



Photo by M. Richardson

### Foliar-applied nitrogen uptake by putting green turf

Foliar fertilization often composes a significant portion of the total annual nitrogen applied to greens. No studies have documented foliar uptake of nitrogen in a field setting. A <sup>15</sup>N isotopic tracer field study was conducted to compare seasonal uptake of foliar-applied nitrogen by Penn A-1 creeping bentgrass and TifEagle ultradwarf bermudagrass when managed for putting green utility. <sup>15</sup>N-labeled urea was applied monthly, May through September, at rates of 0.25 pound nitrogen/1,000 square feet (1.25 grams/square meter) and 0.10 pound nitrogen/1,000 square feet (0.5 gram/square meter). Both species proved receptive to foliar uptake of urea-nitrogen, and acid-trap-estimated ammonia volatilization losses were minimal. A range of 47%-76% of the fertilizer nitrogen applied was recovered in leaves/shoots at 1 hour after treatment, while peak foliar absorption was observed at 4 hours after treatment. Foliar uptake, when measured as a percentage of nitrogen applied, was significantly reduced at higher application rates, and month of year affected absorption variably. — Chris Stiegler and Mike Richardson, Ph.D. (mricha@uark.edu), University of Arkansas



Photo by A. Putman

### Effect of early- and late-season fungicide applications on dollar spot

Dollar spot is becoming increasingly difficult to control on fairways. The objective of this study was to determine the ability of nontraditional fungicide application timings to control dollar spot. The research was conducted on a mixed stand of annual bluegrass and creeping bentgrass at Stanley Golf Course in New Britain, Conn. Four fungicides (Emerald [boscalid], Bayleton [triadimefon], Curalan [vinclozolin] and Daconil Ultrex

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[chlorothalonil] + Banner Maxx [propiconazole] were applied on Oct. 18 or 24, 2006; April 24, 2007; or May 23, 2007. Fungicides applied on Oct. 18, 2006, or April 24, 2007, reduced dollar spot 44% to 97% when compared to the untreated control on all dates in the rating period May 23 to July 4, 2007. Results suggest that early-season applications may delay the onset of dollar spot symptoms. — John Kaminski, Ph.D. (kaminski@psu.edu), Pennsylvania State University and Alexander Putman, University of Connecticut



Photo by D. Park

### Nutrient management for aging ultradwarf bermudagrass greens

Ultradwarf bermudagrass cultivars are widely used on greens in South Florida, and more information is needed on their nutrient requirements as the greens age. A four-year experiment was conducted in South Florida on a green built to USGA recommendations to examine nitrogen fertility and nitrogen-to-potassium ratios on the quality, growth and performance of Champion, TifEagle and FloraDwarf cultivars. Fertilizing with 18 pounds nitrogen/1,000 square feet/year (879 kilograms/hectare/year) for up to two years following establishment resulted in acceptable or better turf quality with minimal disease. Tissue nitrogen and potassium were present in approximately a 2:1 ratio, regardless of nitrogen rate and the nitrogen-to-potassium ratio applied. As the green aged, fertilizing with 12 pounds nitrogen/1,000 square feet/year (586 kilograms/hectare/year) was adequate for maintaining Champion and TifEagle. However, FloraDwarf required 18 pounds nitrogen/1,000 square feet/year in order to maintain quality similar to that of Champion and TifEagle. This research documents the need for adjusting fertilization as the green ages. — Dara Park, Ph.D. (darap@clemsun.edu), Clemson University and John Cisar, Ph.D., University of Florida



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