LEAF NUTRIENT STATUS OF THE RUBBER PLANTATIONS OF SOUTH INDIA

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Leaf is a metabolically active part of any plant and its chemical composition is a good guide to the plants' nutritional status. Leaf nutrient status of mature rubber plantations in the estate sector of South India was assessed in a uniform population for the nutrients N, P, K, Ca and Mg. Less than three per cent of the population alone expressed low values for N and P. Six per cent of the population expressed low values for K and 11.0 per cent of the population recorded low values for Mg. However, 30 per cent of the population recorded Ca values lower than the critical level indicating the necessity of supplementation of Ca along with N, P, K and Mg. Among the five nutrients studied, the coefficient of variation was high for K, Ca and Mg. Though a negative correlation was observed between P and Ca concentration with yield, the regression coefficient was too small as expected, as the yield is influenced by many factors and the tree nutritional status in totality with optimum balance among the nutrients, is influencing the yield. Significant interrelationship among the nutrients was recorded in correlation studies.

Key words: Dry rubber yield, Foliar diagnosis, *Hevea brasiliensis*, Leaf analysis, Rubber plantations

INTRODUCTION

Nutrient concentration in leaves of a plant is influenced by various factors like soil, climate, management practices, physiology, nutrition, genotype and root system. Leaf is metabolically active part of any plant and its composition is a good guide to the plants' nutritional status (Martin-Prevel *et al*., 1987). Foliar analysis is widely practiced in rubber for assessing fertilizer requirement in conjunction with soil analysis. Sampling techniques (Shorrocks, 1962) and interpretation of the data in relation to plant characteristics and growing conditions are well established (Shorrocks, 1965a; 1965b; Pushparajah and Guha, 1968; Guha and Narayanan, 1969; Pushparajah and Tan, 1972). Sufficiency range ratings for individual nutrients are being followed for diagnosis of sufficiency or deficiency of nutrients (Karthikakuttyamma *et al*., 2000). The diagnosis and recommendation integrated system (DRIS) norms for the nutrients nitrogen (N), phosphorus (P), potassium (K), calcium (Ca) and magnesium (Mg) (Joseph *et al*., 1993) and the critical levels for the nutrients N, P, K, Ca and Mg (Joseph and Ranganathan, 1996) are also available for assessing the nutritional status.

Rubber growing soils of South India are highly weathered red ferruginous soils rich in iron and aluminium oxides and hydrous oxides and kaolinite clay and belong to the three orders *viz*. Ultisols, Inceptisols and Entisols of which major share belong to

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