Indian Journal of Natural Rubber Research, 9(1) : 1-5, 1996

GROWTH REACTION OF *HEVEA BRASILIENSIS* TO HEAT AND DROUGHT STRESS UNDER DRY SUBHUMID CLIMATIC CONDITIONS

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Chandrashekar, T.R., Marattukalam, J.G. and Nazeer, M.A. (1996). Growth reaction of *Hevea brasiliensis* to heat and drought stress under dry subhumid climatic conditions. *Indian Journal of Natural Rubber Research*, 9(1) : 1-5.

Growth pattern of *Hevea brasiliensis* in the Konkan region of India was studied. Data on environmental conditions and girth of plants were collected on monthly basis during the seventh year of planting. The region received rain only for about four months (June-September) and had more than seven months of dry period. In summer months ambient temperatures during daytime crossed 36°C and soil moisture deficits were severe. Growth occurred during the monsoon period only. Immediately after the monsoon, though there were no apparent limiting factors, the growth of plants stopped completely. Towards the latter half of the dry period reduction in girth of trees ranging from 0.2 mm to 0.5 mm was observed. The results indicated that the conditions prevailing from October to May would prolong the immaturity period of *Hevea* in the region.

Key words : *Hevea brasiliensis*, Growth, Environmental stress, North Konkan.

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INTRODUCTION

In India, *Hevea brasiliensis* is now cultivated in many potential regions, which are less congenial for the crop and Konkan region is one among them (Sethuraj *et al.*, 1989). In this region, prolonged cyclic soil moisture deficits and high temperatures during summer months are the major constraints for growth and productivity of *Hevea*. A few reports on the effects of these conditions on growth and yield are now available. Chandrashekar *et al.* (1990) reported very low yield and plant moisture status and severe inhibition of transpiration and stomatal conductance due to soil moisture stress. Mohankrishna *et al.* (1991) reported severe inhibition of photosynthesis. However, no information is available on annual growth pattern of *Hevea* in this region for which the present study was taken up.

MATERIALS AND METHODS

This study was conducted at the Regional Research Station of the Rubber Research Institute of India at Dapchari (Lat: 20.04°N; Long: 72.04°E; Alt: 48 m MSL), North Konkan region in Thane district of Maharashtra. Data were collected from a trial laid out with 15 *H. brasiliensis* clones in 1985 in a randomised block design with three replications. The clones were : RRII 5, RRII 6, RRII 105, RRII 208, RRII 308, RRIM 605, PB 260, PB 310, PB 311, RRIC 52, RRIC 100, RRIC 102, RRIC 105, PR 255 and PR 261. The plots consisted of thirtysix plants at a spacing of 4m x 4m. Each plot had a common border row of plants belonging to clone RRII 118. Planting was carried out with two whorled polybagged plants. Cultural practices like manuring, life saving irrigation, weeding, mulching and white washing were followed for maintenance of