

RESPONSE OF HEVEA TO FERTILIZERS IN NORTHERN WEST BENGAL

Shankar Meti, Tankeswar Gohain and D. Chaudhuri

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An experiment was conducted at the Regional Experiment Station of Rubber Research Institute of India at Nagrakata from 1989 to find out the nutritional requirement of *Hevea* in northern West Bengal. Treatments included four levels of nitrogen (N) and three levels each of P_2O_5 and K_2O in factorial randomised block design. Nitrogen significantly influenced girth, girth increment (GI) and percent tappability while P and K failed to show any direct effect. Application of 40 kg N per ha recorded significantly higher girth, GI and percent tappability over no N. Soil and leaf nutrient status was not influenced by N application. However, P and K application significantly influenced the respective leaf nutrient status. DRIS indices for different nutrients indicated the order of limiting nutrient as $K > N > P$. Interaction between N and K significantly influenced the percent tappability. Significant linear increase in percent tappability with K levels was observed only in the absence of N but with the N percent tappability did not increase significantly with K levels. Phosphorus and interaction between N, P and K significantly influenced the average yield (g/tree/tap) and estimated annual yield (kg/ha). Phosphorus showed significant negative effect on yield. The control ($N_0P_0K_0$) recorded significantly higher average yield (32.7 g/t/t) compared to other treatment combinations except $N_{40}P_0K_{20}$, $N_{20}P_0K_{20}$, $N_{40}P_0K_{40}$, $N_{40}P_{20}K_{40}$ and $N_{40}P_{40}K_{40}$. However, estimated annual yield taking into account the percent tappability was significantly higher with $N_{40}P_0K_{40}$ (1223 kg/ha) compared to control (764.2 kg/ha). Hence fertilizer mainly helped in better growth resulting in reduced immaturity period and higher percent tappability. Bark thickness and yield components like dry rubber content were also significantly influenced by fertilizer application.

Key words: Bark thickness, DRC, DRIS, Fertilizer, *Hevea*, Tappability.

Shankar Meti (for correspondence), Rubber Research Institute of India, Kottayam - 686 009, Kerala, India; Tankeswar Gohain and D. Chaudhuri, Regional Research Station, Rubber Research Institute of India, Guwahati - 24, India.

INTRODUCTION

Rubber (*Hevea brasiliensis*) is newly introduced into the northern part of West Bengal, which has been found to be marginally suitable for its cultivation (Rao *et al.*, 1993). Soil and climatic conditions of this area are entirely different from those of the traditional rubber growing tract. Northern West Bengal comes under the sub-Himalayan region with well-drained sandy loam soil. Average annual rainfall is 3200 mm, distributed mainly during June to September (Fig. 1). Unlike the traditional region, northern West Bengal receives only southwest monsoon and winter sets in by October/November. Winter temperature goes as low as 5°C during December/January. For successful cultivation of any crop in an area having

agroclimate different from traditional regions, there is a need to develop and standardise agronomic practices. Among different agronomic practices, nutrition is a very important aspect. In view of the differences in agroclimate, the fertilizer doses recommended for the traditional region cannot be adopted as such. Hence study of the nutritional requirement of *Hevea* in the northern part of West Bengal was undertaken.

MATERIALS AND METHODS

The study was conducted at the Regional Research Station of Rubber Research Institute of India (RRII) at Nagrakata, located at 26° 54' N latitude, 88° 25' E longitude and an altitude of 69 m above MSL.