Indian Journal of Natural Rubber Research, 14(1) : 43 - 47, 2001

EFFECT OF PHOSPHORUS ON THE GROWTH AND NUTRITIONAL STATUS OF THREE LEGUMINOUS COVER CROPS IN RUBBER PLANTATIONS

Annie Philip, K. I. Punnoose and Elsie S. George

Philip, A., Punnoose, K.I. and George, E.S. (2001). Effect of phosphorus on the growth and nutritional status of three leguminous cover crops in rubber plantations. *Indian Journal of Natural Rubber Research*, 14(1) : 43 - 47.

The dry matter production and uptake of nutrients in three leguminous cover crops viz. *Pueraria phaseoloides*, *Mucuna bracteata* and *Calapogonium caeruleum* were studied in a pot culture experiment using graded doses of rockphosphate. The cover crops responded to phosphorus application irrespective of the species. Among these species, varied responses were noted by the application of graded doses of phosphorus. Six months after planting, *Pueraria* showed superiority over other two species while *Mucuna* and *Calapogonium* were found to be on par in both dry matter production and uptake of nutrients. Dry matter production under both 30 and 45 kg P_2O_5 per ha application was on par.

Key words: Cover crop, Dry matter production, *Hevea brasiliensis*, Nutrient uptake, Rock phosphate.

Annie Philip (for correspondence), K. I. Punnoose and Elsie S. George, Rubber Research Institute of India, Kottayam - 686 009, Kerala, India (E-mail : rrii@vsnl.com).

INTRODUCTION

Establishment of leguminous cover crops during the immature phase of rubber contribute much to the nitrogen requirement of rubber plants (Shorrocks, 1965). These leguminous cover crops return to the soil a large amount of litter and thereby increase the organic matter and mineral nutrient status. *Pueraria phaseoloides* and *Mucuna bracteata* are the two widely cultivated leguminous cover crops in rubber plantations in India. *Calapogonium caeruleum*, indigenous to Central America, is reported as a shade tolerant, drought resistant leguminous cover crop suitable for cultivation in association with rubber (Tan *et al.*, 1976). These leguminous covers vary in their ability to improve the fertility of the soil, depending on the amount of dry matter produced and on the chemical composition of the different plants.

Manuring of leguminous ground cover has been found to be beneficial for quick establishment and easy maintenance. Phosphorus plays an important role in legume nutrition and symbiotic nitrogen