

# ROLE OF PARENTAL SELECTION IN CLASSICAL *HEVEA* BREEDING IN INDIA

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This paper discusses the role of parental selection in classical *Hevea* breeding programmes based on results from clone evaluation trials. Among the major clonal types examined (W x W, W x A and ortets), W x W origin clones (360 clones) showed an average yield potential of 5.4 kg tree<sup>-1</sup> yr<sup>-1</sup>. Yield potential of the W x A hybrids (42 clones) and Wickham origin ortets (165 clones) were 3.7 and 4.5 kg tree<sup>-1</sup> yr<sup>-1</sup> respectively. The average yield was higher in clonal families with RRII 105 as the female parent than as the male parent. The same trend was observed in reciprocal crosses also indicating the significance of RRII 105 as a female parent in cross combinations. Among the various cross combinations involving RRII 105 as the female parent, the highest average family yield (7.9 kg tree<sup>-1</sup> yr<sup>-1</sup>) and the maximum yield (15.9 kg tree<sup>-1</sup> yr<sup>-1</sup>) were recorded in the family of RRII 105 x RRII 118. In the 1982 HP programs, clones in the family of RRII 105 x RRIC 100 recorded 63 per cent average yield improvement over the family of GT 1 x RRII 105 and 90 per cent improvement over the family of GT 1 x RRIC 100. RRII 118 and RRIC 100 are clones known for high growth vigour and yield potential which strongly suggests the critical role of both the parents in *Hevea* breeding programmes.

The average yield potential of the important introduced clones, popular primary clones and secondary clones were 6, 4 and 6 kg tree<sup>-1</sup> yr<sup>-1</sup> respectively. The average yield improvement of the tertiary clones (RRII 400 series) over the secondary clones was 17 per cent while that over the primary clones was 75 per cent. Recombination breeding in *Hevea* is rewarding although a yield ceiling seemed to be reaching as evidenced from the decreasing per cent of yield improvement. Further yield improvement and widening of the gene pool is envisaged through new introductions. The recently imported clones, through the international Multilateral Clone Exchange (MCE) programme from the IRRDB member countries, having proven traits for yield, growth and other important secondary attributes are expected to contribute more in the *Hevea* breeding programmes and in the plantation industry.

**Keywords:** Amazonian accessions, *Hevea brasiliensis* breeding, Ortets, Parental selection

## INTRODUCTION

*Hevea brasiliensis* is an economically important perennial tree crop species. Primarily the species is known for the Natural Rubber (NR) (cis-1, 4-polyisoprene)

containing latex present in the phloem tissues (Kush *et al.*, 1990). The volume of latex and per cent rubber it contains determines the crop yield. Inherent genetic potential of the tree and its interaction with