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Characterization of cocoa (*Theobroma cacao*. L) germplasm based on pod and bean characteristics

I G M Rajapakse, C L Thilakaratne, A L S Dharmaparakrama and J M Senevirathne
Research Station, Department of Export Agriculture, Matale

Thirty six Cocoa (*Theobroma cacao*. L) lines were characterized based on pod and bean related physical parameters. This study was conducted in 2010 using the existing Cocoa germplasm at the Research Station of the Department of Export Agriculture located at Matale. Ten medium sized ripened pods were randomly selected from each line for the characterization. Pod characters such as pod length, width, diameter of the internal cavity, weight and fresh bean weight with mucilage (wet bean weight) were measured. The number of beans per pod and the dry weight of the total beans per pod were also measured. Pod index and the pod value were calculated. Bean internal colour and pod shape were observed.

A large variation was observed for pod and bean characters among the Cocoa lines tested. The largest pods were observed in the line Wk2 with a length of 234 mm, width of 96.1 mm, an internal cavity of 66.3 mm and a fresh weight of 949.7 g per pod. The highest bean dry weight (> 83.53 g/pod) and the lowest pod value (12) was shown by the line Wk2. Line Wk1 showed the widest pods with over 100 mm but it had the lowest number of beans per pod (29), highest pod index (27.06) and pod value (32.4). Pod length ranged from 125 – 234 mm whereas pod width varied from 70 – 101 mm. Fresh pod weights varied from 332 – 950 g while the dried beans per pod ranged from 30.8 – 83.5 g. Pod index varied from 7.5 – 27.1 whereas pod value varied from 12 – 32.4 in different cocoa lines.

We conclude that the lines in the Cocoa germplasm differ with their pod and bean characteristics. Internal bean/cotyledon colour ranged from light purple to dark purple. According to the colour of the bean cotyledon, lines can be categorized as the Forastero type or the Trinitario type. None of the lines showed the distinct features of the pure Criollo Cocoa category in which the cotyledon colour is creamy white.