

COMPARATIVE EFFICIENCY OF TWO COVER CROPS ON SOIL ENRICHMENT, ACCUMULATION OF NUTRIENTS, MICROBIAL POPULATION AND GROWTH OF *HEVEA BRASILIENSIS* IN MEGHALAYA

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Submitted: 18 July 2007 Accepted: 22 May 2008

Singh, R.P., Deka, H.K. and Chaudhuri, D. (2007). Comparative efficiency of two cover crops on soil enrichment, accumulation of nutrients, microbial population and growth of *Hevea brasiliensis* in Meghalaya. *Natural Rubber Research*, 20 (1&2): 66-73.

A field experiment conducted in a rubber grower's field near Jorabar, Ribhoi district of Meghalaya, indicated that growing leguminous cover crops, *Pueraria phaseoloides* and *Mucuna bracteata*, in the immature phase of rubber improved the fertility status of soil, microbial population, soil moisture content, nutrient content in litter and growth of *Hevea brasiliensis*. Establishment of *M. bracteata* by sowing the treated seeds in patches (1 m²) registered higher organic carbon status, microbial population, soil moisture content and growth of young *H. brasiliensis* than other methods of its establishment or *P. phaseoloides* established by different methods.

Key Words: Cover crop, *Hevea brasiliensis*, Litter, Microbial population, *Mucuna bracteata*, Nutrients, *Pueraria phaseoloides*.

INTRODUCTION

The establishment and maintenance of leguminous cover crops in the immature phase is one of the important agronomic practices followed in rubber (*Hevea brasiliensis*) plantations. The beneficial effects of cover crops *viz.*, improvement of soil physico-chemical properties, fixation of atmospheric nitrogen and addition of large quantity of litter have been well documented (Watson *et al.*, 1964). They also help in formation of large soil aggregates and improve infiltration (Krishnakumar and Potty, 1989). Leguminous cover crops contribute much to the nitrogen requirement of rubber plants (Shorrocks, 1965) through root nodule for-

mation by symbiotic nitrogen fixing bacteria. Leguminous ground cover enhances the growth of *H. brasiliensis* during immature phase and helps in attaining higher yield (Watson, 1961; Watson, *et al.*, 1964; Philip *et al.*, 2001; 2005 a).

Pueraria phaseoloides and *Mucuna bracteata* are the two widely cultivated leguminous cover crops in the rubber plantations in India. These leguminous covers vary in their ability to improve the fertility of the soil, depending on the chemical composition and amount of dry matter produced (Kothandaraman *et al.*, 1989).

The comparative efficiency of *M. bracteata* and *P. phaseoloides* on dry matter