

EFFECT OF DRIP IRRIGATION ON GROWTH OF IMMATURE RUBBER

M.D. Jessy, S.K. Dey, K. Prathapan, Joseph John, T.P. Mathew and K.I. Punnoose

Jessy, M.D., Dey, S.K., Prathapan, K., John, J., Mathew, T.P. and Punnoose, K.I. (2002). Effect of drip irrigation on growth of immature rubber. *Indian Journal of Natural Rubber Research*, 15(2) : 182-186.

In an experiment conducted at Punalur, Kerala, to study the effect of irrigation on the growth of immature rubber (*Hevea brasiliensis*) with drip irrigation at 25, 50, 75 and 100 per cent of crop evapotranspiration and a control without irrigation as the treatments, it was observed that irrigation at 50 per cent of the crop evapotranspiration was sufficient for improving the growth. Irrigation during the summer season increased the growth of rubber plants significantly. Irrigated plants maintained a higher leaf water status during summer season.

Key words: Drip irrigation, *Hevea brasiliensis*, Leaf water potential.

M.D. Jessy (for correspondence), K. Prathapan, K.I. Punnoose, Rubber Research Institute of India, Kottayam - 686 009, Kerala, India. S.K. Dey, Regional Research Station, Rubber Research Institute of India, Agartala - 799 006, Tripura, India; Joseph John, T.P. Mathew, Shaliacary Estate, Punalur - 691 305, Kerala, India.

INTRODUCTION

In the traditional rubber growing areas of Kerala in India, summer season extends from December to April. During this period, very few summer showers are received and the plants experience moderate to severe soil moisture stress. Rubber (*Hevea brasiliensis*) is usually cultivated as a rainfed crop in these areas and requires about seven years to attain tappable girth.

Earlier studies have reported that maintenance of a favourable moisture status in soil enhances the growth and reduces the immaturity period of rubber (Ninane, 1967; Pushparajah and Haridas, 1977; Omont, 1982). In the North Konkan region of India, the immaturity period of rubber could be reduced from 10 to 6 years by giving irrigation (Vijayakumar *et al.*, 1998).

Information regarding the benefits of irrigation on the growth of rubber in the traditional rubber growing areas is limited. An observational trial conducted in Central Kerala indicated that irrigation increased the growth of immature rubber (RRII, 1987). Jessy *et al.* (1994) also reported enhanced growth of rubber in Central Kerala as a result of irrigation in summer.

Under conditions of limited water supply, drip irrigation could be ideal for plantation crops like rubber due to its high conveyance and application efficiencies. Compared to other methods, labour requirement is also less for drip irrigation. The present investigation was taken up to study the effect of drip irrigation on growth of immature rubber.

MATERIALS AND METHODS

The experiment was conducted in an estate at Punalur in South East Kerala (9° N and 76° 55' E). This region experiences a warm humid climate with a mean annual rainfall of 250-300 cm. Major part of the rainfall (40-50%) is received during the South West monsoon season (June - August) and the rest during the North East monsoon season (September - November). The summer season (December - April) receives few showers and experiences a moderate soil moisture deficit. Compared to other parts of Central and Southern Kerala, Punalur area experiences a higher temperature during the summer season. The weather data during the period of experimentation is given in Table 1. The data on rainfall was