Book of Poster Abstracts

International Plant Breeding Symposium 2006

Honoring John Dudley

IPBS 2006
International Plant Breeding Symposium

Mexico City, 20-25 August, 2006

Editor: Sophie Higman

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21. The core collection of highland Ecuadorian maize genetic resources

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Ecuador has a great diversity of maize. Of 29 races of maize recognized, 17 belong to the highlands. The varieties cultivated in the provinces depend on farmers' preferences and customs. The core collection constitutes a limited set of accessions, representing much of the genetic variability of the total germplasm collection. For analysis, 13 variables were considered: nine continuous variables (days to female flowering, days to male flowering, number of kernel rows, plant height, ear height, root lodging, stalk lodging, ear length, ear diameter), and four discreet variables (ear quality rating at harvest, ear shape, grain type and grain color). Accessions were grouped according to the multivariate analysis of the Ward-MLM. The number of distinct groups in the Ecuadorian highland collection was determined based on the criteria of Pseudo F, Pseudo t^2, and profile of verisimilitude. The number of accessions of each group to be included in the core collection was determined according to a logarithmic strategy and the accessions were chosen at random. A total of eight distinct diversity groups in the collection were found with a high probability of 0.98 on average. The accessions were not necessarily grouped by their race classifications. Grain type, grain color and collection site better classify the accessions into the different diversity groups. The 140 accessions of the core collection represent 20% of the original collection. They represent the maize diversity of all the provinces and races of the Ecuadorian highlands in the original collection.

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