

EVALUACIÓN DEL CONTENIDO DE HUMEDAD DEL SUELO POR GRAVIMETRÍA Y REFLECTOMETRÍA

Quichimbo, Pablo^{a,b*}; Guamán, José^b; Cajamarca, Milton^b; Aguirre, A.J.^{b,c}

^a Institute of Soil Science and Site Ecology, Dresden University of Technology, Piener Str. 19. 01737 Tharandt, Germany.

^b Carrera de Ingeniería Agronómica, Facultad de Ciencias Agropecuarias, Universidad de Cuenca, Campus Yanuncay: Av. 12 de Octubre y Diego de Tapia, Cuenca, Ecuador.

^c Proyecto PROMETEO, Secretaría de Educación Superior, Ciencia, Tecnología e Innovación, 9 de Octubre y Ramírez Dávalos, Casa Patrimonial, Quito, Ecuador.

EVALUATION OF SOIL MOISTURE CONTENT BY GRAVIMETRY AND REFLECTOMETRY

Abstract

The soil moisture content has been a parameter widely used in environmental sciences, and particularly in Soil Science one of its several uses has been addressed to the determination of the water balance for irrigation. Under this context, there are several technologies; one of them is the Time Domain Reflectometry (TDR). This work was carried out to assess the soil water content in clay soils at plot scale, testing two TDR sensors, an automatic and a manual equipment. Both sensors were compared to the standard gravimetric method under three soil depths: 0-20, 20-40, and 40-60 cm. Results showed differences between values given by TDR sensors and values from the gravimetric method. The manual TDR shows the highest differences tending to underestimate the values in the three soil depths, while the automatic TDR showed to be more related with the values reported by the gravimetric method. However, estimates given by both sensors result to be variables, therefore the recommendation of use or restriction of this kind of sensors in clay soils need to be given after an study of assessment and calibration.

Keywords: Soil depth, soil moisture, TDR, gravimetr

*Correspondencia a: Carrera de Ingeniería Agronómica, Facultad de Ciencias Agropecuarias, Universidad de Cuenca, Campus Yanuncay: Av. 12 de Octubre y Diego de Tapia. Cuenca, Ecuador. Teléfono: +(593) 7 405100 Ext. 3500. e-mail: pablo.quichimbo@ucuenca.edu.ec.