ABSTRACT

ANALYSIS OF AVAILABLE SOIL WATER DEPLETIONS ON ROBUSTA COFFEE PLANT USING PRESSURE CHAMBER

By

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This study aims to determine the relationship between the canopy temperature, leaf water potential (LWP), and relative water content (RWC) of leaves Robusta coffee plant on some available soil water depletions. The research was conducted on 3 treatments, namely Robusta coffee plants are watered on condition of soil moisture content of 20-40 centibar, 40-60 centibar, and 60-80 centibar based on instrument readings tensiometer, then a third treatment is performed 3 repetitions and observation for 5 weeks. Based on the research for 24 days, average daily evapotranspiration Robusta coffee plants at 20-40 centibar treatment is 4,1 mm/day, 40-60 centibar is 4,0 mm/day, and 60-80 centibar is 3,9 mm/day. The value of T_c-T_a average treatment A, B, and C for 5 observation was - 4,5 ℃; - 4,4 ℃; and - 3.8 ℃. The value of leaf water potential (LWP) average treatment A, B, and C for 5 observation was - 0,4 MPa; - 0,7 MPa; and - 1,0 MPa. The value of relative water content (RWC) of leaves average treatments A, B, and C for 5 observation were 89%; 85%; and 81%. These show that, water stress can increase the canopy temperature, leaf water potential (LWP), and lower relative water content (RWC) of leaves Robusta coffee plants.

Keywords : Evapotranspiration, T_c-T_a, leaf water potential (LWP), relative water content (RWC) of leaves