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EFFECT OF HIGHER DOSES OF FERTILIZERS ON GROWTH AND YIELD OF RUBBER IN TRIPURA

The cultivation of rubber (*Hevea brasiliensis*) was initiated in Tripura in the early sixties and the area has been increasing over the years. Most of the area available for rubber cultivation in the state are degraded forests, a good portion of which was once subjected to shifting cultivation and thus not adequate in nutrient content to support successful crop production (Krishnakumar and Potty, 1989a). Though the rubber tree is known to thrive in marginal soils, it responds positively to fertilizer application in such soils. The major nutrients *viz.* nitrogen (N), phosphorus (P) and potassium (K) were found to influence the growth favourably during the immature phase (Akhurst and Owen, 1950; Owen *et al.*, 1957). Higher doses of N, P and K during immaturity period helps in reducing the gestation period (Dijkman, 1951). Significant effect of fertilizer application during the immature phase of rubber was reported on sandy latosol in Malaysia (Bolton, 1960).

Fertilizer recommendations for *Hevea* at various stages of growth have been formulated by the Rubber Research Institute of India (Pushpadas and Ahmed, 1980) based on field experiments conducted in the traditional rubber growing tracts of India as well as on information available from other rubber growing countries. Nutrient requirement of rubber is likely to be higher in the north eastern region of India where the soil is highly depleted due to shifting cultivation. The situation is aggravated by the routine practice of cutting and removing the thatch grass (Laskar *et al.*, 1983). Soluble sources of phosphatic fertilizers have been found to give quick response during the early stages of growth (Karthikakuttyamma *et al.*, 1980) in the traditional rubber growing areas. However, such information is lacking for the non-traditional areas. The present investigation was therefore taken up to study the influence of higher levels of NPK on growth and yield of rubber and to monitor the soil nutrient status over the years. A comparison of water soluble and insoluble sources of P was also attempted in this study.

The experiment was laid out in the demonstration farm of the Rubber Board at Tulakona, Agartala, by adopting a randomized block design with six treatments and three replications. The clone used was RRIM 600 planted during 1986. The treatments (Table 1) were imposed during 1990. Fertilizers were applied in two equal splits, during April/May and September/October. Nitrogen was supplied as urea (46% N), water soluble P as single superphosphate (16% P_2O_5), water insoluble P as Mussoorie rock phosphate (20% P_2O_5) and K as muriate of potash (60% K_2O). Cover crop (*Pueraria phaseoloides*) was grown and maintained during the early phase of the plantation. Other cultural operations were carried out following standard recommendations (Rubber Board, 1990). The trees were tapped following 1/2S d/3 tapping system since May, 1994. On an average there were only 65 tapping days in a year since the trees were given tapping rest during post-winter months. Girth was recorded at half yearly intervals and yield from individual trees at fortnightly intervals, by cup coagulation. Standard procedures were followed for collection and analysis of soil and leaf samples (Pushpadas and Ahmed, 1980).