Predicting Soil Moisture in the Field from Amplitude Temperature

A. W. Al-Kayssi

University of Tikrit, College of Agriculture, Soil & Water Department, Tikrit–Iraq (wa.alkayssi@yahoo.com)

Measurements of amplitude temperature and soil moisture content of sandy loam and silty clay loam soils were conducted in Al-Mada'in Research Station south of Baghdad during the period from the 1st of February to the 30th of April, 2004. Exponential regression relations were developed between amplitude temperature and volumetric moisture content for soil depths of 0.5, 3.0, 7.5 and 15cm below surface, which was highly significant ($R^2 > 0.96$).

A good linear regression between measured and predicted soil moisture contents was deduced for each depth ($r > 0.97$). Soil moisture content was successfully predicted from the regression line when amplitude temperature was known.