

EVALUATION OF A POLY-CROSS PROGENY POPULATION OF *HEVEA BRASILIENSIS* MUELL. ARG. UNDER DROUGHT CLIMATE WITH SPECIAL REFERENCE TO DISTRIBUTION OF GIRTH AND YIELD

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A polycross progeny population was evaluated in the drought-prone non-traditional region of Dapchari in Maharashtra. Initially, 4500 progenies were established, however, only 1853 progenies survived the successive drought seasons. The population was test-tapped when the progenies were three years old. Based on test-tap yield and girth, promising progenies were identified. The range of test-tap yield of the population varied from 0.00 to 42.5 g t⁻¹ 10 t⁻¹ with a mean yield of 4 g t⁻¹ 10 t⁻¹. Coefficient of variation for yield was 101.4 per cent, showing high heterogeneity for population yield. The population yield showed an R² value of 0.441 on the population girth, showing a high dependency of population yield on the population girth, in the drought climate. Selected progenies from the population exhibited a high yield potential (0.9), low coefficient of variation (32%) and a less R² value (0.252), which indicated that heterogeneity was less among the selections with high yield potential. Growth parameters such as girth, height and the number of leaves showed a normal distribution of the traits in the population. However, the yield of the population revealed a highly skewed distribution of the trait. Majority of the yield data points (1274 progenies) were oriented to the left and represented the low yielders and a few data points were distributed to the extreme right representing the high yielders. Hence, unlike the growth parameters, yield is a distinct quantitative trait, which warrants specific approaches for improvement. Selection based on a large population is therefore one of the most important approaches in *Hevea* population improvement. The selected progenies from the trial would be subjected to clonal multiplication and evaluation for identifying drought tolerant selections for the region.

Keywords: Drought, Frequency distribution, Girth, Polycross progenies, Variation, Yield

INTRODUCTION

Hevea brasiliensis (Willd. ex A. Juss.) Muell. Arg., is predominantly an outcrossing tree species of economic importance (Simmonds, 1989). Primarily, the species is

tropical in habitat and is naturally distributed in the Amazon rainforests (Webster and Paardekooper, 1989). Natural rubber (NR) is the economically important product for which the species is chiefly cultivated. The