Soil Inorganic Nitrogen Under Fertilized Bermudagrass Turf. (C05-lee152520-Oral)

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Abstract:

There is public concern that fertilization of turfgrass systems might be adversely affecting ground water quality due to nitrate leaching. This study was conducted to measure soil nitrate levels in situ under managed bermudagrass (Cynodon spp.) and to evaluate influences from fertilization and mineralization. Two experimental sites were established on 50 and 75-year old golf course fairways in the Neuse and Cape Fear River basins in eastern North Carolina. Soil sampling was done seasonally. Results indicate that nitrate-N levels were consistently low (1 to 4 mg kg-1 soil) and similar to adjacent natural areas throughout the 120 cm sampling depths during the 2-yr experiment at both sites. Levels were relatively uniform with depth to 120 cm and across several landscape positions. From laboratory mineralization studies and soil temperature data, it was estimated that 60 to 154 kg N ha-1 would be released from organic N pools during the bermudagrass growing season. Substantial bermudagrass growth in non-fertilized plots provided evidence that mineralization was a significant contributor to turf nutrition. There was no evidence that nitrogen fertilization or the ecology of the

bermudagrass system posed inherent risks to water quality and the environment.

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