

ABSTRACT

THE COMPILATION AND ANALYSIS OF A DESCRIPTOR LIST FOR COCOA (Theobroma cacao L.)

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The usefulness of several cocoa descriptors was assessed in this study. Thirty-five quantitative descriptors were analyzed to determine whether, and to what extent, they differentiate between fifty-three accessions. The latter represent a range of diversity. All the descriptors were discriminative. However, the leaf descriptors were more influenced by environment than the reproductive ones and the fruit descriptors displayed the most variability within the populations studied.

There were several correlations between these descriptors. For the purpose of quick identification of accessions, the most discriminative were retained and those correlated with them discarded. The resulting subset of descriptors includes pod weight and length, total bean weight, bean length and width;

staminode, petal and sepal lengths, ovule number; total leaf length and leaf apical angle.

Information on the diversity of the accessions was important for assessing the usefulness of these descriptors. Seven homogeneous groups of accessions were identified by clustering with sixty-eight mixed variables. The presence of diversity was demonstrated and the accessions could be differentiated according to their geographic origin.

No subsets of descriptors provided a classification identical to that of the full complement. However, a subset of thirty-four mixed descriptors furnished a similar classification. It may be appropriate for quick classification in the International Cocoa Genebank, Trinidad. Subsets of descriptors may be useful for differentiating between distinct accessions. However, as large a group of descriptors, as is practicable, is recommended for the reliable determination of the relationships between the accessions.