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Yield stability of some sugarcane genotypes across seasons and locations

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The objectives of this study were to determine the relative magnitude of G×E interaction effects and to evaluate phenotypic stability in sugarcane (*Saccharum spp.*). Seven sugarcane promising varieties: G99/165, G84/47, G98/28, G98/24, G95/19, G95/21 and G98/87 and two sugarcane commercial cultivars GT54/9 and Ph8013 were evaluated for two years (plant cane and 1st ratoon) at two locations (Sohag and Quena governorates) during two successive growing seasons, (2014/05 and 2015/06) to study the effect of environmental conditions, i.e. locations and seasons on cane yield Tons/Fed (TCF) and apparent sucrose content (pol%). A randomized complete block design with three replicates was used. The genotype X locations interaction for cane yield and pol% indicated that genotypes ranking differed and the magnitude of differences between genotypes changed from one environment to another. The second order interaction was not significant for both traits. Sohag location surpassed Quena location in cane yield; however, Quena location produced higher value of pol% compared with Sohag location. GT54/9 and Ph8013 cultivars were significantly superior to the rest of genotypes for cane yield. While the lowest cane yield was produced by G98/87 and G99/165 clones. The promising variety G98/24 had the best performance for pol% content. Only, GT54/9 and Ph8013 cultivars could be classified as stable. G98/24 and G98/28 clones performance was consistent but were low in cane yield. This study suggests that the stability analysis can contribute with supplementary information on the performance of new sugarcane selections prior to release for commercial cultivation and increases the efficiency of cultivar development programs.

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