

SPATIAL DISTRIBUTION OF ROOTS AND NUTRIENTS IN SOIL UNDER RUBBER PLANTATIONS IN TRIPURA

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Spatial distribution of roots and nutrients in the horizontal and vertical planes was assessed in a five year old rubber plantation in Tripura, India. Root concentration was seen in the top 18 cm layer. Horizontally the roots were found upto 200 cm away from the plant base. Nutrient concentrations were also higher in the top layer than in the lower layers. There was a positive correlation between available phosphorus and fine root concentration suggesting influence of phosphorus in root development.

Key words : Available nutrients, *Hevea brasiliensis*, Root length density, Spatial distribution, Tripura.

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INTRODUCTION

Hevea is a surface feeder with the feeder roots (rootlets) acting as absorbing sites of the root system (Soong, 1976). Root development in any plant is governed by factors such as nutrient availability, soil physical properties and genetic characters (Hamblin, 1985). Changes in the nutrient profile and root density has been reported within the rhizosphere in forest trees depending upon the throughfall, stem flow, litter accumulation, etc. (Parker, 1983). The rooting pattern of crops is also influenced by the depth of placement of fertilizers (Marshner, 1986). Drastic variation in the feeder root distribution of rubber ranging from 28 per cent in a clayey soil to 50 per cent in a sandy soil have been reported by

Soong (1976) under Malaysian conditions.

The present study aims at evaluating the influence of the method of placement of fertilizers on the horizontal and vertical distribution of roots and nutrients in an Aquic Dystrochrept soil in Tripura with a view to facilitating formulation of appropriate agromanagement practices.

MATERIALS AND METHODS

The study was carried out in an already existing field experiment laid out in 1988 at Mohanpur, Agartala (23° 53' N; 91° 15'E; 30m MSL) with clone RR/1105. The soil was fine, mixed, hyperthermic Aquic Dystrochrept with bulk density of 1.53 g per cc. The spacing was 5 x 5 m and the experiment was laid out in