Using TDR to characterize growing media and monitor irrigation of nursery and greenhouse crops. (S01-caron161151-Oral)

Authors:

- J.Caron* - *Laval University*

Abstract:

Substrate water desorption characteristics and aeration properties are mostly determined using standardised rings and the results often used to estimate air and water contents existing in the container, parameters of interest in greenhouse and nursery management. The observed air and water contents in containers, however, can differ significantly from their estimated values, as these numbers are affected by container geometry, plant growth, potting procedures and hysteresis. Advances in capacitive and TDR measurements have allowed the development of methods to perform this characterisation in the container, therefore taking into account any manipulation effects occurring at the greenhouse or nursery scale. Earlier developments in aeration studies have also pointed out the need to perform characterisation of gas exchange as well as air content, to measure substrate aeration properties. Later, integrated procedures, based on TDR measurements, were developed to perform this determination in situ. Finally, TDR technology was used to monitor salinity and the whole characterization procedure integrated to adequately control irrigation based on aeration, water retention and salinity level of the substrate at the greenhouse scale.

Corresponding Author Information:

J. Caron
Laval University
Soil and Agrifood Engineering Department
Ste-Foy, PQ G1K 7P4
Canada

phone: 418-656-2131 ext 2881
fax: 418-656-3723
e-mail: jean.caron@sga.ulaval.ca

Presentation Information:

Presentation Date: Wednesday, November 13, 2002
Presentation Time: 2:45 pm

Keywords:
TDR, growing media, gas diffusivity, electrical conductivity