

ECOPHYSIOLOGICAL RESPONSES OF THE WINEGRAPE “CHENIN BLANC” UNDER DIFFERENT IRRIGATION MANAGEMENT IN THE SÃO FRANCISCO RIVER VALLEY.

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ABSTRACT

The São Francisco Valley has been considered a new growing region for wine grape production. In this region, the wines have a typical taste and are the unique ones produced under tropical conditions. Because the irrigation management is one of the most important factors related to grape and wine quality, a study was carried out by the Embrapa Semi-Árido, in the VINIBRASIL Farm vineyards, at Lagoa Grande, State of Pernambuco, Brazil in which the grapevine “Chenin Blanc”, grafted onto the IAC 572 rootstock, and spaced by 1,0 m x 3,0 m, was submitted to different irrigation managements: T1) 75% K_c ; T2) 50% K_c ; T3) 50 % K_c until 80 days after pruning and then 75% K_c until harvest and; T4) about 30% K_c (Farm management). Irrigation water was applied by dripping and the treatments initiated 45 days after pruning. The effects of treatments were observed based on the ecophysiological performance of the grapevine through measurements of leaf water potential (Ψ_1) obtained with a pressure chamber and gas exchange variables (stomatal conductance, g_s ; transpiration rate, E ; photosynthesis, A), with a portable infrared gas analyzer (IRGA – Licor 6200) during flowering and maturation (August to September, 2006). The results showed that grapevines submitted to the T1 treatment presented the highest Ψ_1 , g_s , E and A values during the hottest hours of day followed by T3 and T2. The T4 treatment presented the lowest values on these variables but higher intrinsic water use efficiency (WUE) calculated as A/g_s . At harvest, this treatment showed lower bunch number per plant and yield but higher °Brix and higher pH. The results suggest that the monitoring of the ecophysiological performance of winegrapes during the growth cycle, might be a good tool to establish an appropriated irrigation management toward grape and wine quality.

KEY WORDS: Water potential, transpiration, photosynthesis, stomatal conductance, K_c

