Alternative turfgrasses show potential for use on golf course fairways

April 20 2010

Differences in spring green-up for low-input fairway species shown in turfgrass experimental plots. Credit: Photo by Andrew Hollman

Burgeoning restrictions on water use, fertilization, and pesticide application are becoming important considerations in golf course design and management. In response, scientists are searching for sustainable methods to lessen the environmental impact of golf courses. Other factors, including increasing energy costs, human health concerns, and environmental awareness are also prompting turfgrass managers to consider the use of alternative turfgrasses as a lower input, sustainable maintenance practice. A new study published in *HortScience* identified four alternative turfgrass species—two bentgrasses and two fescues—as promising for use as low-input fairways.

In the cool-season region of the United States, golf course managers

traditionally grow creeping bentgrass on putting greens and favor Kentucky bluegrass, creeping bentgrass, or perennial ryegrass for fairways. When used on fairways, however, these species require significant amounts of inputs such as nitrogen fertilization, irrigation, and pesticides. A sustainable, effective strategy to deal with potential risks associated with these inputs may be the use of alternative turfgrass species. The challenge is finding low-input turf that can survive and perform adequately under conditions of little or no supplemental irrigation, high traffic, no pesticides, and reduced fertility.

Eric Watkins, Andrew B. Hollman, and Brian P. Horgan of the Department of Horticultural Science at the University of Minnesota designed a research study that tested alternative turfgrass species not currently used for golf course fairways in the northern U.S. In 2005, 17 species of turfgrass were established on native soil in St. Paul. Each species was evaluated at three levels of traffic (zero, three, or six passes per week using a drum-type traffic simulator) and two mowing heights (1.90 and 2.54 cm).

In 2006, velvet bentgrass (Agrostis canina L.), colonial bentgrass (*Agrostis capillaris L.*), and creeping bentgrass (*Agrostis stolonifera L.*) maintained acceptable quality in all treatment combinations. In 2007, Chewings fescue (*Festuca rubra L. ssp. fallax*) and sheep fescue (*Festuca ovina L.*) were the top-performing species regardless of treatment. Hard fescue (*Festuca brevipila Tracey*) performed poorly the first year of the study, but performed well in the second year. The other species evaluated in the study did not perform at acceptable levels.

The test results indicated that sheep fescue, Chewings fescue, colonial bentgrass, and velvet bentgrass should be studied further for use on low-input golf course fairways in the northern U.S. "In this study, the fine fescue species showed the greatest potential for use on low-input golf course fairways. To our knowledge, this is the first report of sheep

fescue being a successful fairway turf in the United States", noted Watkins. The research demonstrates that alternative cool-season turfgrass species may be able to perform adequately on golf course fairways under low-input conditions in Minnesota and similar areas.

The study findings may hold great promise for turfgrass professionals, but will the new grasses prove popular with golfers? According to Watkins, researchers in the United Kingdom acknowledged high levels of support for increased biodiversity among golf course superintendents, but found that there were conflicts between the golfers' preferences and the needs of conservation plans that promote biodiversity. "Similarly, we expect that resistance from golfers to new grass species may limit the use of low-input species on golf course fairways."

More information: The complete study and abstract are available on the ASHS HortScience electronic journal web site: hortsci.ashspublications.org/c … nt/abstract/45/1/113

Provided by American Society for Horticultural Science