Artesia) faculty conduct research and extension programs in soil, water, crop, and entomological sciences to enhance the agricultural, economic, environmental, and social well-being of southeastern New Mexico.

Our faculty collaborate in local, regional, national, and international research and extension efforts, and are often asked to bring their expertise to colleagues and clientele across the U.S. and in foreign countries. It is our goal to be the premier off-campus center for novel research and extension programming in integrated pest management, water management, soil health, soil fertility and remediation, and the evaluation of new crop genetic material.

#### **OPPORTUNITIES**

- Southeastern New Mexico is part of the Permian Basin that had 268,140,428 million oil wells and 53,053,483 million natural gas wells at the end of 2019. Produced water from oil and gas wells in 2019 totaled 42,415 acre-feet. Pilot technology at NMSU is making it possible to use produced water for agricultural purposes.
- New Mexico is in the central flyway with several corridors including the Pecos River Valley. Such avian flyways provide research opportunities for fish and avian agro-ecology.

#### **STRATEGIC PRIORITIES**

- Controlled water quality experiments for fresh, saline, and brackish water.
- Germplasm improvement trials for crops developed either by ACES or from private geneticists in unique environmental conditions found in southeastern New Mexico.

**Note:** Objective numbers correspond to the College of Agricultural, Consumer, and Environmental Sciences (ACES) strategic plan, but some objectives do not apply to this Center and have been omitted.

#### **GOAL 1: ENHANCE LEARNING SUCCESS AND SOCIAL MOBILITY**

Create plant, soil, and entomological science programs that effectively grow and shape southeastern NM farmers and ranchers to adopt successful production practices that benefit long term-farming and ranching enterprises.

**Objective 1.1:** Maintain and enhance existing structure that supports grower/farmer success.

##### **Actions:**

- Pursue extramural grants that target research opportunities, workshops, community projects, and professional training for farmers and consultants.

- Provide immersion-based learning and internship/job-placement opportunities for summer high school students.

**Objective 1.2:** Increase recruitment and retention of undergraduate students into ACES programs through summer learning opportunities.

**Actions:**

- Coordinate with ACES recruitment and retention plan aimed at traditional and nontraditional students that include scholarships.
- Boost youth outreach activities at high schools with FFA students.

**Key Performance Indicators (KPIs)**

	Year 1	Year 3	Year 5
High school Interactions	20 students	40 students	60 students
Graduate Interaction	2 students	3 students	5 students
Graduate Projects	1 projects	2 projects	3 projects
HS Student summer employment	1	2	3

**Leading Indicators**

- Jobs, fellowships, and internships.
- Howard Stroup Scholarship recipients in ACES departments.
- ASC Artesia faculty engaged with students to recruit and increase diversity.

**GOAL 2: ELEVATE RESEARCH AND CREATIVITY**

Identify creative strengths, engage graduate students, and build applied research capacity, funding, and reputation as defined by the four pillars of ACES.

**Objective 2.1:** Conduct research, teaching, and Extension programs on emerging issues.

**Actions:**

- Emphasize the genetic improvement of crop plants at the ASC-Artesia.
- Develop horticulture programs that assist small farm/urban agricultural industries.
- Support research on developing cropping systems that are more resilient to water scarcity and pests.
- Cultivate interdepartmental and interdisciplinary partnerships to find solutions to plant and environmental issues.

**Objective 2.2:** Address critical water use and conservation issues in Southeastern New Mexico and beyond using a science-based approach.

**Actions:**

- Enhance and expand partnerships with local produced water companies to train personnel on managing water filtration for reuse in agriculture or other enterprises.
- Increase interdisciplinary initiatives for the production of alternative and specialty crops.

**Objective 2.3:** Encourage and reward interdisciplinary and integrated relationships with other research efforts across the university and external partners, emphasizing both applied and fundamental methods for developing comprehensive solutions to relevant issues.

**Actions:**

- Develop and enhance collaboration with other units at NMSU, other universities, federal agencies, and private industries involved in research.
- Develop research collaborations through consortia and international programs.
- Identify and target public-private relationships and partnerships.

**Objective 2.4:** Address critical environmental issues in New Mexico and beyond.

**Actions:**

- Investigate land use options for enhancing ecosystem services through cover cropping, no-till, strip-till, and introduction of livestock.
- Convey the benefits of incorporating woody waste from pecan orchards into soils to enhance carbon sequestration.
- Respond to emerging issues in the oil and gas industry as they pertain to water quality and solutions for responsible water reuse.
- Capitalize on grant funding opportunities requiring a formal Extension component that affords increased faculty research opportunities (oil field).
- Continue to develop research and Extension partnerships through consortia and international programs
- Develop/enhance partnerships with other universities and federal agencies in environmental research

**Goal 2 Key Performance Indicators (KPIs)**

	<b>Metrics</b>		
	<b>Year 1</b>	<b>Year 3</b>	<b>Year 5</b>
Ongoing agronomic studies	≥ 3/yr.	≥ 3/yr.	≥ 3/yr.
Ongoing horticultural crop studies	≥ 2/yr.	≥ 2/yr.	≥ 3/yr.
Ongoing produced water studies	≥ 1/yr.	≥ 1/yr.	≥ 1/yr.
Ongoing other research studies	≥ 1/yr.	≥ 1/yr.	≥ 1/yr.
Grant proposals submitted	≥ 1/yr.	≥ 2/yr.	≥ /yr.
Collaborative projects underway	≥ 1/yr.	≥ 2/yr.	≥ 3/yr.

