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# COMPARATIVE EVALUATION OF BASIN AND DRIP SYSTEMS OF IRRIGATION IN RUBBER

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An experiment was conducted in central Kerala to compare basin and drip systems of irrigation in rubber. Irrigation was given at two levels (30 per cent and 50 per cent of crop evapotranspiration) and the same quantity was applied in both basin and drip methods. Both methods showed wide variation with respect to root, salinity and moisture distribution. Irrigation enhanced the growth of rubber significantly, irrespective of the method.

Key words: *Hevea brasiliensis*, Irrigation system, Soil moisture., Kerala.

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## INTRODUCTION

In India rubber is traditionally grown in the high rainfall areas of South India without irrigation. The expansion of rubber cultivation to the climatically less congenial nontraditional areas has made irrigation an essential management practice for proper establishment and growth. Rubber has an immaturity period of seven years or more and maintaining a favourable moisture status in the soil has been proved to reduce this long unproductive period (Pushparajah and Haridas, 1977; Omont, 1982; Mohankrishna *et al.*, 1991).

Scarcity of water for irrigation and rising cost of energy are making it necessary to adopt high efficiency irrigation systems. The traditional surface method like basin irrigation in which water is ponded on to the soil surface is characterised by low conveyance and application efficiencies. Drip irrigation is the frequent slow application of water to soil which, in turn, minimises peroclation losses (Shih, 1988). It has the advantages of high efficiency and less labour requirement, but the high initial investment restricts its large scale adoption. An experiment was taken up to compare basin and drip irrigation systems under two depths during the summer seasons of 1987-1992.

## MATERIALS AND METHODS

The experiment site was located in a private estate in central Kerala (9°32'N and 76°86'E). This region experiences a typical warm humid tropical climate with a mean annual rainfall of 250-300 cm. Major portion of the precipitation is received during the South-West monsoon season (June-July) and the rest during the North-East monsoon (October-November). The summer season (December-April) usually receives a few showers (Table 1) but experiences a pronounced soil moisture deficit. The soil was well drained laterite of medium fertility and had the capacity to hold 76.8 mm of available water in the top 1 m. The bulk density of the soil was 1.33 g $cc^{-3}$ at 0-10 cm. The