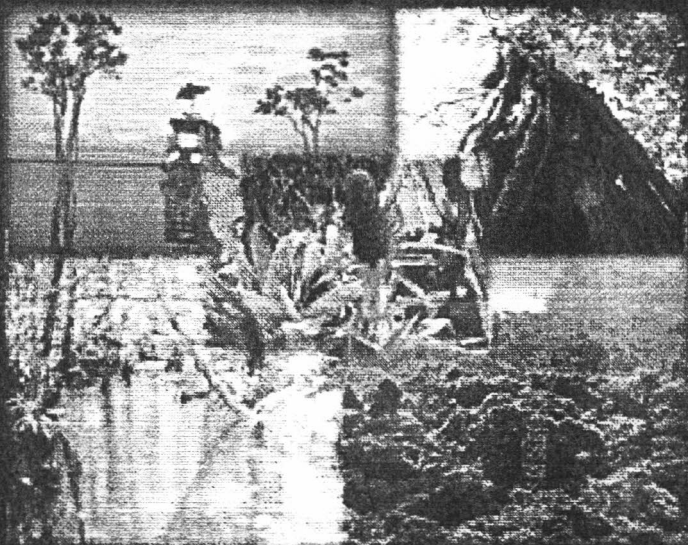


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CALIBRATION OF THE CAMPBELL CS-615 WATER CONTENT REFLECTOMETER IN HIGH CLAY CONTENT YELLOW LATOSOL IN THE FLONA TAPAJOS

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Soil moisture content and its temporal and spatial variation deserves attention in all soil studies. It is a critical indicator of soil structure, infiltration capacity, plant available water, etc. Soil moisture content is a critical variable related to soil management. Recently automated measurements of soil moisture content using time domain reflectometry (TDR) and frequency domain reflectometry have become more common. These techniques measure water content based on the variation of the apparent soil dielectric number that varies chiefly as a function of water content. We adopted the Campbell CS-615 water content reflectometer probes for use in the FLONA Tapajos. We calibrated these probes using undisturbed soil blocks removed from 6 depths coincident with the levels we have established for automated monitoring (5 cm, 15 cm, 30 cm, 50 cm, 100 cm, 200 cm). Calibration compared CS-615 response in saturated and dried soil blocks with gravimetry. Multiple moisture contents were collected for each block and the resulting water contents were fit as polynomial and logarithmic functions of the instrument responses.