

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 ALCALDE

Comprised of 60 acres in north-central New Mexico the Sustainable Agriculture Science Center at Alcalde (SASC) was founded in 1952 with a mission to conduct agricultural and natural resource research to benefit small family farms and ranches.

### UNDERSTANDING THE NEED FOR RESEARCH

North-central New Mexico is home to many small-scale, independent farmers and ranchers who rely on direct marketing of agricultural products. Being in New Mexico's semiarid climate with increasing water challenges threatens the local economy. Research at the SASC is vital to the continuance of the agricultural industry in this area.

### HISTORY OF RESEARCH

The SASC at Alcalde has a history of innovative research, responding to changing times and continual developments in technology. Specific projects in response to stakeholder requests have focused on these areas over the years:

#### *Fruit Production*

North-central NM has traditionally been a major contributor for tree fruit production, including apples, peaches, cherries, and plums. Due to the semiarid climate, these crops are often lost due to late frosts that destroy budding flowers or fruitlets. In response, researchers focused on alternative fruit crops such as berry varieties, grapes, and jujubes that flower later. Jujubes, a new crop to most growers in the U.S., offer a lot of potential to NM crop producers. Ongoing research for jujubes includes determining appropriate varieties and market development.

#### *High Tunnel Production*

A continued research area for the past 20 years has focused on high tunnel production. This was in response to stakeholders' desire to focus on year-round vegetable production. High tunnel production has focused on winter greens (value of local greens can double in winter/off-season) and early production, which brings high value, and overall higher yields (blackberry, cucumber, and tomato), and for protection against late freezes (apricot, cherries, and peaches).

#### *Acequia Hydrology*

Being in the heart of acequia country and given the importance and future of water challenges in New Mexico, the SASC has collaborated with water resource specialists and hydrologists to carry out hydrology research. Based on important data collected on how acequia systems influence surface water-groundwater interactions in the upper Rio Grande region, the New Mexico Acequia Association passed a resolution recommending NMSU hire a water specialist to be located at SASC-Alcalde.



## RESEARCH IMPACTS

- The SASC at Alcalde implemented studies under certified organic management, including organic codling moth control in apples, peach cultivar evaluation, sweet and tart cherry cultivar evaluation, plum cultivar evaluation, wine grape soil management, table grape cultivar evaluation, bramble cultivar evaluation, and native medicinal herb production. Based on this research, several local growers have begun to grow and sell organic strawberries through high-value markets, grossing the equivalent of up to \$40,000 per acre.
- Research indicates that many acequia irrigation systems provide benefits such as recharging the local aquifer where water is stored in the short term to be released to streams later in the year. This storage and release function may save water on a regional basis by reducing evapotranspiration losses.
- The fruit industry in New Mexico is threatened by late frosts each year. Jujube can avoid late frosts and produce a reliable crop annually. With annual workshops, field days, and coverage in various media, hundreds of home gardeners have planted jujubes in their backyards and fruit growers have started to plant them commercially in New Mexico.
- In 2002, the first organically certified research acres at NMSU were established at SASC to assist fruit, medicinal herb, and specialty crop growers interested in producing and marketing organically.



## UNIQUE CHARACTERISTICS

- The SASC at Alcalde is the first center that carried out some of its research on certified organic land. Organic production and consumer interest in organic food continues to grow nationwide. A large number of producers and consumers in north-central New Mexico are especially interested in growing and/or eating organic food.
- A unique Extension program, Rural Agricultural Improvement & Public Affairs Project (RAIPAP), is headquartered at the SASC. An important emphasis of RAIPAP is to serve small-scale and socially disadvantaged farmers and ranchers of the 13-county area of north-central/northern New Mexico.

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