

## **HOLLOW TINE AERATION**

**SUMMARY:** Hollow tine cultivation is a routine practice on golf course putting greens, where the tine entry angle normally is 90°. Effects of various tine entry angles impacting putting green surfaces have not been investigated. The hypothesis was that different tine entry angles during cultivation would impact a greater area of the soil profile by enhancing water infiltration rates, reducing localized dry spots, and enhancing turf quality. Therefore, a 2-year field study in 2003 and 2004 was conducted to determine the impact of core cultivation tine entry angle on 'Crenshaw' creeping bentgrass (*Agrostis stoloniferous* var. *palustris*).

Treatments included three angles of hollow tine entry at 50°, 70°, and 90° and an untreated plot without cultivation. Manual cultivators consisted of four 6mm- and 12mm-diameter hollow tines 75mm in length, spaced 50mm apart. Treatment applications were in April, May, September, and October. Measurements included visual turfgrass quality (TQ), molarity ethanol droplet test (MED), and water infiltration. No treatment (control, 50°, 70°, 90°) effects in years I and II for TQ were noted. MED scores in May were 23% higher than in August and September. Tines of 12mm diameter reduced soil hydrophobicity (MED) 6% compared to tines of 6mm-diameter tines. Tines of 50°, 70°, and 90° had 129%, 163%, and 211% greater water infiltration than the untreated, respectively.

