Leyendecker Plant Science Center

leyendeckersc.nmsu.edu • 575-646-2281

Mission Statement

The mission of the Leyendecker Plant Science Research Center and the Fabian Garcia Science Center is to improve the lives of New Mexicans, the nation, and the world through research, teaching, and Extension. The Leyendecker Plant Science Research Center serves as the outdoor agronomic laboratory for researchers located on the NMSU main campus in Las Cruces.

Accommodate the field research needs of Las Cruces- based researchers.

Early evaluation of breeding and genetic studies for chile pepper varieties use the facilities at the Leyendecker Plant Science Research Center and the Fabian Garcia Research Center.

The Seed Certification and Noxious Weed Free Program (SCNWFP) is located at the Leyendecker PSRC.

CENTER INFORMATION

Leyendecker headquarters was purchased by the University in 1969 and consists of 203.00 acres. Projects occurring at the Leyendecker Plant Science Center include: cotton, chile, alfalfa and onion plant breeding, precision farming, pecan research, drip irrigation research, and a multitude of other projects and programs.

OUTREACH ACTIVITIES

Due to COVID-19 restrictions, outreach activities were suspended in 2020. Leyendecker Plant Science Research Center Farm Manager Dave Lowry created a Zoom presentation for second graders in California regarding agriculture and the efforts of the Leyendecker PSRC.

Under New Mexico State guidelines, the 2021 Annual Field Day will be hosted on the Leyendecker PSRC site on August 25th.

ONGOING RESEARCH

- We are evaluating the efficacy of biorational approaches on reducing soilborne diseases. Specifically, we are examining the effects of seed, soil, and plant treatment with microbial and biochemical formulations on the incidence and severity of soilborne diseases of chile pepper. Additionally, we are exploring the feasibility of using jalapeño for genetic soil disinfestation, that is to “clean up” the soil, thereby reducing the populations of chile wilt pathogens in soil. To this end, we are screening several jalapeño cultivars for resistance to Phytophthora blight. Research is conducted in both field plots and microplot pots.

- To find alternative ways to manage the late frost issue that challenges the fruit industry in New Mexico, we are testing jujube cultivar performance at different locations in New Mexico and recommend cultivars to growers in each location. Leyendecker PSRC is one of three jujube cultivar trial sites.

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.

2021 Impacts

Soilborne Disease Research Program

- The Soilborne Disease Research Program, alone and through collaborative work, published five peer-reviewed articles, providing New Mexico agricultural producers and industries with information on the use of microbial formulations, bioactive crop residues, resistant cultivars, and cover crops in managing pests and pathogens, and improving soil health. Other impacted target audience includes research scientists, graduate and undergraduate students, and K-12 educators. The impact of the Soilborne Disease Research Program was noted with awarding of new research funding. A milestone was the $450,000 award received as part of a $912,000 grant awarded to Texas AM AgriLife through Texas Department of Agriculture.

- Crops such as chile, onion, peanut, cucurbits, alfalfa, and cotton generate annually more than $200 millions dollars to the state of New Mexico. Currently, production is significantly reduced by soilborne diseases such as Phytophthora blight, Verticillium wilt, and bacterial leaf spot on chile pepper; Verticillium wilt and rust on cotton, bulb basal rot, pink root, and black mold on onion; Sclerotinia blight and pod rot on peanut; and bacterial wilt on cucurbits. These soilborne diseases can wipe out crops and reduce yield up to 100%, therefore limiting monetary returns to producers and revenues to New Mexico.


NM 6-4


TAM Jalapeño


NuMex Jalmundo


NuMex Vaquero


NuMex Pumpkin Spice


NuMex Orange Spice


Early Jalapeño


CM-334

Additional Research

- Beet curly top curtovirus (BCTV), which is transmitted by the beet leafhopper, causes losses in New Mexico to chile, tomatoes, and occasionally melons. Our work has demonstrated the very high level of variability and recombination found in curtoviruses compared to other plant viruses and showed that the variability does not appear to be associated with a single plant host. The research activities at Leyendecker Plant Science Center are part of a long-term (20 years) project to monitor beet leafhopper's presence around chile fields. Data from 2019 and 2020 will be included in a paper that characterizes patterns in leafhopper activities at Leyendecker.

- We are monitoring the level of resistance to Bt genes and developing alternative tools for controlling lepidopterous pests. Results from field trials in 2020 indicate that bollworm mortality is often higher in okra leaf vs standard cotton varieties. Data collected throughout the season indicated an average of 70% control from desiccation vs 45% in the standard cotton leaf variety a 55% increase.

Leyendecker Plant Science Center
New Mexico State University
7200 Plant Science Circle, Las Cruces, N.M. 88003
Phone: 575-646-2281
Email: **lyendeck@nmsu.edu**
Web: **leyendeckersc.nmsu.edu**
New Mexico State University Agricultural Experiment Station