

TEXAS A&M UNIVERSITY [DALLAS] - Dr. M. C. Engelke, Principal Investigator

Zoysiagrass Breeding

1984 Grant - \$42,585 (started May, 1984)

This project was undertaken in May, 1984 and will require a minimum of five years before any evidence of success or tangible results should be anticipated. Over 900 introductions and domestic zoysiagrass accessions have been assembled and established in both greenhouse pots and space planted field nurseries.

The Oriental collection (supported by USGA funds) has been held in deep quarantine, isolated greenhouse conditions for two years pending identification of a yet unknown abnormality. Through cooperative efforts with many investigators, no one has been able to isolate, inoculate, identify or transmit the causal agent of abnormality. Symptoms have not been observed on any plant material over the past 13 months.

All Oriental accessions have now been planted to field plots. They will be evaluated as to growth habit, growth rate, reproductive characteristics, seasonal color, hardiness under moisture and temperature stress, and disease and insect resistance. Special attention is being given to morphological and anatomical characteristics which will aid in taxonomic identification of the different species.

Screening for genetic tolerance of high soil temperature and low moisture conditions was begun in July, 1984 under greenhouse conditions.

In 1985, the zoysia study will include multiple character analysis and chromosome studies in accessions; response to high soil temperature and low moisture stress; evaluate variability in agronomic and morphological traits, reproductive characteristics (i.e., sod, sprig, seed), turf quality and adaptability; cytological assessment of the meiotic stability of inter-specific hybrids within the zoysia genus.

WASHINGTON STATE UNIVERSITY - Drs. J. L. Nus, S. E. Brauen, R. L. Goss,
Principal Investigators

Osmotic Adjustment in Kentucky Bluegrass

1984 Grant \$1000 - (started June 1, 1984)

This is the first of a two-year study to determine A) whether enough variability exists between Poa pratensis (Ky. bluegrass) cultivars to allow osmotic adjustment to be used as a selection criterion for drought tolerance and, B) to establish a relationship between water use requirements and ability to osmotically adjust to water stress in Poa pratensis.

In order to accurately induce water stress, nutrient pan solutions containing polyethylene glycol, under close ($\pm 0.5^{\circ}\text{C}$) temperature control, are being used. Eighteen Kentucky bluegrass cultivars, having a known broad range of water use requirements, have been established in floating pots in the greenhouse. Equipment to measure leaf moisture release curves has been acquired and preliminary results indicate the system and methods are sound. Water stress treatments have now been initiated using progressively more concentrated polyethylene glycol nutrient solutions.