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RESEARCH ARTICLE :

Variability trends for brix content in general cross combinations of sugarcane (Saccharum Spp.)

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SUMMARY : The study was undertaken to determine the potential of general cross combinations in sugarcane, obtained by open pollinating the female parents to generate variants for brix (per cent total soluble solids) content and frequency distribution pattern of variants, hence generated. Using Brix (an indicator of sucrose content) as selection criterion, 1436 ratooned seedlings raised from 5 general cross combinations, comprising high sugared commercial varieties of peninsular zone as female parents *viz*., 97 R 129, Co 7219, Co 98008, 87 R 40 and Co A 7602 were investigated. The adjusted brix values of test genotypes, evaluated in augmented incomplete block design, inferred the generation of highly variable population with significant differences in test genotypes. Further cross wise evaluation revealed that progeny means of three General combinations raised from female parents Co 7219, 97 R 129 and 87 R 40 were significantly higher than respective parental means, whereas, the progeny obtained from high sugared female parents Co A 7602 and Co 98008 has significantly lower mean brix value than parental means, thereby signifying that determining the combining ability of parents is important to generate elite segregants since some parental combinations may not be able to transfer their potential economic values (traits) to next generation. Highly significant negatively skewed leptokurtic distribution of the progeny for brix content in General combinations obtained 97 R 129 and Co 7219 indicated that the tail on the left side of probability density function was longer than the right side and the bulk of the values (including the median) lie to the right of the mean. This indicated that 97 R 129 & Co 7219 are potential female parents to generate high frequency of elite seedlings for Brix. The evaluation of elite clones from General combinations in the next Clonal stage (Settling I) led to a higher selection rate in 97 R 129 & Co 7219 as compared to other General combinations. The study suggested the scope of general cross combinations, which are less laborious, cost effective and generally yield more fuzz, to generate elite segregants for qualitative traits like sucrose content in sugarcane. The influence of female parents on frequency distribution pattern of elite segregants has been discussed.

KEY WORDS :
Variability, Brix, Combinations, Sugarcane

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