

Seed Germination Responses to Varying Levels of Salinity

LeeRoy Rock, John Lloyd-Reilley and Shad D. Nelson

In order to solve erosion problems and increase productivity on saline impacted range sites in South Texas, it is critical to know the tolerance of plant species to varying levels of salt. Soluble salts such as sodium ions (Na^+) delay seed germination by decreasing the soil water potential, or cause salt ion entry to the seed embryo causing toxicity. The objective of this study is to evaluate the seed germination responses of both Texas native and introduced grasses and forbs to varying levels of salinity.

A Hoffman germination chamber was used to test twenty one species of grasses and forbs. These plants were selected to determine germination potential under salinity stress using solutions of sodium chloride at electrical conductivity (E.C.) levels of 0, 5, 10, 20, and 30 dS/m. Seeds were tested at temperatures ranging from 60°F to 86°F. Light conditions alternated between 12 hours each of light and dark. Percent live seed from each seed source was determined by tetrazolium chloride testing.

The percent of seed germination observed over 28 days varied among seed species, salinity treatment, and temperature. Statistical analysis will be conducted on the results of these tests to determine treatment significance. Results from this study will provide important information on seed germination characteristics, which should improve revegetation efforts on saline impacted sites of South Texas.

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