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PREPOTENCY IN RUBBER : 2. SEEDLING PROGENY ANALYSIS FOR YIELD AND CERTAIN YIELD ATTRIBUTES

Prepotency is the capacity of a parent to impress characteristics on its offsprings so that they resemble that parent and each other more closely than usual (Allard, 1960), where the gene combinations tend to cohere but do not recombine resulting in some sort of functional homozygosity (Harland, 1957).The concept of prepotency has been explored in several cross pollinated perennial species and a viable system of utilization of prepotent palms has been established for the production of elite planting material in coconut.

Hevea brasiliensis (Willd. ex Adr. de Juss.) Muell. Arg., the Para rubber tree, is an outcrossing perennial whose natural polycross seeds are recommended for planting in marginal lands so that the heterogeneity of the seeds becomes advantageous in deciding their performance under adverse conditions. The identification of prepotent clones assumes significance in the context of seed garden components since prepotency is comparable to general combining ability (Liyanage, 1972).

Rubber yield, though a complex trait, is highly heritable (Simmonds, 1989) and yield potential is expressed early enough that nursery selection is effective. The existence of prepotency resultant of co-adapted gene complexes controlling rubber yield and related attributes is therefore worth exploring and prepotent clones in rubber have been identified by computing a performance index of one year old progenies (Mydin *et al.*, 1990). In the present study an attempt is made to utilise juvenile rubber yield and two important yield attributes *viz.*, girth and number of latex vessel rows (LVR) along with number of leaf flushes in two year old progenies for determining their relative merit and thereby the prepotency of their respective parents.

The material for the study comprised seedling progeny of twenty promising clones, selected based on early yield data from an evaluation trial of forty clones planted in a randomized block design. Seeds resultant from open pollination were collected clone-wise from trees in all the three replications of the trial. The twenty progenies thus obtained comprised 1680 seedlings which were raised in a randomized block design with four replications. A plot size of 21 plants and a spacing of 60 x 60 cm were adopted. Observations were recorded from 15 plants per plot on attaining two years growth. Juvenile rubber yield was determined by test tapping the seedlings on ten alternate days following the modified HMM method (Tan and Subramaniam, 1976). Bark thickness and the number of latex vessel rows were recorded from radial longitudinal sections of the bark using standard procedures (Bobilioff, 1923). Three morphological traits *viz.*, plant height, girth at 10 cm from ground level and the number of leaf flushes were recorded.

Variability among the twenty progenies was estimated through the analysis of variance and the progeny means were compared using Duncan's Multiple Range Test