

FIELD MEASUREMENTS OF WATER AND SOLUTE TRANSPORT IN STRUCTURED SOILS USING TDR AND RADIOACTIVE TRACER TECHNIQUE

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Within the framework of the Swiss-Slovakian joint research program measurements of water flow and solute transport (^{131}I) were made in a structured soil at the experimental site of the Research Institute of Irrigation in Bratislava. The measurements of water content (Swiss group) and solute transport (Slovakian group) at different depths were made using TDR and Nuclear Analyser technique. Five infiltration experiments were conducted on a black clay loam soil. Soil water content at depths of 0.10, 0.30, 0.50, 0.70 and 0.90 m was measured using time domain reflectometry (TDR, Tektronix 1502B cable tester). Water and radioactive tracer were applied on an area of 1 m². The shape of the water content curves may indicate the type of transport process: a. Increase of water content without drainage, corresponds to matrix saturation, b. Increase of water content with drainage, corresponds to matrix and macropore saturation. Iodine profiles show different behavior suggesting the presence of preferential flow.