The influence of Salinity on Bermudagrass Cold Tolerance. (C05-munshaw210535-Poster)

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Abstract:

Winterkill of seeded bermudagrass continues to be a problem in the transition zone of the United States. Research in other species has found that moderate salinity stress can increase cold hardiness. A glasshouse study was conducted to determine the effect of salinity treatments on increasing the cold hardiness of bermudagrass. 'Princess' was established in pots and allowed to reach full cover. Pots were watered with four salinity (NaCl) treatments (0, 5, 20, and 40 dS/m) for 8 weeks and plants were then subjected to an artificial acclimation period for two additional weeks. Quality ratings and chlorophyll fluorescence measurements were taken weekly during the experiment. Electrical conductivity of the soil was measured prior to the start of treatments as well as at the end. Cellular proline levels were analyzed before the start of treatments and after acclimation as a correlative measure of cold tolerance. Preliminary results show an increase in leaf proline concentration with increasing salinity level. However, a reduction in turfgrass quality occurs at the highest rate of salinity (40 dS/m). Artificial freeze tests will be conducted with regrowth occurring in the glasshouse.

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