Water Management on a Sloped Putting Green

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The United States Golf Association recommendation for putting green construction requires a uniform root zone mix depth of 30 cm over a pea gravel layer. Greens constructed to these specifications have experienced soil moisture problems especially in areas of undulation. Lateral flow of water has lead to excessive soil moisture in low areas, and insufficient soil moisture in elevated areas. The sloping green study was constructed with two different root zone depths: the standard USGA uniform depth of 30 cm, and a modified depth of 20 and 40 cm at the highest and lowest elevations, respectively. Tipping buckets connected to drain tiles quantify drainage from five locations within each profile. Time domain reflectometry (TDR) measures volumetric soil moisture at four locations within each profile. Results from 2002 indicate that soil moisture, to a depth of 20 cm, is more uniform across a sloping green constructed with a variable depth root zone. TDR measurements will be reported along with preliminary results from soil gas analysis, and recently implemented wetting agent studies.