

serious economic losses if the disease is found to be easily spread and aggressively virulent. Future research will be conducted to gain a thorough understanding of the pathogen epidemiology, biology, infection mechanisms and host range, as well as effective controls.

## **Stop 4. Water Management for Sustainable Creeping Bentgrass and Poa Annua Putting Greens**

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Public pressure and constraints on the United States water supply will require changes in golf course putting green management. Although putting greens only represent 3% of the total maintained turf area on United States golf courses, these areas represent some of the most input-intensive managed plant systems. This research study is investigating the effects of three irrigation methods on leachate quantity and quality, irrigation volumes, and putting green performance. Plots are USGA specification putting greens plumbed with plastic lysimeters and planted to A4 creeping bentgrass (*Agrostis stolonifera* L.) and *Poa annua*. Irrigation treatments consisted of daily replacement of 80% evapotranspiration, adjusting irrigation based on root depth, and utilizing soil moisture as determined by a TDR soil moisture probe to schedule irrigation. During 2010, data showed that irrigation based on soil moisture led to significantly greater irrigation and leachate volumes. However this treatment also resulted in significantly less dollar spot during the growing season. Localized dry spot was significantly greater on the soil moisture based irrigation treated plots on 9 out of 17 dates. Ball roll was also significantly greater in July for the daily ET treatment. Preliminary data suggests that alternating between the three irrigation treatments during the growing season may lead to reduced water usage and better putting green performance.

## **Stop 5. Nitrogen Carrier Effects on Creeping Bentgrass Grown on Three Rootzones**

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Research on the multi-year effects of foliar and granular nitrogen fertilizers alone or in combination on turfgrass tissue and soil nutrient concentrations is limited. The research objective was to determine the effect of different foliar and granular nitrogen fertilizers on creeping bentgrass grown on three putting green rootzones. Research was initiated in 2009 at the Hancock Turfgrass Research Center. The fertilizer treatments were urea, methylene urea, natural organic, foliar alone, foliar + granular, and an untreated control. All fertilizer treatments were applied from May through October to Penn 'A-4' creeping bentgrass grown on three rootzones. The three rootzones were a United States Golf Association specification rootzone, sand/peat/soil rootzone (80-10-10) and a native sandy clay loam. The urea, methylene urea, and natural organic fertilizer treatments were applied at 0.5 lb N/ 1000 ft<sup>2</sup>/month. The foliar treatment was applied at two rates, 0.25 lb N/ 1000 ft<sup>2</sup>/month, and 0.5 lb N/ 1000 ft<sup>2</sup>/month. The foliar + granular treatment consisted of a granular fertilizer application once a month at 0.25 lb N/ 1000 ft<sup>2</sup> and a foliar application twice a month at 0.12 lb N/ 1000 ft<sup>2</sup>/application. Soil