

Pecan Rootstock Selection for Saline Areas

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BACKGROUND

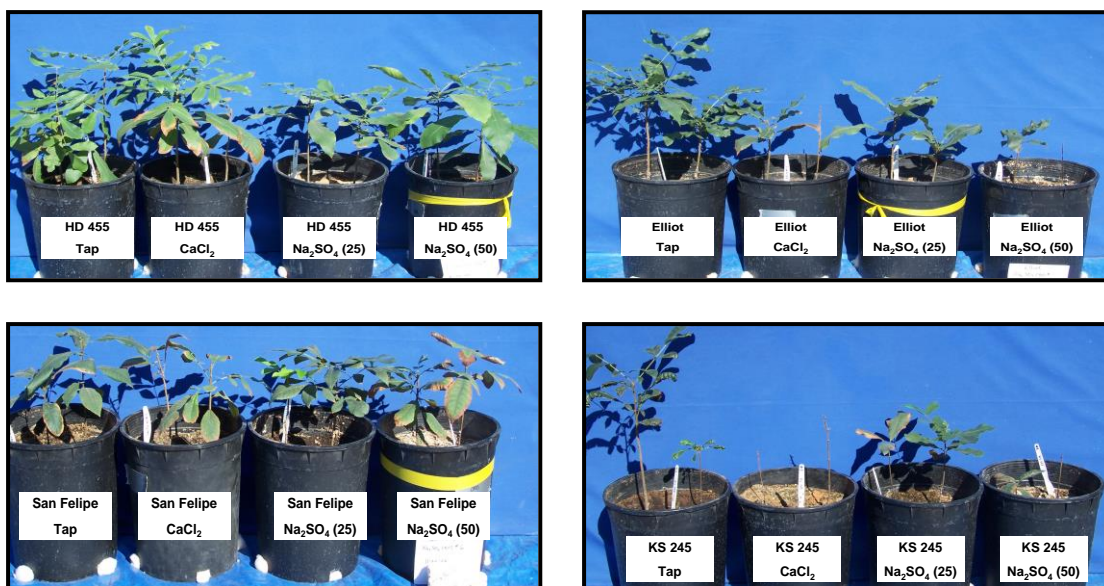
Pecan is the most valuable native nut crop in Texas, and is the number one crop in the El Paso County as well as in several adjacent counties in New Mexico. The climate of this region is well suited for growing pecans with little incidences of disease. However, pecan is among the most salt-sensitive crop currently grown, and salinity presents a serious constraint for production. The purpose of this long-term project is to select salt tolerant rootstock in cooperation with the Pecan Genetic Improvement Program of USDA-ARS.

OBJECTIVES

Our previous study has shown that pecan trees are most sensitive to sodium (Na) and Chloride (Cl) ions. Sodium ions damage roots, and Chloride ions cause leaf injuries. Development of rootstock which can tolerate higher soil salinity should help sustain pecan production in salt-affected areas. We are currently screening 17 rootstock accessions from USDA Genetic Resources collected from various parts of the US and Mexico.

RESULTS AND BENEFITS EXPECTED

We are seeing a significant growth rate difference among the tested accessions. Accessions which have a higher growth rate may prove to be a rootstock suitable for Na-affected areas. In Cl-affected areas, this trait is also desirable, but the extent of Cl uptake may affect its suitability as a rootstock. This research is at an emerging state, and the experiment involving nut-bearing trees is yet to be performed along with chloride sensitivity of nut-production cultivars.



Preliminary results indicate HD455 is tolerant to both Na⁺ and Cl⁻ ions.