



Photo by B. Hulke

### Cold stress of wild perennial ryegrass

Although perennial ryegrass has many desirable turfgrass qualities, such as rapid establishment and good wear tolerance, its use in northern climates is limited because it has only moderate winter hardiness. Since 2004, scientists at the University of Minnesota have been attempting to identify cold-hardy wild perennial ryegrass plants to use in perennial ryegrass breeding programs. The screening process has involved both direct, non-repeatable field studies and indirect, repeatable laboratory freezing-tolerance studies. Results of these studies indicate that several wild perennial ryegrass plants can be used in breeding programs to improve the winter hardiness of commercial perennial ryegrass cultivars. Although it will take a number of years, it is likely that superintendents will be able to plant winter-hardy perennial ryegrasses on northern golf courses. — Brent Hulke; Eric Watkins, Ph.D. (ewatkins@umn.edu); Nancy Ehlke, Ph.D.; and Don Wyse, Ph.D., University of Minnesota

### Management of velvet bentgrass greens

Currently there is little information on management requirements for velvet bentgrass greens in the Midwestern U.S. The objectives of this research are to evaluate the effects of fertilizer rate and mowing height on bentgrass growth and playability and to compare top velvet bentgrass cultivars to top creeping bentgrass cultivars under reduced fungicide, reduced irrigation and trafficked conditions. A field experiment is being conducted in Verona, Wis., on greens built to USGA recommendations.

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Cultivars being evaluated are SR 7200 and Vesper velvet bentgrass and L-93 and Penncross creeping bentgrass. Fertility rates include 1 and 3 pounds nitrogen/1,000 square feet/year (48 and 144 kilograms/hectare/year). Mowing heights include 0.1, 0.16 and 0.25 inch (2.54, 3.96 and 6.35 millimeters). Preliminary findings indicate that velvet bentgrass can provide a quality putting green turf when inputs are low, but management requirements differ significantly from creeping bentgrass. — Eric Koeritz and John Stier, Ph.D. (jstier@facstaff.wisc.edu), University of Wisconsin



Photo by B. Stadek

### Long-term cultivation effects on root-zone properties of a sand-based putting green

The decline in quality of creeping bentgrass during periods of warm, humid weather is often associated with high amounts of organic matter near the surface of the root zone. The objectives of this study were to determine the effects of various verticutting and core-aerification treatments on surface hardness, soil moisture, thatch depth, root-mass density, infiltration rates and overall turf quality. Cultivation treatments were applied in June and October 2005 and April and September 2006 to a Penn G-2 creeping bentgrass putting green conforming to USGA recommendations in Fayetteville, Ark. The untreated control exhibited the least firm surface, highest soil-moisture retention and slowest infiltration rates, though its turf quality was not adversely affected. Verticutting resulted in shallower thatch depths and superior surface hardness, but had the slowest recovery rate. Thatch depths, infiltration rates and turf quality for core-cultivation treatments depended more on tine diameter than on tine spacing or depth. — John Kauffman (jkauffm1@utk.edu) and Doug Karcher, Ph.D., University of Arkansas



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