

## GENETIC DIVERSITY IN ADVANCED CLONES OF SUGARCANE

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### ABSTRACT

Genetic divergence was worked out using  $D^2$  analysis for 34 sugarcane genotypes (28 advanced clones and 6 standard checks) grown in the first week of March (normal planting) and first week of May (late planting) at Karnal in 1984. Two canes from each of the five randomly selected clumps of each genotype were used to record data on number of millable canes per clump, cane height, leaf length and width, number of internodes per cane, internode length, cane thickness, single cane weight, cane yield per clump, fibre content, brix, pol and purity percent, commercial cane sugar, and reducing sugars.

**Key words:** Genetic diversity, sugarcane, clones.

The genotypes were grouped into 11 clusters in normal planting and 9 clusters in late planting (Table 1). Cluster I was biggest in both plantings and showed high degree of repeatability.

Table 1. Clustering of sugarcane genotypes grown in two environments

Cluster	Normal planting	Late planting
I	CoH 1, CoH 2, CoH 3, CoH 4, CoH 6, CoH 7, CoH 10, CoH 12, CoH 13, CoH 17, CoH 22, CoH 28, CoH 33, Co 1148, CoS 767	CoH 4, CoH 5, CoH 6, CoH 7, CoH 9, CoH 12, CoH 13, CoH 16, CoH 18, CoH 22, CoH 23, CoH 25, CoH 28, CoH 33, CoH 53
II	CoH 8, CoH 9, CoH 16, CoH 20 CoH 53, Co 1158, Co 7717	CoH 1, CoH 10, CoH 11, CoH 15
III	CoH 11, CoH 21, CoH25	CoH 19, CoH 20, CoH 21, CoJ 64
IV	CoH 23, Co 7314	Co 1148, Co 7314, Co7717
V	CoH 5	CoH 2, CoH 3, CoH 14
VI	CoH 14	CoH 24, Co 1158
VII	CoH 15	CoH 8
VIII	CoH 18	CoH 17
IX	CoH 19	CoS 767
X	CoH 24	
XI	CoJ 64	

The highest intracluster  $D^2$  values were recorded in clusters III and VI in normal and late plantings, respectively. In normal planting, the maximum and minimum intercluster  $D^2$  values were observed between clusters VII and XI and between clusters III and VII, respectively. In late planting, the maximum and minimum intercluster  $D^2$  values were between clusters VII and IX and between clusters I and III, respectively. The results indicate that genotypes CoH 15 and CoJ 64 in normal planting and genotypes CoH 8 and CoS 767 in late planting were markedly diverse and may be used as parents for evolving superior varieties.