

disease incidence was found between treatments of 4 and 8 lbs K/1000 ft²/ season. These results indicate a strong potential to reduce maintenance cost by manipulating irrigation frequency and potassium nutrition, particularly on sand growing media.

The interaction of turfgrass species root growth and distribution was investigated under drought stress conditions. Species were eliminated when root growth ceased and permanent wilt symptoms were expressed. Tall fescue, creeping red fescue, perennial ryegrass and creeping bentgrass produced roots to 1220 mm to 1520 mm. Rough bluegrass ranked intermediate in root production, but wilted very early in the drought stress cycle since approximately 50% of its rooting was in the upper 0 to 150 mm of the profile. Sixteen Kentucky bluegrasses were investigated for intraspecific responses in root growth and distribution, top growth, and amount of root growth supporting top growth. Cultivars were found to vary by as much as 50% to 56% in these characteristics. Ram I, Touchdown and Eclipse had high percentages of root growth supporting top growth.

Potassium nutrition studies on creeping bentgrass and Kentucky bluegrass demonstrated that drought avoidance characteristics increased with K nutrition. Wilting tendency decreased as K nutrition was increased from 0 to 8 lbs K/1000ft². Turfgrass wear tolerance increased with increasing K rates.

Studies were initiated in the JSA Turfgrass Rhizotron to investigate growing media and microenvironment. An ERDAS system was purchased to be used as a means to quantitate turfgrass root growth in the rhizotron and in other rooting studies. An additional 10,000 ft² of creeping bentgrass green area was established for research purposes. This additional green brings the total area to approximately 56,000 ft². A creeping bentgrass cultivar study was initiated September, 1986. Plots were designed to incorporate cultural practice on the replicated cultivar study.

NEW MEXICO STATE UNIVERSITY - Dr. Arden A. Baltensperger
Principal Investigator

Breeding Improved Seeded
Bermudagrass for Turf

1986 Grant - \$20,000 [third
year of support]

Partially as a result of findings from two Ph.D. studies, approximately 22,000 progenies were established in the greenhouse in the spring of 1986. These plants were subsequently selected for turf quality characteristics in both the greenhouse and field. An attempt is being made to improve several experimental strains for turf quality seed yield.

Five experimental seeded strains from the New Mexico State University breeding program were entered in a National Bermudagrass Test administered from Beltsville, Maryland. These tests were established in many states in the South and along the transition zone. Results from those tests will be valuable to the breeding program in indicating breeding progress and in determining where continued selection pressure is needed.

NORTH CAROLINA STATE UNIVERSITY - Dr. Leon T. Lucas
Principal Investigator

Spring Dead Spot Disease

1986 Grant - \$10,000 [second year of three year study solely supported by contributions from Mr. Hall Thompson, Shoal Creek, Alabama]

A post doctorate position was accepted in August, 1986 by Dr. Bert McCarty to intensify investigations in this research project. Since that time, fungicide and fertility evaluation for Spring Dead Spot control has been undertaken. Three sites in the southeastern United States have been treated with several fungicides and fertilization sources for potential disease control. Disease control evaluation will be made in the spring of 1987.

Fungicide/fertility evaluation on increasing low temperature hardiness of Tifway bermudagrass is also underway. Several fungicides and fertilization sources have been applied to Tifway bermudagrass. Plugs will be extracted from these areas during the fall, winter, and spring, and subjected to artificially induced cold temperatures to determine treatment effects on bermudagrass winter hardiness.

Isolation of the Spring Dead Spot causal organism[s] is planned. Several selected media and baiting techniques are currently being used to try and isolate the SDS causal organism[s]. Isolation attempts will be during the fall and winter, 1986 as well as spring, 1987.

OHIO STATE UNIVERSITY - Dr. Karl Danneberger
Principal Investigator

Mechanisms for Heat Tolerance
in Annual Bluegrass

1986 Grant - \$15,000
[first year of support]

Twenty-five Poa annua biotypes collected from the continental United States were screened for high temperature tolerance. A 12°C difference