

YIELD DECLINE IN *HEVEA* TREES: A COMPARATIVE EVALUATION OF SIXTEEN YEARS LATEX YIELD

D. Bhuvanendran Nair, James Jacob, K. Annamalaiathan and Sushil Kumar Dey*

Rubber Research Institute of India, Rubber Board, Kottayam – 686 009, Kerala, India

*Regional Research Station, Rubber Research Institute of India, Rubber Board
Agartala-799006, Tripura, India

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Yield of rubber tree varies over the years depending on many biological, environmental and management factors. In an experiment, the latex yield of 12 *Hevea* clones was monitored for 16 years under S/2 d2 6 d/7 system of tapping. The yield increased gradually in initial years of tapping and maintained a higher yield output from 3rd to 15th year. Yielding pattern of rubber trees varied among the clones. Clone PB 235 and RRII 118 showed a long duration of higher yield output for 15 years. Clones RRII 300, RRII 105, RRIM 501 and PR 107 exhibited higher yield output for 8 to 10 years. After a specific period of vigorous latex output, the yield started declining in all clones. The onset of yield decline was different among the clones and it varied from 11th to 16th year of tapping. In clones RRII 105 and RRIM 703, the yield decline commenced from 12th year of tapping, whereas this was between 15th to 16th year of tapping in clones PB 235, RRII 118, RRIM 600, GT1 and GI 1. Generally, a drastic reduction in yield was observed after 16 years of tapping when the trees were 23 years old. Clones RRIM 703 and RRIM 501 showed the highest decline (40%) from peak yield at 16th year of tapping. The popular clone RRII 105 recorded around 20 per cent decline. This was almost negligible in clones RRII 118 and GI 1. The decline in yield of rubber trees could be attributed to ageing, soil fertility, environmental and agro-management factors that might reduce the tree growth and shorten the economic life span of trees.

Keywords: Latex yield, Peak yield, Yield decline

INTRODUCTION

Hevea brasiliensis, a perennial tree crop attain tappable and become economically significant in six to seven years after planting and reaches full production potential in three to four years of tapping. After a period of vigorous latex output the productivity drastically declines, thereafter the trees are cut down from the plantations and are usually replanted with new clones.

The yield per tree per tap increases with increase in girth of trees due to the increase in length of tapping cut (Dijkman, 1951; Karunaratnel *et al.*, 2005). However, the growth of rubber trees tends to decline gradually during the later period. Moreover, the productivity of rubber tree is determined not only by its inherent genetic factors but also prevailing environmental conditions. Tree to tree variation and