

TEXAS A&M UNIVERSITY

Breeding and Development of Zoysiagrass

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(Eighth year of support)

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The purpose of this project is to develop zoysiagrasses which are better adapted to natural environmental conditions. This year, 1991, marks the initiation of an extensive national testing program for zoysiagrasses through the National Turfgrass Evaluation Program (NTEP). Material of 24 unique experimental and commercial cultivars were vegetatively increased and distributed to 39 locations throughout the United States, extending from Tangent, OR to Kingston, RI to Riverside, CA and West Palm Beach, FL. The USGA/TAES zoysiagrass breeding program has nine elite entries in this trial. These entries range in texture from rather broad leaved aggressive *Zoysia japonica* types to fine texture, highly rhizomatous *Z. matrella* types. These elite lines were selected for a combination of characters related to survival and turf quality under natural environmental conditions. Specific emphasis was placed on low water-use, competitive ability against weed invasion, recovery from injury, low fertility, and production characters. The nine entries are all vegetative. Numerous hybrids have been produced which show seed production potential and will be included in the next cycle of NTEP evaluations.

Extensive field plantings have been made in Georgia, Florida and Texas using a 'near-release' elite variety to evaluate its performance in these environments, as well as to assess performance under shaded tees and putting green conditions. All areas were solid sodded in July-August 1991.

A cooperative project was initiated with Dr. Bob Carrow to examine water use and fertility requirements of selected zoysiagrasses under Georgia conditions. This study, in combination with performance data from the NTEP, will add substantially to the understanding of varietal adaptation in other regions of the country.

The Linear Gradient Irrigation System study with 26 zoysiagrasses was terminated after 5 years of testing. The area will be excavated, fumigated and reestablished to larger plot areas of the most promising lines from the project. Future studies will enable us to evaluate the nutritional and mowing response of the new varieties under a water-gradient. To date, this information is lacking. In order to lower the water required by zoysiagrass, it is imperative to understand how the associated cultural practices must be altered, i.e. fertility, mowing, aerification, etc., to maximize turf performance.