



Agricultural Experiment Station

College of Agricultural, Consumer and Environmental Sciences

NEW MEXICO STATE UNIVERSITY • aces.nmsu.edu/aes



MISSION: NMSU's Agricultural Experiment Station (AES) is the principal research unit of the College of Agricultural, Consumer and Environmental Sciences. The AES system supports fundamental and applied science and technology research to benefit New Mexico's citizens in the economic, social, and cultural aspects of agriculture, natural resource management, and family issues. The AES system consists of scientists who work on NMSU's main campus and at off-campus Agricultural Science Centers (ASCs) in **Alcalde, Artesia, Clayton, Clovis, Corona, Farmington, Las Cruces, Los Lunas, Mora, and Tucumcari.**

AES faculty are training the next generation of agricultural professionals, providing hands-on learning opportunities for high school, undergraduate and graduate students while addressing the needs of agricultural communities and families throughout the state. Most majors within the college of ACES are STEM-based, graduating **work-force ready students** with experience in highly-valued professions that help build our economy. The AES also delivers outreach to stakeholders and the public through field days and other events.

AES faculty conduct **innovative, collaborative, transdisciplinary research** projects that address current issues within the ACES Pillars for Economic and Community Development.

The Agricultural Experiment Station System

NMSU's Agricultural Experiment Station system maintains **research facilities statewide.** Our scientists develop research programs that address key needs identified by advisory boards and local stakeholders. These facilities, located across a wide range of geographic and environmental conditions, provide research results that sustain and support New Mexico's diverse environment, farms, ranches, forests, and rural and urban communities.

ACES Pillars for Economic and Community Development

Food and Fiber Production and Marketing

Water Use and Conservation

Family Development and Health of New Mexicans

Environmental Stewardship

Foundational Education and Training

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.

Selected Agricultural Experiment Station (AES) Impacts

Find more ACES impact stories at aces.nmsu.edu/impacts.



- NMSU researchers are investigating ways to **improve cattle performance** via fetal programming, in which dams are provided unique feeds to enhance how progeny develop during pregnancy. Results demonstrated that arginine supplemented during early pregnancy can increase the progeny's ability to gain weight during the winter months when forage quality is low and can improve longevity of these offspring.
- High tunnels offer **season extension for high-value specialty crops** and have been shown to reduce water usage. NMSU researchers developed an intercropping growing system of kale, spinach, and blackberries that provides farmers with high-value crops year-round.
- Using cover crops has many direct and indirect benefits, including **reduced soil erosion, improved soil quality, and enhanced soil water retention**. Recent studies show the annual benefit of reducing soil erosion alone can be worth more than \$20/acre. If 20% of the field crop growers in New Mexico planted cover crops, the benefit would be more than \$20 million/year.
- NMSU researchers explored the potential **fiscal impact that retirees** could have in New Mexico. The analysis showed that in five years, one retiree household would generate almost \$36,000 in new tax revenue, suggesting a retiree attraction program could have a significant impact on the state's budget.
- NMSU researchers are developing a sugarcane aphid management program based on biological control, cultural controls, and host plant resistance. Implementing the program **will improve yields and reduce pesticide use**, increasing profitability by \$4.6 million/year in New Mexico and \$20 million/year in adjacent Texas counties.
- NMSU researchers, in collaboration with the U.S. Forest Service, have developed new ponderosa pine seed transfer guidelines that incorporate genetics, morphology, physiology, and climate to maximize survival and growth while limiting issues with insects and diseases. These new seed zones are being used by both public and private organizations involved in **reforestation programs**.
- **Guar is a low-water-use crop**, and guar gum has many uses in the food, bioenergy, and gas and oil industries. The demand for gum has increased exponentially, and the U.S. imports \$1 billion worth of guar gum annually. NMSU researchers are developing guar for rainfed and limited irrigation conditions. This crop will provide a profitable alternative for growers and will help sustain the Ogallala Aquifer.
- Irrigated agriculture, food production, and drinking water compete for surface and groundwater resources. NMSU researchers collaborating with Elephant Butte Irrigation District developed groundwater-surface water ratio of application (GSRA) as a metric for system resilience, and found storage was more correlated with surface water than groundwater use. Resilience can now be determined for managed and natural systems, with GSRA being a novel planning metric to support **water sustainability**.
- Recreational hunting and fishing creates over 7,900 jobs and contributes over \$450 million to New Mexico's economy. NMSU researchers are estimating the density and abundance of black bears and mountain lions in the state. The NM Department of Game and Fish can use this information in setting harvest levels, thereby balancing the beneficial economic impact of this industry with **wildlife species conservation**.
- NMSU researchers have shown that leafy spurge, an **invasive rangeland weed** in New Mexico, can be managed without herbicides using a small flea beetle that eats only the weed. Studies show that flea beetles reduce weed densities by more than 95%.

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New Mexico State University is an equal opportunity/affirmative action employer and educator. NMSU and the U.S. Department of Agriculture cooperating.