

In the spring of 1985, a specialized greenhouse heat bench was utilized to select 196 clones with heat tolerance from a population of approximately 20,000 plants of 'Seaside' bentgrass. A root growth characterization study was initiated in mid-summer 1985 to examine the inherent genetic variation within the germplasm pool and to identify unique rooting characters which may be associated with plants selected for heat tolerance from the heat bench. Twenty clones were randomly selected from the elite vegetative material and Seaside selections are included in this study.

TEXAS A&M UNIVERSITY - Dr. Garald L. Horst,  
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Developing Salt, Drought, and Heat  
Resistant Turfgrasses for Minimal  
Maintenance

1985 Grant - \$15,000 (Second year  
of support)

Research Accomplished

1. Development of a new technique for growth and development evaluation of multiple germ plasm entries grown under salt stress conditions.
2. Reception and increase of 75 Buffalograsses, 40 St. Augustinegrasses, 3 Paspalums, and 65 Zoysiagrasses.

Current Research

1. Vegetative material of 29 Buffalograss and 37 St. Augustinegrass germ plasm are being evaluated for salt resistance.
2. Methods for evaluating zoysiagrass vegetative material are currently being investigated.

Research Planned 1985/1986

1. Complete evaluation of St. Augustinegrass germ plasm. (Feb. 1986)
2. Complete initial evaluation of buffalograss germ plasm. (May, 1986)
3. Continue accumulation of buffalograss germ plasm and expand cooperation with the University of Nebraska program.
4. Initiate zoysiagrass evaluation. (January, 1986)

5. Begin accumulation of bentgrass and bermudagrass germ plasm and expand cooperation with New Mexico State University and Oklahoma State University programs.
6. Investigate methods for further greenhouse and field evaluations on germ plasm which exhibited reasonable salt resistance.

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Evaluating Turfgrass Response  
to Water Stress - Osmotic  
Adjustment in Kentucky  
Bluegrass

1985 Grant - \$1,000 (Second  
and last year of support)

A temperature controlled hydroponic system has been developed for culture of turfgrass for physiological studies. The rate of water stress development is controlled using polyethylene glycol in nutrient solutions. A technique using a combination of pressure-volume and moisture release curves is used to evaluate turfgrass response to water stress.

This study is concerned with the fundamental issue of identifying plant factors at the tissue or single plant level rather than those at a turfgrass populate or sward level. For example, it is concerned with stomatal control, cuticular resistance to water loss, and turgor maintenance by osmotic adjustment in response to drought; while shoot density, canopy resistance to water loss and rooting behavior represent plant factors at the sward level.