RESEARCH SUMMARY:

Root Responses of Tifway Bermudagrass to Nitrogen Application Rates.
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Turfgrass specialists recommend that one-time applications of water soluble nitrogen (N) not exceed 1 lb per 1,000 sq. ft. (49 kg N ha^{-1}). This recommendation is supported mainly by research on cool-season turfgrasses. This field study assessed root growth of Tifway bermudagrass [*Cynodon dactylon* (L.) Pers. x *C. transvaalensis* Burt-Davy] following ammonium nitrate fertilization. Seven N rates of 0.0, 0.5 1.0, 1.5, 2.0, 3.0, and 4.0 lbs N per 1,000 sq ft. (0, 24, 49, 73, 98, 146, & 195 kg N ha^{-1}) in 4 replications were applied once to an established turf grown on a high-sand root-zone and mowed frequently at a 1 inch (25 mm) height of cut, with clippings returned. The experiment lasted from late spring until fall, with measurements taken bi-weekly.

Visual turf quality, clippings yield, and concentrations of leaf-blade tissue N, soil nitrate, and soil ammonium increased initially with increasing N rates. Root mass, root length, root density, and tissue total nonstructural carbohydrates showed little or no differences among N treatments. Root growth did not decrease significantly with one-time applications of a water soluble N fertilizer at up to 4 times the generally recommended upper rate for cool-season turfgrasses.

The findings show that root impairment from high nitrogen fertilization rates is not a problem on the warm-season bermudagrass, which is in distinct contrast to the negative effects on rooting of cool-season turfgrasses.

As with most research, this work raises more questions. For example, do all warm-season, C-5 turfgrasses respond similar to bermudagrass in terms of no negative rooting effects from high N rates? It is this author's guess that they do.

PUBLICATIONS AVAILABLE:

Rutgers Turfgrass Proceedings. Volume 24, 164 pages (1993). The first 55 pages contain 16 articles of speakers who participated in a Turfgrass Expo held in December of 1992. The main 110 pages contain 7 research reports summarizing the work of Rutgers University turfgrass researchers. They include comparisons of endophyte incidence in seed lots of various cultivars; performance of bentgrass, fine fescue, Kentucky bluegrass, perennial ryegrass, and tall fescue cultivars and selections in New Jersey; and assessments of Kentucky bluegrass cultivars for resistance to powdery mildew. Note that this is probably one of the best sources of up-to-date cool-season turfgrass cultivar assessments. Thus, it should be an important reference document in your turfgrass library.
Contact: Department of Plant Science, Cook College-Rutgers University, New Brunswick, New Jersey 08903, USA; FAX: (908) 932-8899.

Turfgrass Research Results 1992. 124 pages (1993). Contains 38 reports of research conducted at Pennsylvania State University. Encompasses 1 on soils characterization, 4 on cool-season turfgrass cultivar evaluations, 6 on weed control, 12 on insect control including 5 biological control studies, 4 on disease control, and 11 on roadside vegetation management including 3 on plant growth regulators.
Contact: Department of Agronomy, Pennsylvania State University, University Park, Pennsylvania, 16802, USA; FAX: (814) 863-7043.

The Role of Turfgrasses in Environmental Protection and Their Benefits to Humans. A nine page, scholarly review paper published in the Journal of Environmental Quality. Volume 23, pages 452 to 460, 1994.
Contact: James B Beard, International Sports Turf Institute, 1812 Shadowood Dr., College Station, Texas, 77840, USA. FAX: (409) 693-4878.