

# LONG TERM YIELD OF RUBBER AND TIMBER AND RESPONSE TO STIMULATION IN NEW GENERATION CLONES

Kavitha K. Mydin

Rubber Research Institute of India, Rubber Board P.O., Kottayam-686 009, Kerala, India

Received: 24 May 2019 Accepted: 26 June 2019

Mydin, K.K. (2019). Long term yield of rubber and timber and response to stimulation in new generation clones. *Rubber Science*, 32(2): 159-169.

Twenty clones evolved by hybridization, selection and polyploidy breeding were evaluated in comparison with clone RRII 105 in two large scale trials laid out in 1993 at the Central Experiment Station of the Rubber Research Institute of India. Long term performance of these clones over 25 years under S/2d3 6d/7system of tapping without stimulation for 14 years and with application of yield stimulant for three years was studied. Growth and timber volume at 25 years were also assessed.

The unstimulated yield over 14 years of tapping among the 22 clones in the two trials established three clones RRII 417, RRII 430 and PB 330 to be superior to RRII 105 and a total of nine clones (RRII 414, RRII 429, RRII 402, RRII 403 and RRII 55 in Trial 1 and RRII 422, RRII 52, RRII 410 and RRII 427 in Trial 2) to be comparable with RRII 105. In terms of long term yield over 17 years of tapping, RRII 430 (77.1 g t<sup>-1</sup> t<sup>-1</sup>) and PB 330 (73.6 g t<sup>-1</sup> t<sup>-1</sup>) were the highest yielders with 17-18 per cent higher yield than clone RRII 105.

The response to stimulation in terms of the improvement in yield of the clones in the renewed panel on stimulant application over the unstimulated yield for 14 years ranged from 0 to 56 per cent. Clones RRII 414, RRII 422 and RRII 427 did not show any response to the application of yield stimulant. Among the 12 promising clones, better response to stimulation than RRII 105, with yield increase ranging from 6.5-22.4 per cent was exhibited by eight clones. Among these, RRII 429 (22.4%) and RRII 52 (21.0%) were the two toppers. The low incidence of tapping panel dryness in clones RRII 410 (5.3%) and PB 330 (10.5%) after 17 years of tapping is noteworthy. Clones RRII 430 and RRII 422 showed a lower percentage of TPD affected trees than RRII 105.

Clones PB 330 and RRII 52 exhibited the highest girth of more than 100cm after 17 years of tapping. Other high girthing clones were RRII 402, RRII 414 and RRII 417. Bole volume was highest in clone PB 330 (0.38 m<sup>3</sup>tree<sup>-1</sup>) followed by clones RRII 417, RRII 414, RRII 407, RRII 402 and RRII 410 with 0.16 m<sup>3</sup>tree<sup>-1</sup> at 25 years. The results established RRII 417, PB 330 and RRII 414 to be dual purpose latex-timber clones while RRII 430 was a stable high latex yielder.

**Key words:** Bole volume, *Hevea* clones, Long term rubber yield, Response to stimulation

## INTRODUCTION

High rubber yield and precocity in terms of early attainment of tappable girth are the hallmarks of an elite *Hevea* clone. In addition

to the yield of latex, rubber timber is of commercial significance in present times and so is the tolerance of clones to biotic and abiotic stresses. In an attempt to combine the