



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.**

The AES system provides STEM-based, hands-on educational training opportunities for high school, undergraduate, and graduate students and delivers outreach to stakeholders and the public through field days and other events.

This expansion request is for operational funds to help maintain AES facilities at the off-campus ASCs. A 2012 study conducted by NMSU's Office of Facilities and Services estimated repair costs for six ASCs at over \$12 million. The remaining ASCs, not evaluated in this study, have similar needs. The AES's current operating budget for maintenance of ASC facilities is \$438,800, which includes a legislative increase of \$314,800 in FY20. This was the first increase in operations in 15 years. The cost of repairs continues to increase and the current operational funds remain insufficient to cover annual maintenance costs.

APPROPRIATIONS (recurring)

FY20 Actual:	\$14,948,600
FY21 Request:	\$15,198,600
\$ Change:	\$250,000

\$250,000 Project Request for Ag Science Centers

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 pregnant cows are provided unique feeds to enhance how fetuses develop during pregnancy. Results demonstrated that the amino acid arginine supplemented during early pregnancy can increase the fetus' ability to gain weight during the winter months when forage quality for the mother 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 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%.
- Horn flies are one of the key reasons for reduced weight gain in calves and are an important cause of economic loss cow-calf operations. Research conducted at NMSU shows **horn fly control** can increase weaning weight in New Mexico cattle by an average of ~30 lbs. Estimates based on recent market prices and the insecticide regimen employed during this study suggests ~\$11 return for every \$1 dollar spent on fly control.

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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.