

# GROWTH OF RUBBER UNDER CHEMICAL FERTILIZER INTEGRATED WITH ORGANIC MANURE MANAGEMENT SYSTEM IN NORTH-EAST INDIA

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An experiment was conducted to study the effect of farm yard manure (FYM) integrated with recommended dose of chemical fertilizers (RDF) on growth of rubber (*Hevea brasiliensis*) and soil nutrient status in north eastern India. Nine treatments were laid out in randomized block design with three replications. The treatments were control (without fertilizer and organic manure), 50 per cent of RDF, 100 per cent RDF alone, 10 and 20 kg FYM per plant alone and in combination with 50 per cent and 100 per cent RDF. Soil nutrient status increased on application of FYM with chemical fertilizers compared to the application of chemical fertilizer alone. The soil microbial population was also higher in the plots where the FYM was applied. After seven years girth of rubber plants was 3.6 per cent higher with application of 10 kg of FYM with RDF and 12.6 per cent higher on application of 20 kg of FYM in combination with RDF compared to RDF alone. Girth was 24.8 per cent lower in control without application of any chemical fertilizer compared to RDF alone and the control plants recorded the lowest leaf area index. Tappable girth of rubber was achieved in six and half years with integrated application of 20 kg FYM with RDF in North-East India.

**Key words:** *Hevea brasiliensis*, Inorganic fertilizers, Manuring, Natural rubber, North-East India

## INTRODUCTION

To meet the demand of natural rubber (NR) in the country, the production has to be increased by expanding the area under cultivation. Further expansion is not feasible in the traditional region due to shortage of land. North-eastern region of India is one of the non-traditional regions of India marginally suitable for rubber cultivation and have great potential for rubber cultivation. The crop has gained popularity among the locals due to its easy adaptability. Th north eastern region has 1,88,565 ha

rubber plantation in 2019-20 (Rubber Board, 2020).

Severe depletion of soil fertility due to Jhumming and imbalanced use of chemical fertilizers is the major concern of soil health in this region. The soils are acidic in reaction and poor in nutrient content (Chaudhuri *et al.*, 2001). The agro-management techniques have been evolved for successful raising of plantations on these soils and recommended the use of chemical fertilizer as one of the inputs (Rubber Board, 2017). The low fertilizer consumption or non-availability of