



Water-use efficiency of mango orchard grown in a semi-arid environment

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Knowledge of evapotranspiration (ET) and water-use efficiency (WUE) is essential in crops management mainly in arid and semi-arid regions where water resources are scarce for irrigation. A field experiment was conducted at a commercial farm to characterize the water-use efficiency (WUE) of mango orchard growth in a semi-arid environment of northeast Brazil. Measurements were performed within a randomly selected experimental plot, with trees spaced at 5 m (within rows) and 10 m (between rows). The soil water balance method was used to obtain the mango orchard evapotranspiration (ET); whereas soil water content was determined by twelve tensiometer sets installed at 0.20 m layer intervals from the soil surface down to 1.20 m soil depth. The experimental plot was irrigated with a sprinkler irrigation system based on four irrigation levels. Results showed that ET and WUE are strongly influenced by soil water availability. Mango yield varied from a minimum value of 2,8060 Kg/ha in treatment T4 to a maximum value of 3,1060 Kg/ha in treatment T3; this difference was found to be statistically significant ($P < 0.05$) by Tukey's test. Results also indicate that values of WUE based on both water productivity (irrigation plus rainfall) and evapotranspiration were maximum and minimum for low (treatment T1) and high (treatment T4) water regimes, respectively.