

CUTTING EDGE

Clark Throssell, Ph.D.



Photo by D. Holdren

Effect of nitrogen source, rate, timing on creeping bentgrass quality and dollar spot incidence

Dollar spot is a major disease of creeping bentgrass. Ongoing field studies comparing foliar and granular fertilizer programs at various nitrogen rates and frequencies have demonstrated that turf quality ratings were consistently higher and the incidence of dollar spot was less on turf fertilized with foliar nitrogen sources than on turf fertilized with granular sources. In 2004/2005 when foliar nitrogen was applied at 0.25 pound nitrogen/1,000 square feet (0.01 gram/square meter) per week, dollar spot was suppressed for 70 to 80 days without fungicide applications, and leaf tissue nitrogen levels exceeded 5% nitrogen. In 2006 these same foliar treatments did not provide acceptable dollar spot suppression without fungicide applications, and leaf tissue nitrogen levels were less than 4.5% nitrogen until August. This research suggests that foliar feeding nitrogen sufficient to maintain leaf tissue nitrogen levels of $\geq 5\%$ can reduce dollar spot severity and potentially result in less fungicide use. — John Street, Ph.D., and Deborah Holdren (holdren.27@osu.edu), Ohio State University

Mower sharpness affects bentgrass physiology, quality

Dull mowers tear and fray leaf tissue, severely wounding the plant. The objective of this study was to develop general guidelines to determine how frequently reel mowers should be sharpened to maintain high-quality cut. Mowers were sharpened once by using single-blade carbide milling, cylindrical grinding and cylindrical grinding with the back-grind process. Three mowers were sharp-



Photo by N. Christians

ened using each process. Each mower was used to cut approximately 0.5 to 1.0 acre (0.2 to 0.4 hectare) of L-93 creeping bentgrass at 0.5 inch (1.3 centimeters) every week for 12 weeks at Cold Water Golf Links in Ames, Iowa. Leaf-tip damage was less, and photosynthetic yield was 15% greater in grass mowed with mowers sharpened using single-blade carbide millings compared to mowers sharpened with cylindrical grinding. — Mark Howieson and Nick Christians, Ph.D. (nchris@iastate.edu), Iowa State University



Photo by J. Murphy

Organic matter accumulation on putting green root zones

Relationships between root-zone properties of putting greens and organic matter accumulation are not well known, especially in different microenvironments. The objective of this field study conducted in two distinct microenvironments was to examine the organic matter accumulation of six-year-old creeping bentgrass turf grown on sand-based root zones with different amendments. One microenvironment had better air circulation than the other. Root zones were amended with loam soil, sphagnum or reed-sedge peat, clay-based porous ceramic or nutrient-charged clinoptilolite zeolite and established to creeping bentgrass in 1998. Organic matter content of the mat layer in 2003 was greater on root zones amended with peat or a high rate of loam soil. Root zones in the open microenvironment accumulated a greater amount of organic matter in the upper 2 inches (5 centimeters) of the root zone. Organic matter accumulates in putting greens more rapidly under favorable growing conditions. — James Murphy, Ph.D. (murphy@aesop.rutgers.edu), Rutgers University

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