

**GENETIC PARAMETERS AND HETEROSIS IN RUBBER  
(*HEVEA BRASILIENSIS*) MUELL. ARG. :  
V. HYBRID VIGOUR FOR YIELD AND YIELD COMPONENTS  
AMONG THE RR11 400 SERIES CLONES IN SMALL SCALE  
EVALUATION**

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Performance of twenty three hybrid clones of rubber (*Hevea brasiliensis*) resultant of the cross RR11 105 x RR1C 100 was evaluated during the mature phase. The hybrid clones exhibited significant clonal variation for annual yield over seven years and for the yield components viz., total volume of latex, dry rubber content, initial rate of latex flow, plugging index, girth at opening, girth increment on tapping, number of latex vessel rows and thickness of virgin and renewed bark, indicating sufficient variability for selection. Out of the 23 hybrid clones tested, 10 showed better potential for crop improvement in rubber as evidenced by estimates of standard heterosis.

Key words: Clonal variation, Hybrid clones, Standard heterosis.

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## INTRODUCTION

The primary goal of any plant breeding programme is essentially to improve the genetic potential of the crop, particularly the productivity of a genotype. This is being achieved in several ways, the most attractive and achievable one being heterosis breeding. Heterosis has been exploited since quite long in cross-pollinated crops and cross-pollination is the rule rather than an exception in rubber. The present study deals with heterosis for yield and yield components among a set of twenty three hybrid clones of the cross RR11 105 x RR1C 100 under small-scale evaluation. Early evaluation of these clones at the immature phase had resulted in the identification of 15 clones having heterotic improvement for yield over the standard clone RR11 105 (Licy *et al.*, 1992). Further studies have also indicated the association of yield and yield attributes in these clones both in the early and mature phases (Licy, 1998; Licy *et al.*, 1993a, 1993b, 1998).

## MATERIALS AND METHODS

The materials comprised twenty-five clones of *Hevea brasiliensis* (Willd. ex A. Br. de Juss.) Muell. Arg. which constituted twenty-three hybrid clones resultant of a biparental cross of RR11 105 x RR1C 100, and the two parental clones. The field experiment was laid out at the Rubber Research Institute of India, Kottayam in 1985 as a small scale evaluation trial. A randomised block design with three replications and four plants per plot was adopted with a spacing of 3.4 x 6.7 m. All cultural operations were carried out uniformly as recommended by the Rubber Board. The clones were opened for early tapping at four and a half years after field planting in order to evaluate the early performance in the immature growth phase. The trees were opened for regular tapping in 1993 following 1/2 S d/3 system. Yield was recorded as gram per tree per tap by cup coagulation method. The characters under ob-