IRRIGATION WATER REQUIREMENT FOR GRAPEVINES USING TWO REFERENCE EVAPOTRANSPIRATION METHODS

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The Northwest of São Paulo State, Brazil, is an important table grape producing area. There is a low rainfall period (April to October) in the region which coincides with the crop production cycle, making irrigation an essential tool. The irrigation water requirement calculation is based on the reference evapotranspiration (ETo) values, which can be estimated by different methods, including the Penman-Monteith (EToPM), considered as the standard one. This method, however, requires several meteorological data that, frequently, are not available to the grape producers, mainly to the small ones. In this case, it is recommended the use of the Hargreaves method (EToH), which employs only air temperature values. This study evaluated the feasibility of using EToH instead of EToPM to calculate the irrigation water requirement of grapevines in the Northwest region of São Paulo State, Brazil. The evaluations were based on simulated soil water balances during the dry period of the year (April – October) along five years (2004 – 2008). The meteorological data were obtained in Jales, SP (20° 15'S, 50° 30'W, 483m), at the Tropical Viticulture Experimental Station of the Embrapa Grape and Wine Research Center. The irrigation water requirement using EToPM varied from 484.2 mm to 638.2 mm, with an average of 528.3 mm, while using EToH it varied from 493.9 mm to 661.6 mm, with an average of 544.5 mm. The differences between EToH and EToPM strategies were small, ranging from -3.4% to 6.2%, with an average of 3%, showing that the Hargreaves method can be used by the grape-growers of the region.