EVOLVING HIGH YIELDING *HEVEA* CLONES THROUGH TRANSGRESSIVE INTROGRESSION HYBRIDIZATION OF AMAZONIAN HYBRIDS AND WICKHAM CLONES

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Secondary gene pool available in the wild relatives of a cultivated variety can be employed when the variation within the primary gene pool is exhausted to develop improved varieties through introgression hybridization. The time-consuming breeding cycle makes introgressive hybridization through repeated backcrossing a highly challenging strategy in *Hevea*. Three promising Wickham (W) x Amazonian (A) hybrids identified earlier *viz*. 90/10 and 90/34 (RRII 105 x RO 142) and 90/274 (RRII 105 x MT 196) were selected as the paternal parents. The maternal parents used in the back cross included RRII 105, along with RRII 414, RRII 430 and RRII 429 which are the hybrids of RRII 105 x RRIC 100. A total of 353 hybrid seedlings derived from 13,859 hand pollinations were planted in the nursery for evaluation. The hybrids were screened for yield and girth under seedling nursery evaluation. Sixty three promising hybrids were identified and the per cent recovery of high yielding hybrids from a cross combination varied between 0 to 33 per cent. Cross combinations involving RRII 430 as maternal parent resulted in maximum number of selections. Number of selections from crosses involving 90/10 as paternal parent was the highest with an average of 26.2 per cent. The average test tap yield of hybrids of RRII 430 as maternal parent was the highest. The promising hybrids identified in the present study were forwarded to the next level of evaluation to develop improved clones.

Keywords : *Hevea*, Introgression, Nursery evaluation, Wickham (W) x Amazonian (A) hybrids

INTRODUCTION

Scope for developing improved varieties through breeding by exploiting variation within the species primary gene pool is limited. The supply of novel variants and narrow genetic base are always a limiting factor in crossing the yield threshold beyond a certain level (Jacob *et al*., 2021). In order to overcome this limitation, supply of usable genetic variation can be widened by accessing the secondary gene pool, as represented by its wild relatives (Rieseberg and Wendel, 1993). Introgressive hybridization (introgression) is a method in which the genetic modification of one species is achieved through hybridization and repeated backcrossing by another species (Anderson, 1949). It is important in plant breeding where a desirable trait can be transferred from wild to cultivated crops.

Being a perennial tree crop, conventional breeding and selection in *Hevea* is a long term

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