

Attempts to produce single cross hybrids between individual zoysiagrass accessions were unsuccessful thus far. Several crossing techniques will be evaluated during the next year. A growth chamber constructed during the last year was useful in initiating plants to flower. Open-pollinated seedlings from 1983 and 1984 were planted to the field in Summer 1985. Eighty six families (i.e., the maternal parent and its open-pollinated offspring) were established in a replicated field trial to study the level of genetic variation for major agronomic characters, and provide accurate estimates of heritability. Such information is essential in determining the most effective breeding method to employ in cultivar development.

Forty cultivars were evaluated for sod strength and rate of regrowth after sod harvest. Three accessions have outstanding rhizome regrowth potential. These accessions and other cultivars will be planted into a new variety trial in Spring, 1986. A seed production trial was also initiated in August 1985 to help determine the potential for a seeded zoysiagrass variety.

TEXAS A&M UNIVERSITY - Dr. M. C. Engelke  
Principal Investigator  
Research & Extension Center,  
Dallas, TX

Breeding and Development of  
Bentgrass

1985 Grant - \$40,000 (First year of support; \$20,000 contributed by Bentgrass Research Inc. of Fort Worth, Texas)

Susceptibility to heat stress limits use of bentgrass for high quality playing surfaces in the Southern and Central United States. In the fall of 1981, a group of individuals in the north Texas area interested in bentgrass established a fund-raising organization named Bentgrass Research, Inc., to support bentgrass research at TAES-Dallas. In October 1982, a 3600 square foot sand green was constructed by this group for research purposes. In April, 1984, the United States Golf Association, Bentgrass Research, Inc., and the Texas Agricultural Experiment Station joined in a concerted effort for the "Breeding and Development of Bentgrass". A limited collection of bentgrass germplasm had been assembled at TAES-Dallas over the previous four years. Most notably were individual plants which had survived naturally under Southern climatic extremes, often in direct competition with other species such as bermudagrass. In total as of November 1985, over 200 vegetative accessions from two countries and five states, 129 seeded accessions from nine countries, and five commercial varieties were included in the collection.

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,  
Principal Investigator  
Agricultural Experiment Station,  
El Paso, TX

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)