

Estimation of evapotranspiration and effective rainfall using CROPWAT

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Received : 12.09.2013; Revised : 22.01.2014; Accepted : 07.02.2014

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■ **ABSTRACT** : Accurate quantification of evapotranspiration is crucial for better management and allocation of water resources. Estimation of effective rainfall are extremely useful for operation planning and management issues. Cropwat is a computer model, was used to estimate the reference evapotranspiration and effective rainfall for the Nagpur district in Vidarbha region of Maharashtra state. Daily meteorological data including rainfall, maximum temperature, minimum temperature, relative humidity, wind speed and sunshine hours were collected for the period of 2000 to 2009 which were used as input data in Cropwat. Average peak monthly ET_o were estimated as 6.99 and 6.52 mm day⁻¹ in the month of May and April, respectively for the average period considered for the study and also for each years, the high values were may be due to high temperature during the summer month. Whereas average minimum ET_o were estimated as 3.06 and 3.22 mm day⁻¹ in the month of December and January, respectively due to winter months. The average annual effective rainfall was 803.45 mm with maximum effective rainfall occurs in July (221.05 mm) followed by August (194.76 mm), June (150 mm) and September (137.63 mm) months, respectively.

■ **KEY WORDS** : Evapotranspiration, Effective rainfall, Cropwat

■ **HOW TO CITE THIS PAPER** : Wane, S.S. and Nagdeve, M.B. (2014). Estimation of evapotranspiration and effective rainfall using CROPWAT. *Internat. J. Agric. Engg.*, 7(1) : 23-26.