

## **Potential genotypes of the 1995 RRIM Hevea germplasm collection for future rubber breeding and selection programme**

### **ABSTRACT**

Malaysia received a large share of the Hevea germplasm collection from the 1995 Rubber Research Institute of Malaysia (RRIM) expedition. About 50,000 wild genotypes of eight Hevea species originating from the state of Amazonas of Brazil are conserved ex-situ in Rantau Panjang Reserve Forest, Batu Arang, Selangor. As management of such massive numbers of individuals covering extensive areas is demanding, the wild genotypes planted in this germplasm are evaluated in a phased manner. A total of 5,789 wild genotypes of six Hevea species (*Hevea brasiliensis*, *Hevea spruceana*, *Hevea guainensis*, *Hevea nitida*, *Hevea benthamiana* and *Hevea pauciflora*) originating from different locations in the Amazonas, planted in Phase 1 area (58.88 ha) of this germplasm were assessed for their main characteristics specifically latex yield, clear bole volume, girth at opening, annual girth increment and virgin bark thickness. In general, the wild genotypes of the 1995 RRIM Hevea germplasm produced a considerably low amount of latex yield. Up to 80.84% of these materials were found to produce latex yield of less than 25.00 g/t/t. Nevertheless, *Hevea brasiliensis* demonstrated superiority compared with the other five Hevea species in this germplasm. Selection of potential genotypes in this germplasm was to gather good performance genotypes as well as to retain as much genetic variability possible. This process was performed using multiple characteristics selection index on latex yield, clear bole volume and girth at opening. The selection process resulted in a working collection consisting 616 potential genotypes of mainly *Hevea brasiliensis*. Assessment of major leaf diseases revealed that most of the selected genotypes were free from or only lightly affected by *Oidium* and *Colletotrichum* secondary leaf fall while all of them were completely free from *Corynespora* leaf disease and *Fusicoccum* leaf blight. These selected materials will be used for further evaluation, genetic improvement and incorporation in the Malaysian Rubber Board's rubber breeding programme for the development of superior latex timber clones.

**Keyword:** 1995 RRIM Hevea germplasm; Genetic resources; *Hevea* spp.; Rubber breeding; Selection index