

Agricultural science research is a global investment in protecting the future of our state. Agriculture in New Mexico accounts for approximately \$4 billion in direct sales and 42,000 jobs. Challenges to growers and ranchers are constant and evolving. Invasive pests, a decline in species diversity, pollinator health, resistance to pesticides, and limited water are needs that are being addressed by New Mexico State University's Agricultural Sciences Centers. The wide diversity of both growing conditions and cultures means solutions must be developed locally in conditions that reflect those faced by New Mexicans.

AGRICULTURAL SCIENCE CENTER AT FARMINGTON

The Agricultural Science Center (ASC) at Farmington was established in 1967 on 253 acres leased from the Navajo Nation to meet the needs of the San Juan Valley and Four Corners region. Research at the ASC has supported fundamental and applied science to benefit New Mexico for over 50 years, with a specific focus in working with the Navajo Indian Irrigation Project (NIIP/ Navajo Agricultural Products Industry (NAPI).

UNDERSTANDING THE NEED FOR RESEARCH

Over 100 acres are under cultivation for crop research. Long-term variety crop trials are necessary for the primary clientele of the center. Navajo Agricultural Products Industry (NAPI) is a \$50,000,000 operation producing major crops including alfalfa, corn, wheat, pinto beans, and potatoes. Variety trials for each of these crops form a long-term basis of evaluations. Seed companies submit entries for testing at the ASC and NAPI uses data from these for procurement decisions. Farmers in the San Juan valley rely on variety trial data to make informed decisions, specifically for alfalfa which remains the predominant economic crop grown in San Juan County.



HISTORY OF RESEARCH

While crop research remains fundamental at the ASC, other areas of research include:

Evolving Irrigation Infrastructure

Irrigation has evolved from flood irrigation/solid set sprinkler/side roll irrigation at inception, to drip irrigation and advanced center pivots that can be controlled remotely with smart-phones.

Potato Farming

The ASC Farmington is the beneficiary of research contracts through Potato USA, the governing body of the US potato industry. Long-term potato variety trials at the ASC are examining yield, tuber size consistency, color, disease resistance, storability under northwest New Mexico soil and climate, all within current market trends of a multi-billion-dollar snack food industry.

Diabetes Rates among the Navajo are among the highest in the U.S.

This ASC is positioned to inform public health policy through a multi-discipline (ASC Farmington and University of Washington School of Public Health/Diné College) rigorous evaluation of the transects of horticulture and public health. The Navajo Nation continues to see double the rates of diabetes as non-Navajo counterparts in part to poor diet and lack of access to healthy foods. Interest in small-scale farming (back-yard, school and community gardens) is present on the Navajo Nation, and the ASC frequently receives requests for technical assistance.

High-Value Crops

Specialty crops that farmers might incorporate as value-added, New Mexico hemp branded products are being evaluated. This would include wine and table grapes, hops, medicinal herbs, specialty small grains and organic blue corn for high-end restaurants, bakeries, and niche markets. Researchers are collaborating with the NMSU Extension viticulturist. Farms < 49 acres total 1,674. Farmers' markets grossed around \$250,000.

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

RESEARCH IMPACTS:

- With the 2017 addition of Dr. Koffi Djaman, the ASC has expanded their crop evaluations to focus on improving soil and crop management practices and utilizing variable-rate center-pivot and drip irrigation technologies that enhance efficiency, profitability, and environmental quality in the face of increasing water limitations and climate change.
- The outreach research on the Navajo Nation is increasing the number of community and backyard gardens and shows the potential for modest increases of healthy foods in the diet. The prevalence of diabetes among the American Indian and Alaska Native populations (15.9%) is more than double the rates of the non-Hispanic/Caucasian population (7.6%; National Diabetes Statistics Report, 2014).
- We were among the first to respond in evaluating and monitoring the impacts of the 2015 Gold King Mine spill into the Animas River. We are continuing to reach out to local farmers and the Navajo Nation through soil, irrigation ditch, and water quality monitoring. Our dissemination of data is helping farmers to make informed decisions and raising awareness of the potential impacts from upstream legacy mining in the Silverton Caldera.



UNIQUE CHARACTERISTICS

- The NMSU-ASC Farmington has been conducting applied research relevant to the Four Corners Region/Northwest NM for 50 years on land leased from the Navajo Nation. The ASC-Farmington is perhaps the only 1862 land-grant to work directly on sovereign First Nations land.
- The farmland at the ASC Farmington is uniquely positioned in the Four Corners Region, with many small scale farms and large scale farming with the NAPI, meaning research needs to apply to both extremes.
- The ASC Farmington has received requests for assistance from stakeholders regarding industrial hemp. In 2020, a researcher will be hired with a focus on evaluating hemp crops in New Mexico. Hemp can be used in a variety of markets including food, fiber and health products.

Agricultural Science Center at Farmington

New Mexico State University
300 Road 4063
Farmington, NM 87401
Phone: (505) 960-7757
Fax: (505) 960-5246

Email: klombard@nmsu.edu

Web: <http://farmingtonsc.nmsu.edu>

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