

EVAPOTRANSPIRATION AND CROP COEFFICIENT OF IMMATURE RUBBER : A LYSIMETRIC STUDY

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Evapotranspiration (ET_c) of immature rubber was quantified and crop coefficient (K_c) worked out using non-weighing type of lysimeters. ET_c showed wide variation depending on weather conditions, the mean value during December to April being 4.97 mm d^{-1} and during May to November, 2.99 mm d^{-1} . The mean K_c values were 0.93, 0.82 and 0.77 for pan evaporation, Penman and Hargreaves methods respectively.

Key words : *Hevea brasiliensis*, Lysimeter, Evapotranspiration, Crop coefficient, India.

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INTRODUCTION

Quantification of evapotranspiration of a crop is essential for proper designing, planning and operation of irrigation systems and for optimizing the use of available water. Lysimetry has long been recognized as a reliable method for measuring evapotranspiration (Howell *et al.*, 1991).

Reference evapotranspiration of an area is a function of the prevailing weather conditions. Although actual evapotranspiration of any crop is dependent on weather, other factors like nature of crop and stage of growth and soil moisture availability also influence this process. This often results in crop evapotranspiration being different from reference evapotranspiration. The factor relating actual evapotranspiration to reference evapotranspiration, crop coefficient (Doorenbos and

Pruitt, 1977), is the ratio of the actual to the reference evapotranspiration when the crop is grown under optimum conditions and is specific to the crop, climatic conditions and agronomic practices. Crop coefficients are used to calculate crop evapotranspiration (ET_c) from the reference evapotranspiration (ET_o) using the relationship :

$ET_c = ET_o \times K$, where K is the crop coefficient.

Several workers have stressed the importance of adequate soil moisture for proper growth of rubber (Ninane, 1967; Pushparajah and Haridas, 1977 and Haridas, 1980). However, very few efforts had been made to ascertain the water requirement of rubber. The present investigation was taken up with the objectives of quantifying the evapotranspiration of immature rubber and working out the crop coefficient.

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