

# **NMSU REX E. KIRKSEY AGRICULTURAL SCIENCE CENTER AT TUCUMCARI**

## **Strategic Plan 2020-2025**

### **MISSION**

New Mexico State University's Rex E. Kirksey Agricultural Science Center at Tucumcari (REKASCT) conducts innovative, locally-driven, globally-relevant research designed to discover, develop, and deliver knowledge related to crop (including forages) and livestock production. This research is performed under irrigated and dryland conditions to enhance agricultural profitability; stimulate economic development using natural resources; improve the quality, safety, and reliability of food and fiber products; sustain and protect the environment with ecologically sound practices; manage and protect natural resources; and thereby improve the quality of life for the people of New Mexico.

### **OPPORTUNITIES**

- Promote expansion of the partnership with the Tucumcari Feed Efficiency Test, LLC, for broader testing year-round, including use of the facility by commercial entities.
- Build upon grant proposal collaborations developed with the Desert Research Institute to evaluate options to remove contaminants of concern from treated municipal wastewater to be reused for agricultural irrigation as well as other aspects of reuse.
- Build upon the current partnership with Quay County Shooting Sports Program to develop a shooting range on site to build partnerships with local law enforcement.
- Expand the availability of GPS base stations for use by local producers.
- Promote the development of MOU between NMSU and Mesalands Community College.

### **STRATEGIC PRIORITIES**

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

Student success is facilitated by the accommodation of individual, entire class, or community interest in participation at the REKASCT through the development of experiential learning, graduate and undergraduate research, and opportunities.

#### **Objective 1.1: Maintain and enhance the existing structure that supports student success.**

##### **Actions:**

- Maintain and enhance existing infrastructure and capability at REKASCT to support student recruitment and success.
- Pending agreement between NMSU and Mesalands Community College in Tucumcari, REKASCT faculty will facilitate distance education using existing and new faculty and post-Baccalaureate staff expertise to compliment programs of both institutions.
- Provide student work and internship opportunities.

#### **Objective 1.2: Increase recruitment and retention of undergraduate and graduate students in programs of the College of ACES.**

##### **Actions:**

- Support pathways for local students to transition directly from Mesalands Community College to NMSU.
- Participate in coordinated undergraduate and graduate recruitment and retention aimed at traditional and non-traditional students from any background and education that fits the College of ACES.

**Leading Indicators**

- Progress of infrastructure updates over a 5-year timeframe.
- Number of distance education courses offered by REKASCT faculty.
- Number of internships offered/accepted by REKASCT administration or faculty.
- Number of students recruited from Mesalands to ACES by REKASCT faculty.

Goal 1 KPIs	Metrics		
	Year 1	Year 3	Year 5
Distance Education Opportunities	1 online course offering/year	1 online course offering per year per faculty/staff	1 online course offering per year per faculty/staff increase
Internships Offered	1	1 per faculty member	1 per faculty member, increase as # of faculty members increase

**GOAL 2: ELEVATE RESEARCH AND CREATIVITY**

This strategic priority identifies research and creative strengths and opportunities and strategically builds capacity, funding, and REKASCT reputation within NMSU, nationally, and internationally based on the ACES Pillars for Economic and Community Development and input by stakeholders, particularly the REKASCT Advisory Committee, that define priority areas.

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

**Actions:**

- As funds are available, maintain and enhance existing infrastructure and capability to support research at REKASCT.
- Purchase capitalized equipment to elevate faculty research and creativity as funds are available
- Pursue extramural funding to discover locally relevant, globally applicable knowledge within their respective areas of expertise.
- Contribute to research advancements in cropping and forage-livestock systems to discover sustainable solutions for food and forage-livestock security.
- Emphasize value-added byproducts, use of alternative and specialty crops (e.g., medicinal plants, local foods, community gardens, and farmers' markets), and genetic improvement of agronomic and horticultural crops.
- Expand research programs with additional faculty, support staff, and operations to conduct research needed in current or emerging fields.

**Objective 2.2: Address critical water use and conservation issues in New Mexico and beyond (national/international) using a science-based approach.**

**Actions:**

- Conduct research to increase water quality and quantity through improved water use, use of alternative water sources, treatment, and conservation.
- Advance the understanding of crop, soil, and environmental effects of using alternative water sources for irrigated agriculture to provide safe and secure food systems while ensuring ecosystem services.
- Develop management approaches for watershed and riparian systems.

