

## EFFECT OF ASPECT ON SOIL TEMPERATURE AND GROWTH OF HEVEA ON HILLS OF NORTH EAST INDIA

S. A. Saseendran, D. Mandal, R. R. Sinha, K. R. Vijayakumar, S. N. Potty and M. R. Sethuraj

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Effect of aspect on soil temperature and growth of *Hevea* trees on a gently undulating terrain (slope about 25°) of North East India was studied. Soil temperatures under *Hevea* at depths 5, 10 and 20 cm on a south facing slope was found to be significantly higher than that on a north facing slope during the winter months. The difference in temperature was not found to exist during the summer months. Slope orientations were also found to influence the growth of *Hevea* trees. Girth of the trees on the south facing slope was observed to be significantly higher than on the north facing slope. At the end of 6th year of planting, a mean difference of 9 cm in girth of the trees on these aspects was observed.

Key words : *Hevea brasiliensis*, Soil temperature, Aspect, North East India.

S. A. Saseendran, NCMRWF, Department of Science and Technology, Mausam Bhavan Complex, Lodi Road, New Delhi - 110 003, India; D. Mandal and R. R. Sinha, Rubber Research Institute of India, North Eastern Research Complex, Guwahati - 781 003, Assam, India; K. R. Vijayakumar, S. N. Potty (for correspondence) and M. R. Sethuraj, Rubber Research Institute of India, Kottayam - 686 009, Kerala, India.

### INTRODUCTION

In India, rubber (*Hevea brasiliensis*) cultivation was traditionally confined to the tropical regions of the states of Kerala, Tamil Nadu and Karnataka within the latitude 12°N. With the increasing demand for natural rubber, its cultivation has been extended to latitudes upto 28°N where the crop is confronted with different stress factors. Soil temperature is a major factor controlling tree growth. Water uptake through roots, root growth, plant water stress etc. are controlled by low soil temperatures (Lopushinsky and Kaufman, 1984). It was also found to control stomatal openings (Lopushinsky and Max, 1990). Temperature is reported to be decisive in

stand growth of forest with increasing latitude (Heikurainen and Seppala, 1965; Koivisto, 1971; Laine and Starr, 1979).

Physiographic factors like slope, drainage, soil depth and texture of soil were found to affect the performance of *Hevea* in Malaysia (Chan *et al.*, 1972). In the present study an attempt has been made to analyse soil temperature characteristics under rubber plantations on northfacing and southfacing slopes in the hill terrains of North East India and to quantify the effect of aspect of slope on growth of *Hevea*.

### MATERIALS AND METHODS

The experiment was conducted in

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