Seeded Bermudagrass Performance, Water Use, and Rooting as Affected by Traffic and Nitrogen

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Goals:

- ET, drought resistance, rooting/water extraction patterns and shoot responses will be determined under field conditions.
- Basic cultural programs (fertility, disease/insect, traffic tolerance) will be defined.
- Determine environmental stability of these grasses with respect to environment, disease, and insect pressures.

The turfgrass breeding programs are developing grasses with high drought resistance, including low evaportranspiration (ET). The development of basic cultural programs and adaptation data on new turfgrasses is needed before they are released. This would insure rapid acceptance of these grasses by golf course superintendents and other growers.

In this project, a soil is used that imposes two of the major soil stresses (i.e., high soil strength and aluminum toxicity) that may produce differential rooting responses from the bermudagrasses. ET, drought resistance, rooting/water extraction patterns and shoot responses of newly seeded bermudagrasses are determined under field conditions. Any bermudagrass cultivar able to develop a deep and extensive root system, will have a major drought avoidance advantage.

The new seeded bermudagrasses are grown under fairway management. Data obtained in Georgia is compared to similar data from Oklahoma to determine the stability of these grasses with respect to environment, disease, and insect pressures.

Nine experimental seeded bermudagrasses from the USGA supported breeding program at Oklahoma State University and two commercial seeded bermudagrass cultivars (Arizona Common and PRIMAVERA) were seeded at 1.25 lb PLS/1000ft^2 on June 8, 1993. The experimental cultivars were: 91-1, 91-2, 91-3, 91-4, 91-10, 91-12, 91-14, and 91-15. By mid-fall 1993, more than 90 percent coverage was observed for 91-2, PRIMAVERA, and 91-1. Traffic and N-program treatments will be initiated in April 1994.