**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:**

- Foster interdisciplinary and collaborative research projects across the ACES Departments of Animal and Range Sciences; Agricultural Economics and Agricultural Business (including Extension); Entomology, Plant Pathology, and Weed Science, Extension Animal Sciences and Natural Resources; and Extension Plant Sciences as well as with faculty in other departments, agricultural research institutions, industry, and farmers and ranchers, as opportunities arise.
- Continue partnership with the City of Tucumcari to reuse treated municipal wastewater as a source for agricultural irrigation to sustain research programs.
- Maintain partnership with the Tucumcari Feed Efficiency Test, LLC, for research to measure feed and water use efficiency for improvement of beef cattle herds in New Mexico and throughout the southwestern US.
- Identify and target additional public-private relationships and partnerships.

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

**Actions:**

- Address New Mexico's pressing need to find alternative sources of water for agricultural and horticultural production and evaluate the crop, soil, and environmental effects of using alternative water sources.
- Advance the understanding of controlling processes and mechanisms influencing soil quality resiliency through alternative water irrigation and soil salinization.
- Investigate the natural environmental system and agricultural industrial controls over nutrient fluxes, utilization, and cycling/recycling.

**Leading Indicators**

- Purchase capitalized equipment to elevate faculty research and creativity, as funds are available.
- Expand research programs
  1. To evaluate the influence of using treated municipal wastewater for agricultural irrigation on crop production and soil and watershed health.
  2. To address rangeland, riparian, and watershed health issues.

3. To discover horticultural options to assist small landholders with limited available inputs, such as water.
- External funding (numbers of proposals submitted, proposals funded, amount of grant funding) secured by REKAST faculty as Lead- or Co-PI.
  - Research expenditures
  - Publications (AES and refereed journals) by REKASCT faculty as authors or co-authors.
  - Conference presentations.
  - Number of faculty research awards and recognitions for research accomplishments.
  - Service (proposal review panels, journal service, organizations) by REKASCT faculty.
  - Number of graduate students and post-docs advised or co-advised.
  - Number of faculty, staff, and student researchers (FTE).
  - Number of Advisory Committee meetings or contacts.

Goal 2 KPIs	Metrics		
	Year 1	Year 3	Year 5
Infrastructure for capacity building	Replace water system	As funding is available, replace the shop	As funding is available, replace office, lab, and small conference facilities and add greenhouse facilities
Capitalized equipment for capacity building	Purchase plot combine and small tractor	As funding is available, purchase research equipment defined as needed by faculty	As funding is available, purchase research equipment defined as needed by faculty
Expand research programs	Secure recurring funding for Wastewater research program	Secure recurring funding for rangeland health program	Secure recurring funding for the small landholder horticulture program
Externally funded research and creative activities	≥ \$25,000/Research AOE/yr.	≥ \$30,000/Research AOE/yr.	≥ \$30,000/Research AOE/yr.
Research productivity	≥ 4 pub/100% Research AOE/yr.	≥ 4 pub/100% Research AOE/yr.	≥ 4 pub/100% Research AOE/yr.

### GOAL 3. AMPLIFY OUTREACH AND ECONOMIC AND COMMUNITY DEVELOPMENT

Extension is the deliberate programmatic activity for transferring university scientific knowledge and advancements to relevant external audiences through open-access information resources, presentations, events training programs, and individual consultations. Outreach activities can include all the above, along with connections with communities and families,

multigenerational engagement, economic development and entrepreneurship, and collaborative efforts with industry and corporations.

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

**Actions:**

- Produce materials that can be delivered through mass media outlets – publications, internet videos, news items, and social media.

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

**Actions:**

- Maintain and enhance existing infrastructure and capability to support Extension and Outreach activities
- Present to stakeholder groups at seminars, workshops, and field days at REKASCT and elsewhere when invited.
- Demonstrate the important research that directly impacts NM clientele-based stakeholder input.

**Leading Indicators**

- As funding is available, maintain and enhance existing infrastructure and capability at REKASCT to support Extension and Outreach activities, including replacing 108-year-old shop facilities for safer Extension and Outreach activities.
- Number of Extension or Outreach activities hosted or participated in by REKASCT faculty.
- Number of Extension and other publications and press releases authored or coauthored by REKASCT faculty.
- Number of clientele contacts made by REKASCT faculty.
- Number of new and ongoing community development projects participated in by REKASCT faculty.

GOAL 3 KPIs	Metrics		
	Year 1	Year 3	Year 5
Total outreach events participated in/presentations made on or off-site by all faculty	≥8 events/yr.	≥16 events/yr., depending on increased faculty base	≥20 events/yr., depending on increased faculty base
Extension publications by all faculty	≥2/yr.	≥2/yr., depending on increased faculty base	≥2/yr., depending on increased faculty base
Individual clientele contacts by all faculty	≥75/yr.	≥125/yr., depending on increased faculty base	≥150/yr., depending on increased faculty base
Community development programs	2	≥2	≥2

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

The unique elements of REKASCT already promote collaboration among several departments within the College of ACES to support the missions of those ACES departments and there is potential to develop relationships with other science- and engineering-based departments and with Mesalands Community College. Additionally, being off-campus, local public and private partnerships and interaction with stakeholders and legislators increase exposure to stakeholders in eastern New Mexico and throughout the state. These partnerships should increase NMSU's exposure in this region, leading to increased student enrollment and legislative support.

