Agricultural Experiment Station
Agricultural Science Center at Los Lunas

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MISSION

The mission of the Agricultural Science Center at Los Lunas is to conduct research on various crops and plant-based systems important to New Mexicans in the Middle Rio Grande Valley (MRGV) and throughout New Mexico. Through a cooperative agreement with the USDA-Natural Resources Conservation Science Los Lunas Plant Materials Center (PMC), the Los Lunas ASC and PMC work together to solve agricultural and conservation issues.

The Los Lunas ASC shares a unique cooperative agreement with the USDA-NRCS Plant Materials Center; both units are housed within the same facility and grounds.

Located on 200+ irrigated acres, four miles south of Los Lunas, the ASC evaluates crop adaptability, performance, and related cultural practices such as irrigation, pest management, plant growth, and propagation techniques. Having a research center centrally located within the state, near the largest metropolitan area, is a major asset and allows for broad rural and urban stakeholder service. Research and demonstration crops include alfalfa and other forage crops, beans, chile, cover crops, fruit trees, wine and table grapes, guar, tomatoes, ornamental landscape plants, and others.

The Los Lunas ASC was instrumental in the testing of mechanical green chile harvesting research, along with the release of the 'NuMex Odyssey' chile pepper.

The Los Lunas Plant Materials Center has released 31 grasses, forbs, shrubs and trees for conservation use.

Value Added to New Mexico

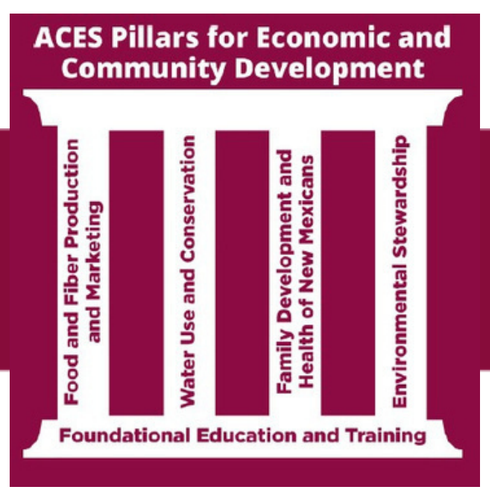
- Hay
- Urban Agriculture and Landscapes
- Alternating Crops

Ongoing Research

- Research is investigating the use of allelopathic cover crops for pest suppression in chile pepper. This is a multi-year evaluation of ecological techniques for suppressing weeds and soil-borne pathogens. Specifically, this project is evaluating winter cover crops, barley, and mustard, for green manures that suppress pests in subsequent chile pepper crops. The end goals are improved yields, reduced pesticide use in chile pepper production, and increased use of winter cover crops, which will enhance agroecosystem biodiversity and promote soil conservation across chile-growing regions in New Mexico.

- Investigations of various cover crop options (e.g., cowpea, corn, sorghum, millet, and sunflower) alone or in combination for improving soil health parameters and forage production capability on sandy soils. New Mexico soils are largely depleted of organic matter and nutrients necessary for sustainable and profitable crop production. Cover crops have the ability to improve overall soil health, and can be utilized for forage purposes prior to the primary cash crop. Finding a crop that provides a balance of soil- improving qualities and adequate forage yield and quality can maximize soil health efforts in the state while giving producers an acceptable alternative for profitability.

- Evaluation of new hybrid table grape and jujube cultivars is ongoing and will provide valuable information for support of local production of these alternative crops while improving diet options.



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.

- Tomatoes are the most popular garden vegetable, yet each year many die from curly top virus and environmental stress. Researchers at the ASC are studying strategies for alleviating stress and reducing fatality rates in an effort to increase production and improve the gardening experience. Studies like these can be used to grab public attention, share sustainable methods, and, ultimately, improve agricultural literacy in the urban sector. In 2021, tomato study volunteers helped harvest 5,444 lbs. of tomatoes and our 2022 goal is to surpass 6,000 lbs. before the first frost.

Recent Impacts

- Research has demonstrated positive urban landscape management effects on soil quality and carbon sequestration with select species of climate-ready trees, shrubs, vines, pollinator species, and a variety of landscape mulches. Educational events in the ASC Learning Garden have improved awareness of water-conserving mechanisms used in landscapes, while increasing ecosystem services.

- The Los Lunas ASC was instrumental in the development of a chile cultivar and testing of the mechanical harvesting system of green chiles. ‘NuMex Odyssey’ was released recently, and this cultivar possesses traditional New Mexican green chile pepper flavor, low heat, and provides a higher percentage of mechanically harvested marketable green chile fruit without mechanical damage compared to current, standard industry NM type green chile pepper cultivars. Much of the machine efficiency and plant architecture evaluations were conducted at the Los Lunas ASC. A seed increase was conducted at the ASC in an isolated field to produce breeder seed for the new ‘NuMex Odyssey’ release. In addition, genome- wide association mapping is being implemented to dissect the genetic basis of mechanical harvesting traits, including traits related to ideal plant architecture such as plant height, plant width, number of basal branches, and height to first bifurcation.

- Forage programs improve regional production by increasing awareness of hay and pasture species and variety selection, water management, and alternative crop and high-value forage marketing opportunities. University variety trials have shown that there is an average 25% higher yield associated with improved varieties, which translates into as much as $115M additional annual earnings statewide if superior crop varieties are selected over the trial mean.

Community Outreach

The Los Lunas ASC hosts multiple Extension and Outreach events each year. These include several horticultural and fruit educational workshops, forage and chile field days, as well as a large array of online workshops and webinars. A large field day and open house is hosted every other year, where the community is invited to see all of the research projects being conducted at the station. Faculty and staff respond to hundreds of stakeholder requests for information each year via phone calls, emails, office walk-ins, and site visits, including from surrounding states and internationally.

The Los Lunas ASC hosts twice-weekly Outreach workdays for volunteers to help with various horticultural efforts at the center, like fruit tree pruning in winter, maintaining experimental tomato plots and data collection in summer, and perpetual weeding. Events like these provide an opportunity for community participants to learn the basics of plant care and accumulate volunteer service hours (totaling over 650 hours between June 2021 and July 2022, valued at over $19,000 in equivalent wages), while contributing to the maintenance needs of the ASC and expanding opportunities for future Extension workshops and research.

The NMSU Los Lunas Ag Science Center Learning Garden serves as a convenient site for visitors to the station to learn about sustainable gardening and landscaping practices, integrated pest management, and pollinator ecosystem services. The garden is truly a place for ‘cultivating’ educational experiences.

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