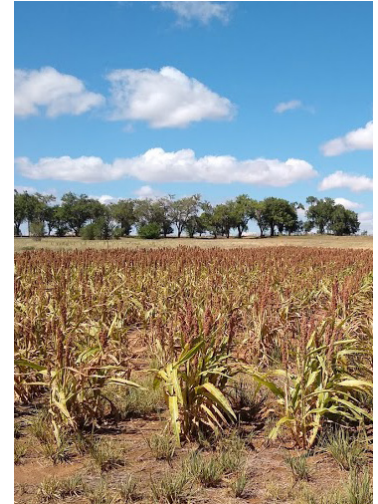


## REX E. KIRKSEY AGRICULTURAL SCIENCE CENTER AT TUCUMCARI

The Rex E. Kirksey Agricultural Science Center at Tucumcari (REKASCT) is boldly shaping the future by conducting locally driven, globally relevant research designed to discover, develop, and deliver knowledge related to crop (including forages) and livestock production under irrigated and dryland conditions to (1) improve the quality, safety, and reliability of food and fiber products and enhance agricultural profitability; (2) stimulate economic development using natural resources, sustaining the environment and protecting natural resources with sound practices; and thereby (3) improve the quality of life for the people of New Mexico.

To those ends, we will continue our current research and outreach programs focusing on semiarid cropping systems, irrigated forage crops and grazing management, and genetic improvement of beef cattle through feed efficiency testing and expand into new topical areas defined by our advisory committee, including re-use of treated municipal wastewater for agricultural irrigation, rangeland health, and crop production for small landholders.



### In 2019, REKASCT Faculty:

- Authored or co-authored 10 peer-reviewed and 11 non-peer-reviewed research publications.
- Made eight presentations to regional, national, or international scientific audiences.
- Made 13 presentations to stakeholder groups statewide and surrounding states.
- Co-advised one graduate student.
- Hosted four outreach programs for all ages, including K-5 and senior citizens.

## SELECTED PROGRAM IMPACTS

- **Strip-tillage for sorghum production has environmental and economic benefits in New Mexico.** Manure application costs can be cut by up to 60% by applying manure only in the strip-till zone. Additionally, three years after a single 10 tons/acre manure application, with or without incorporation, grain sorghum biomass continues to be greater by no-till planting into the original strip-till zone in addition to considerable energy savings.
- **Beef herd improvements have been made for more than half a century due to feed efficiency testing.** This has led to an estimated value exceeding \$800,000 annually to New Mexico's beef cattle industry.
- **Alfalfa variety testing potentially returns \$46 million to New Mexico's growers.** Differences between the highest- and lowest-yielding varieties in irrigated alfalfa tests statewide

ranged from 1.11 to 1.61 tons per acre in 2019. If sold as hay, this translates to a potential difference in returns of \$273 to \$396 per acre due to variety.

- **Strip-tillage for corn production has environmental and economic benefits in New Mexico.** Corn constitutes about 17% of New Mexico's irrigated crop area. The strip-tillage yield advantage in corn in New Mexico is estimated to be \$12.9 million over conventional tillage in addition to considerable energy savings and the relative advantages of controlling soil erosion and improving water- and nutrient-use efficiency.
- **Many turfgrasses, trees, and shrubs were evaluated over the past century for windbreak and farmstead plantings.** The value of this research for improving the quality of life for New Mexicans is priceless.

### ACES Pillars for Economic and Community Development



(Continued on back)

The College of Agricultural, Consumer and Environmental Sciences is an engine for economic and community development in New Mexico, improving the lives of New Mexicans through academic, research, and Extension programs. New Mexico State University is an affirmative action/equal opportunity employer and educator. NMSU and the U.S. Department of Agriculture cooperating.

## ONGOING PROGRAMS TO ADDRESS ACES PILLARS FOR ECONOMIC AND COMMUNITY DEVELOPMENT

- **Beef cattle feed efficiency testing:** Discovering genetic differences that impact feedlot feed:gain; now includes water use and management as a component.
- **Forage crop research:** Alfalfa management; candidate species for local adaptation; forage nutritive value improvement; grazing studies.
- **Semi-arid cropping systems research:** Tillage, crop rotations; cover crops; fertility; limited irrigation.
- **Crop performance evaluations:** Alfalfa, corn, cotton, grain sorghum, jujubes, and sorghum forages.



## GOALS DEFINED BY OUR ADVISORY COMMITTEE TO ADDRESS ALL OF THE ACES PILLARS

- Secure recurring legislative funding to evaluate the cropping potential and environmental impacts of using treated municipal wastewater for agricultural irrigation.
- Secure recurring legislative funding to address rangeland health issues in northeastern/east-central New Mexico.
- Secure recurring legislative funding to discover horticultural crop options for small farms with few available resources, particularly in regard to water.
- Replace, upgrade, and/or construct buildings and facilities to meet the demands of ongoing and increasing programs



## On-site Faculty and Expertise

- **Leonard Lauriault**, Irrigated Forages and Pastures
- **Murali Darapuneni**, Semi-arid Cropping Systems

## CURRENT AND RECENT PARTNERSHIPS AND EXTERNAL CONNECTIONS

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| <ul style="list-style-type: none"> <li>• Greater Tucumcari Economic Development Corporation</li> <li>• Tucumcari/Quay County Chamber of Commerce</li> <li>• Tucumcari Municipal Schools</li> <li>• Mesalands Community College</li> <li>• City of Tucumcari and Quay County</li> <li>• Canadian River Water Conservation District</li> <li>• Arch Hurley Conservancy District</li> <li>• Tucumcari Feed Efficiency Test, LLC</li> <li>• Quay County TableTop Food Coop</li> <li>• New Mexico Water Trust Board</li> <li>• New Mexico Hay Association</li> <li>• New Mexico Economic Development</li> <li>• Desert Research Institute, Las Vegas, NV</li> <li>• Cornell University</li> <li>• Louisiana State University</li> </ul> | <ul style="list-style-type: none"> <li>• Oklahoma State University</li> <li>• Oregon State University</li> <li>• Texas A&amp;M University System</li> <li>• Texas Tech University</li> <li>• University of Nebraska – Scottsbluff</li> <li>• University of Wisconsin – Madison</li> <li>• West Texas A&amp;M University</li> <li>• Cotton, Inc.</li> <li>• Syngenta Crop Protection</li> <li>• <b>BRAZIL:</b> University of São Paulo</li> <li>• <b>INDIA:</b> ICRISAT, ICAR, multiple universities</li> <li>• <b>PAKISTAN:</b> Multiple universities</li> <li>• <b>PUNJAB:</b> The Islamia University</li> <li>• <b>UNITED KINGDOM:</b> Sirius Minerals, PLC</li> </ul> |
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### Rex E. Kirksey Agricultural Science Center at Tucumcari

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**New Mexico State University  
 Agricultural Experiment Station System**