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RESPONSE OF RUBBER TO FERTILIZER APPLICATION IN RELATION TO TYPE OF GROUND COVER MAINTAINED DURING IMMATURE PHASE

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The response in yield and growth to applied fertilizers in two fertilizer experiments on rubber, one grown in association with legume ground cover and the other in association with naturally existing ground cover, are presented. In the legume cover experiment, during the 6th to the 9th year of tapping there was no response beyond 20 kg N ha^{-1} in the case of yield and girth increment on tapping. There was response to application of P at 20 kg P_2O_5 ha^{-1} for two years and to Mg at 6 kg MgO ha^{-1} during one year in the case of yield. Application of K beyond 16 kg K_2O ha^{-1} was not beneficial for growth and yield. In contrast, in the natural cover experiment there was significant increase in yield when the level of N was increased from 40 kg to 80 kg ha^{-1} during the four years of the study. There was no difference between the levels in the case of growth parameters. No response in growth or yield was noticed to application of P. When the level of K was increased form 16 to 32 kg K_2O ha^{-1} there was significant increase in yield during three years. Magnesium application at 6 kg MgO ha^{-1} significantly increased the yield during all the four years. The interaction effects of nutrients on growth and yield are also discussed.

Key words:- *Hevea brasiliensis*, Girth increment, Legume cover, Natural cover, Yield, Fertilizer application.

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INTRODUCTION

The trend of response to applied fertilizers in rubber (*Hevea brasiliensis*) is influenced to a great extent by the agromanagement practices followed. The most important among such practices is the establishment and maintenance of a legume ground cover during the early immaturity period. This practice is being followed by majority of rubber planters. However, some planters fail to follow this practice due to various reasons and instead the existing natural weed flora is maintained as soil cover.

Experiments conducted by the Rubber Research Institutes of India, Malaysia and Sri Lanka indicate that the fertilizer requirement of rubber grown in assoication with legume ground cover and natural gound cover vary significantly during early years of tapping (Mainstone, 1960; Watson 1960; Warriar, 1969; Pushparajah, 1977; Pushparaja *et al.*, 1983; Sivanadyan, 1983 and Mathew *et al.*, 1986). In areas with natural cover, there is need for higher doses of nitrogenous fertilizers to get yields comprable to those obtained in legume maintained areas (Pushparajah and Chellapah, 1969; Pushparajah and Tan, 1976; Pushparajah, 1977).

The object of the present study is to