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Evaluation and characterization of coffee varieties in mid country of Sri Lanka

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Arabica coffee (*Coffea arabica* L.*)*, which gives premium price due to superior flavour and aroma, is more suited to cooler high elevation regions whereas robusta coffee (*Coffea canephora* Pierre) which is using for making instant coffee, is more suited for warm humid conditions though it has wider adaptability. In Sri Lanka, about 15800 ha are under coffee and out of that more than 60 % is in mid country. Average national productivity of coffee plantation is around 332 kg ha^{-1} instead of potential yield over 1500 kg ha^{-1}. This is far below value when compared to the production of newly developed varieties of coffee and it suggests that to use the developed varieties in future cultivations. The objectives of this study are to evaluate introduced varieties for the yield and adaptability to mid country of Sri Lanka and characterize those using leaves and berries.

Hence, seven robusta (S274, Q105, GCR, Q36, Q111, IMR, and Q96) and nine arabica (5A, S9, HDT, 6A, C2, S7d, S7t, S6d, S6t) introductions were evaluated at Matale in randomized complete block design with three replicates and 21 plants per plot. Though the experiment was established in 1975, the plants were collar pruned in 1999 and maintained as single stem one tire system with 1.5 m height. Standard agronomical practices were carried out and the yield data were recorded during four years. Leaves and ripened live berry samples were evaluated to determine their characteristics.

Results revealed that the varieties C2, GCR, S274 are the best varieties giving more than 2000 kg ha^{-1} yr^{-1} of mean processed bean yield for mid country agro-ecological conditions. Variety Q36 shows the biggest leaves (21.4 cm length and 10.25 cm width) among the robostas while S7d shows the smallest (11.85 cm length and 6.05 cm width) among the arabicas. Normally, arabica varieties are having dark green colour leaves specially, in variety HDT. Varieties C2, HDT, S9 and Q 105 show more than 1 g $berry^{-1}$ whereas varieties Q111, Q 96 and Q 36 show less than 0.5 g $berry^{-1}$. Varieties IMR and Q111 show the lowest conversion rate of fresh yield into dry parchment yield (less than 3.5 :!) whereas varieties S6d, S6t and S7d gave the highest conversion rate of more than 4.5:1. Large berries are shown in Q111 (17.7 mm length, 17.1 mm width) and HDT (16.4 mm length, 13.7 mm width) whereas smallest berries are shown in S6t (11.6 mm length, 11.3 mm width). Plagiotropic branches are high in Q105 (23 $plant^{-1}$) whereas number of berries per cushion is high in Q 96 (23 berries $cushion^{-1}$). Therefore, varieties C2, GCR, S274 can be recommended for the mid country of Sri Lanka and other special characteristics of the different varieties can be used for the breeding activities.

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