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RUBBER YIELD OF CERTAIN CLONES OF *HEVEA BRASILIENSIS* AND ITS RELATIONSHIP WITH CLIMATE VARIABLES

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The relationship between long term yield of seven *Hevea* clones and climatic parameters such as minimum temperature (T_{min}), maximum temperature (T_{max}), sunshine hours (s), rainfall (R) and relative humidity [RH1 (morning) and RH2 (afternoon)] was studied under a typical tropical humid climatic regime. Of the seven genotypes, RRII 105 was significantly high yielding (68.0 g/t/t), while Gl 1 (40.5 g/t/t) and RRIM 600 (43.8 g/t/t) registered relatively low yields. Climatic parameters were regressed on yield. T_{max} was found to be the most important influencing factor with a negative relationship in each clone (slopes from -7.299 to -3.353). T_{max} showed less monthly variability when compared to RH in the corresponding period. RH was seen to be low during the winter and pre-monsoon seasons. Yield was found to be the most important function of T_{max} (R^2= 0.21). Most of the clones showed an increase in yield with time mainly during the monsoon season (slopes from 4.94 to 2.56 per year). The R^2 ranged from 0.30 (RRII 105) to 0.76 (RRII 203) during the monsoon season. The clone RRII 208 did not show any increase in yield, while RRIM 600 showed a varied response of yield with time over different seasons. The study indicated the moderate level of decrease in yield with increasing T_{max}. However, rising temperature in the long-term climate change scenario, the yield decline in rubber clones need to be evaluated further in large scale.

Keywords: *Hevea* clones, Rubber yield-climate relations, Selection.

INTRODUCTION

Hevea brasiliensis Muell. Arg. is the most important source of natural rubber cultivated in the equatorial regions and mainly in the humid and sub humid tropical climates (Rao and Vijayakumar, 1992). Prevalence of high rain fall with stable temperature and humidity is indispensable for achieving high yield. Due to the need to increase the supply of this strategic commodity, attempts have been made to elaborate the cultivation to marginal areas like North-East India. The yield improvement through conventional breeding during the last few decades in *H. brasiliensis* in terms of rubber yield has been noteworthy. In India, genetic improvement efforts on the base material revolutionized rubber production during the last 50 years, with manifold improvement in productivity. Early generation seedling plantations with a marginal yield of about 250 kg/ha/year were replaced with improved hybrid clones. The present day cultivars have a yield potential of up to 3500 kg/ha/year (Licy *et al.*, 1997). Rubber breeding procedures which are

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