

Abstract

Sweet corn (*Zea mays* L.var *saccharata*) is one of the most *nutritious vegetables*. *Genetic diversity evaluation*, heritability and heterosis are important in sweet corn breeding. The present study carried out to investigate the quantitative and qualitative characteristics of sweet and super sweet corn hybrids at agricultural and natural resources research center of Khorasan-Razavi. 38 sweet corn inbred lines and hybrids (contained 13 inbred lines, 18 promising hybrids and 7 new released commercial) were studied in randomized complete block design with three replications. Analysis of variance showed significant differences between studied genotypes in respect of measured characteristics ($p < 0.01$). Broad sense heritability ranged between 85.71 and 85.49 percent in total leaves number and kernel yield respectively. The highest (12.5 ton/ha) and lowest (0.32 ton/ha) kernel yield produced by Passion and Harvest Gold respectively. The highest heterosis value (446.92) belonged to kernel yield which observed in Temptation \times Chase. Principal component analysis showed that 72% of total variations explained with three first components. Base on GGE Biplot analysis, Harvest Gold \times Merit showed the highest performance and stability values for most of quantitative characteristics. Genotypes divided in three clusters, based on cluster analysis. Analyzing qualitative characteristics showed that Harvest Gold \times Merit is a suitable genotype. There was no significant difference between Harvest Gold \times Merit and control hybrid in respect of qualitative characteristics. Chase, Harvest Gold and Temptation showed high combining ability and produced high kernel yield, kernel depth, and kernel per row. Ear length and plant height and are proper for future breeding programs as promising lines.

Keywords: agronomical characteristics, breeding, yield, multivariate analysis



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**Evaluation of quantitative and qualitative traits of
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genotypes via Biplot analysis**

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