##### **Objective 4.1: Recruit undergraduate and graduate students and faculty globally and increase the recruitment from underrepresented groups.**

###### **Actions:**

- Collaborate with the ACES Global Initiatives Program to identify opportunities to recruit students interested in food and fiber production and marketing, water use and conservation, family development and health of New Mexicans, and environmental stewardship.
- Build and enhance relationships with international schools, institutions, and partnerships to identify potential graduate students and enhance research scholarship.
- Assist with the development of programs to enhance transitions of underrepresented undergraduate students to graduate programs within ACES and NMSU.

##### **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:**

- Maintain and enhance existing infrastructure and capability to support Extension and Outreach activities at REKASCT.
- Assist the Cooperative Extension Service and other institutions with coordination of the development and expansion of summer and year-round ACES programs for youth, including those from underrepresented groups.
- Support developing a memorandum of understanding (MOU) with Mesalands Community College to recruit their students into four-year programs at NMSU.
- Host K-12 educational programs and participate in programs sponsored by other entities, when possible.

##### **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.**

###### **Actions:**

- Promote interdisciplinary and integrated initiatives for collaborations across different university entities.
- Provide research opportunities for campus-based faculty as is feasible.
- Host field day presentations

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

**Actions:**

- Develop information that can be used to communicate the broad and high-quality activities of REKASCT.
- Educate the people of New Mexico about accomplishments, areas of excellence, and the impacts of REKASCT accomplishments.
- Inform ACES and other colleges across NMSU of how REKASCT is helping them solve key problems for the people they represent.
- Communicate and collaborate efforts with family and agricultural commodity groups, and trade, business, and educational associations.
- Provide priority to online distance education capabilities and other educational facilities (hands-on/experiential) for students so that the experience of REKASCT faculty can be leveraged in academic settings.

**Objective 4.5: Continue a targeted involvement in multistate, regional, and international programs.**

**Actions:**

- Seek increased multistate, regional, and international programs, as appropriate to the facility.
- Communicate the importance of regional and international activities of REKASCT to New Mexico citizenry and legislators.

**Objective 4.6: Increase the level of support for REKASCT from the citizens of New Mexico; local, state, and federal governments and agencies; private corporations; foundations; and alumni.**

**Actions:**

- Faculty at REKASCT will continue participation with constituency and lay groups within cooperative ventures and coalition building.
- Administration at REKASCT will continue to use the Advisory Committee and other key constituents to expand and refine ACES and REKASCT legislative initiatives.

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

**Actions:**

- Provide staff with training opportunities that will empower them to identify and implement processes that enhance system efficiency and encourage faculty in professional development.
- Recognize faculty and staff excellence in service and research support by nominating them for awards when appropriate.

**Leading Indicators**

- Maintain and enhance existing infrastructure and capability at REKASCT to demonstrate wise use of resources and potential for growth.
  1. Replace the existing 108-year-old shop facility for safer maintenance of equipment indoors for research activities.

2. Replace the 90-year-old office, conference, and lab facilities, combining them into a single building with modernized technology and laboratory equipment for wet and dry chemistry analyses onsite.
3. Add greenhouse facilities.
  - As funds are available, acquire capitalized equipment to demonstrate that NMSU is a robust University with the mission of expanding research capabilities.
  - Number of public and private partnerships negotiated by REKASCT faculty.
  - Number of local legislative events attended by REKASCT faculty.
  - Number of REKASCT Advisory Committee meetings and consultations held.
  - Number of campus-based faculty researching at REKASCT.
  - Number of campus-based faculty speaking at the annual REKASCT Field Day.

Goal 4 KPIs	Metrics		
	Year 1	Year 3	Year 5
Capitalized equipment for capacity building	Purchase plot combine and small tractor	As funding is available, purchase research equipment defined as needed by faculty	As funding is available, purchase research equipment defined as needed by faculty
Local public partnerships by all faculty	2	≥2, depending on increased faculty base	≥4, depending on increased faculty base
Local private partnerships by all faculty	1	≥1, depending on increased faculty base	≥4, depending on increased faculty base
Local legislative functions and hold Advisory Committee meetings attended	4/yr.	4/yr.	4/yr.
Faculty participating in K-12	2	≥4/yr., depending on increased faculty base	≥6/yr., depending on increased faculty base
Research projects led by campus-based faculty	2	≥2	≥4
Field Day presentations by campus-based faculty	1	2/yr.	≥2/yr.