Measurement of Soil Water Content Inside Microlysimeters and in Adjacent Soils Using the Dual-probe Heat-pulse Technique: A Field Study. (C05-bremer091114-Oral)

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Abstract:

Microlysimeters are often used in turfgrass to estimate evapotranspiration (ET). No standard has been defined and lysimeters of various diameters and depths are used; the impact of lysimeter construction on ET estimates is uncertain. Dual-probe heat capacity sensors were installed in lysimeters of 3 different constructions to compare changes in soil water content at 3 depths with that in the adjacent soil profile. Two lysimeter types were the same size (15 cm dia x 30 cm), with the bottom of the first type covered with screen and the second with plexiglass (2 cm hole in center for drainage). The third lysimeter type was smaller (10 cm dia x 20 cm, bottom covered with screen). All lysimeters contained soil from the study site, although large lysimeters were hand-packed while the smaller were driven into the soil and then excavated with soil intact. Large lysimeters required installation of sleeves in the soil. Dual-probe measurements were replicated in 3 lysimeters of each type and at 3 locations in the soil profile. Gravimetric measurements also were collected periodically. Preliminary results suggest that day-to-day ET was estimated more accurately with the sleeveless lysimeters.

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