**Leading Indicators**

- Attend the grant-writing workshop every other year (e.g., 2021, 2023, 2025)
- Number of graduate student research projects
- Number of proposals submitted
- Contributions to intellectual property and technology innovation
- Amount of research grant funding and gifts
- Number of new partnerships created with non-ASC researchers

### **GOAL 3. AMPLIFY EXTENSION, OUTREACH, AND ECONOMIC AND COMMUNITY DEVELOPMENT**

Carry out programmatic activities for transferring scientific knowledge and advancements to relevant external audiences through open-access information resources, presentations, events training programs, and individual consultations.

**Objective 3.1:** Develop innovative, multidisciplinary educational programming addressing issues relevant to New Mexico and expand the clientele base.

**Actions:**

- Partner with regional Extension agents to provide timely, research-based information to clientele
- Use social/mass media, electronic distance presentation delivery (e.g., webinars), and print media to reach more people, especially in rural communities
- Participate in community functions and boards to communicate and help solve problems or just lend a hand that utilizes special knowledge

**Objective 3.2:** Connect current research with the community.

**Actions:**

- Maintain a strong presence and grassroots connections to both rural and urban communities in southeastern New Mexico.
- Provide flexible and timely responses to urgent situations (e.g., pest outbreaks) that impact plant-related industries in southeastern New Mexico.
- Hold field days, workshops, and seminars.
- Support development of Extension publications on ASC-Artesia research topics.
- Support development of ASC-Artesia Impact flyers and Research Snapshot flyers.
- Maintain comprehensive, up-to-date ASC-Artesia website.
- Collaborate with local 4-H agents and leaders.
- Be a resource for local K-12; inform local schools of opportunities to tour Center.
- Maintain a strong connection with ASC-Artesia’s Advisory Committee: Southeastern New Mexico Agricultural Research Association (SENMARA) Board of Directors.
- Develop and support grant proposal submissions, based on regional stakeholder input, including proposals for on-farm projects.

**Key Performance Indicators (KPIs)**

	<b>Metrics</b>		
	<b><u>Year 1</u></b>	<b><u>Year 3</u></b>	<b><u>Year 5</u></b>
Extension and Outreach events	≥ 6 events/yr.	≥ 6 events/yr.	≥ 8 events/yr.
Extension and Outreach publications	≥ 2 pubs/yr.	≥ 3 pubs/yr.	≥ 4 pubs/yr.

**Leading Indicators**

- Number of field days, workshops, and conferences
- Number of Extension circulars and guides, articles, press releases
- Number of meetings, tours, and contacts with clientele/stakeholders

#### **GOAL 4. BUILD A ROBUST UNIVERSITY BY IMPLEMENTING COLLEGE-WIDE, MISSION-SUPPORTING STRATEGIC INITIATIVES**

Promote learning, inquiry, diversity, and social mobility with an Extension focus to integrate NMSU disciplines for K-12 and lifelong learners, locally and internationally; support ACES initiatives to provide a diverse Extension environment for a global society.

**Objective 4.2:** Expand a K-20 outreach program, inclusive of 4-H, focused on increasing participation and underrepresented groups to increase student awareness and participation in ACES programs and associated careers.

**Actions:**

- Provide an appropriate training location for Eddy and Chaves County youth.
- Work actively with ACES programs directed to youth, seniors, and underrepresented students
- Continue to recruit students to attend/assist at workshops, field days, and short courses
- Encourage county agents and teachers to utilize ASC Artesia resources and volunteer necessary resources and media from the NMSU system.
- Work with NMSU Carlsbad to develop workforce opportunities in entomology, agronomic, and environmental sciences.

**Objective 4.3:** Encourage interdisciplinary and integrated management approaches in planning and implementing programs, emphasizing both applied and fundamental methods for developing comprehensive solutions to important issues.

**Action:**

- Develop communication with regional scientists to collaborate with ASC Artesia on areas of interest to our common clientele across the southwest region of the US.

**Objective 4.4:** Elevate and promote the impacts and visibility of the AES and ASCs.

**Actions:**

- Enlist stakeholders to compose and publicize ASC Artesia impact stories
- Collaborate with county agents and regional industry to execute effective events to gain Station and Extension program support from NM citizens not directly involved in agriculture
- Inform legislators of how ASC Artesia can solve problems for constituents

**Objective 4.7:** Encourage and cultivate staff excellence, and support staff training, development, and recognition.

**Actions:**

- Ensure that communication between ASC-Artesia and campus faculty and staff is clear and effective so that research objectives are met and challenges are addressed early and effective solutions to issues can be established
- Provide faculty and staff with training and professional development opportunities

#### **Goal 4: Key Performance Indicators (KPIs)**

	<b><u>Year 1</u></b>	<b><u>Year 3</u></b>	<b><u>Year 5</u></b>
Number of interdisciplinary/multi-state projects	≥1/yr.	≥1/yr.	≥2/yr.
Number of meetings, conferences, etc., attended	≥3/yr.	≥4/yr.	≥5/yr.
Number of buildings repaired	1/yr.	1/yr.	1/yr.
Number of professional development opportunities	≥1	≥2	≥2

#### **Leading Indicators**

- Number of multi-location, interdisciplinary, and multi-state research projects.
- Number of professional meetings attended.
- Number of grower meetings, conferences, workshops, etc., attended.  
Building repairs are undertaken.  
Number of collaborative research and Extension efforts.
- Number of impact stories, accomplishments, and areas of excellence presented to New Mexico legislators and citizens.