

UNIVERSITY OF GEORGIA

**Zoysiagrass Performance, Water Use, and Rooting as Affected
by Traffic and Nitrogen**

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Zoysiagrass (*Zoysia japonica*) is a deep rooted, drought resistant species in many areas of the United States, especially the transition zone. Due to considerable genetic diversity among ecotypes, zoysiagrass has been targeted by the USGA as a species that could be developed through breeding/genetics to exhibit low water use, high drought avoidance and high drought tolerance.

Areas requiring special attention for developing a water conserving zoysiagrass are: 1) have moderate to low ET rates under both non-limited and limited soil moisture, 2) develop and maintain a deep, viable root system under the major soil stresses of high soil strength and high acidity, and 3) have good to excellent drought tolerance when tissues are subjected to drying. Objectives of the current study were to evaluate nine zoysiagrass experimentals from the Texas A&M University (Dr. Milt Engelke) zoysiagrass breeding program versus three commercial cultivars for:

- a) ET, spatial rooting/water extraction patterns, and drought avoidance/tolerance responses
- b) basic cultural requirements (fertility, disease, insect, traffic tolerance)
- c) determination the stability of these grasses to environment, disease, and insect pressures.

Grasses were plugged at 12 inch centers on 8 through 12 July 1991 from plugs provided by Dr. Milt Engelke. Fertilization was monthly with 10-10-10 analysis at 1.0 lb nitrogen per 1000 square feet from July through September. Mowing was at 1.0 inch with clippings returned. Ronstar® 2G was applied after plugging at a rate of 1.75 lbs ai/acre for preemergence annual grass control.

To date, zoysiagrasses demonstrating the most rapid establishment are El Toro, DALZ 8514 and DALZ 8512, while those slowest to cover were DALZ 8502 and DALZ 8516. All grasses had good genetic color, but the darkest green were DALZ 8516, 8508, 9006 and 8502. Narrowest leaf texture (about 2.0 mm) was exhibited by DALZ 8502, 9006, 8507 and 8508, while widest (5.0 mm) were DALZ 8512, 8514, and El Toro. While not a part of the original project, Dr. Kris Braman is determining the resistance of these cultivars to mole cricket and white grub injury.