

The measurement validity is **questionable** when the layer interface is near to the ground surface.

outlined in red is the soil of the top layer within the radius of the inner ring. The scenario of this view is a sandy root zone top layer with permeability of 20 cm h⁻¹ and a clay loam bottom layer with permeability of 0.2 cm h⁻¹. Also, this view corresponds to 2 hours following the start of the measurement when infiltration rates were acceptably close to equilibrium.

Thus, one has to question the validity of double ring infiltration measurements in layered soils, and particularly so when the layer interface is near to the ground surface.

The double ring infiltration technique is an example of an unconfined measurement because flow paths within the soil are not limited to any particular direction. Confined measurements

methods are those that restrict the flow paths to a specific (usually vertical) direction.

I also conducted a separate, layered soil simulation where flow was confined to only occur vertically, and infiltration rates were, as expected, comparable to the permeability of the bottom and most limiting layer. An example of a confined measurement approach is that commonly used when working with a testing lab. In this case, an undisturbed core confined within the sampling tube is taken from the green or athletic field and sent to the lab for measurement. The results from the confined infiltration rate measurement in the lab are a valid representation of the soil permeability regardless of any soil layering.

This analysis demonstrates that in addition to being a poor method to measure the permeability of layered soils, it is also a poor method to assess the influence of spaced-apart drainage elements placed in greens or athletic fields having shallow soil layering. ■

Reference:

Prettyman, G.W. and E.L. McCoy. 2003. Profile layering, root zone permeability and slope affect on soil water content during putting green drainage. *Crop Sci.* 43:985-994.

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John Mascaro's Photo Quiz

Can you identify this sports turf problem?

Problem:

Torn up grass on baseball infield

Turfgrass Area:

FirstEnergy Stadium

Location: Reading, PA

Grass Variety: Kentucky Bluegrass

Answer to John Mascaro's Photo Quiz on page 45

John Mascaro is President of Turf-Tec International



John Mascaro's Photo Quiz

A

**Answer:
from page 14**



The torn up grass on this baseball infield was the result of a demolition derby, held on the stadium infield at the end of the 2007 season at FirstEnergy Stadium, home of the Reading Phillies Baseball Club (AA Affiliates of the Philadelphia Phillies). The sports turf manager at the facility suggested that they hold some additional events after the season to help pay for a field reconstruction. The President, General Manager and Sports Turf Manager decided to have two concerts and then top it off with a demolition derby. They held a Rocktoberfest event which included 2 stages of bands playing all day and

evening in the outfield a week before the Demolition Derby and then they had a Tribute band concert with the stage directly on the infield the night before the derby. The derby drew over 3000 spectators and also served the purpose of removing all the grass from the infield at the same time. After the event the entire field was renovated to improve the irrigation, drainage, grade and was completed by totally re-sodding the entire field. ■

Photo submitted by Dan Douglas, Director of Stadium Grounds at FirstEnergy Stadium, Reading, PA.

If you would like to submit a photograph for John Mascaro's Photo Quiz please send it to Turf-Tec International, John Mascaro, 1471 Capital Circle NW, Suite # 13, Tallahassee, FL 32303 or email to john@turf-tec.com. If your photograph is selected, you will receive full credit. All photos submitted become property of SportsTurf Magazine and the Sports Turf Manager's Association.

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