ABSTRACT

An Evaluation of Stage Three Cultivar Trials

and Sugarcane Cultivar Selection in Barbados

Orville Agard Wickham

This dissertation examines data collected from stage three sugarcane cultivar trials in Barbados harvested between 1981 and 1988. The analysis of variance, ecovalence, consistency index, coefficient of variation, regression coefficient and rank correlations were used to detect GE interactions for yield and related characters. It also examines the relationship between three methods of measuring GE interactions and rank correlations between these methods and the performance of yield and related characters. In order to determine the optimum time for brixing, brixing was performed on the ratoon crop of the B85 series stage 3 to examine the maturity of a subset of cultivars over a period of five months.

All the methods, except regression coefficient, were found to be useful in detecting GE interactions. Ecovalence and consistency index were

the best methods for determining the stability of individual cultivars. It is concluded that it should be possible to select cultivars which produce good yields and vary in stability. The stability of stalk number and stalk weight were found to be useful in predicting the level and stability of yield. On the basis of the data collected, brixing the ratoon crop of stage 3 between February and April should be optimum for useful quality assessments of cultivars. Other recommendations are made which should both improve the quality of data collected from the stage 3 trials and the selection efficiency of the Barbados programme.