Rubber Science, **27**(1): 61-68, 2014

FIELD EVALUATION OF PROGENIES OF A CANOPY MUTANT OF *HEVEA BRASILIENSIS*

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Received: 18 June 2013 Accepted: 12 November 2013

Gireesh, T. and Mydin, K.K. (2014). Field evaluation of progenies of a canopy mutant of *Hevea brasiliensis*. *Rubber Science*, **27**(1): 61-68.

Canopy and tree architecture are important features determining both the tree-level and stand-level productivity of rubber and susceptibility towards wind damage in plantations. However, genetic base of crown architecture is less studied and is rarely utilized in tree improvement programmes. A natural mutant of *Hevea brasiliensis* showing distinct morphological variation in the crown was reported earlier. In the present study, genetic improvement of the compact canopy morphotypes was attempted through half-sib approach and selected progenies were subjected to field evaluation adopting recommended spacing. Girth and yield of four morphotypes (Compact: 12 cm, 5.5 g $t^{-1}t^{-1}$; intermediate: 81.0 cm, 28.3 g $t^{-1}t^{-1}$; semi compact: 46 cm, 17.2 g $t^{-1}t^{-1}$; normal: 76 cm, 25 g $t^{-1}t^{-1}$ and RRII 105-control: 64.2 cm, 45 g $t^{-1}t^{-1}$) showed significant variability while original natural mutant (compact) showed stunted growth and less yield. The mean canopy spread/width in the 5th year in RRII 105 and the normal type ranged from 4.6 to 5.5 m; whereas, the intermediate type had a canopy spread of 2.2 m only. The intermediate crown type can be considered more promising than the check clone in terms of extent of crown width though rubber yield (28 g $t^{-1}t^{-1}$) is less. Increase in plant density can compensate for lower yield and can also reduce the damage/tree loss in wind prone areas. This type could be subjected to further density cum clone evaluations to arrive at an optimum tree stand for profitable yield. Compact canopy genotypes not only avoid wind damage but also help the planters in getting enough room for optimal utilization of land.

Keywords: Compact canopy, Crown variation, Half-sibs, Mutant

INTRODUCTION

Para rubber tree, *Hevea brasiliensis* (Willd. ex Adr. de Juss.) Muell. Arg, is one among the rubber synthesizing species that produce commercially acceptable latex which is one of the important raw materials for thousands of products. Belonging to the family *Euphorbiaceae*, it is cultivated extensively in tropical areas of South East Asia. Trees are fast growing, reaching a height of up to 25 to 40 m, and replanted after tapping for 25-30 years. Breeding, selection and vegetative propagation of this species revolutionized global natural rubber out put. Evolving new cultivars with high yield potential and other favorable quantitative traits through recombination breeding is a priority area (Licy *et al.*, 2003; Priyadarshan and CleÂment-Demange, 2004).

Due to its rare occurrence and complexity, introgression of traits like compact canopy needs several generations. Damage to plantations due to uprooting and

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