

# Evaluation of certain corn varieties to yield components and its susceptibility to infestation by some insects

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Maize (*Zea mays*, L.) is one of the most important cereal crops in Egypt. It is used mainly in animal and poultry feeding, either as a green fodder or as a main component of dry feed. Maize crop is subjected to attack by a large number of insect pests during its growth in the field such as the greater sugarcane borer *Sesamia cretica* Led., European corn borer *Ostrinia nubilalis* and Rice stalk borer *Chilo agamemnon*, which caused considerable damage resulting in yield reduction. Also during storage, cereal crops had been attacked by stored grain pests such as *Sitophilus oryzae*, *Rhyzopertha dominica* and *Sitotroga cerealella*. Field experiments were carried out during 1997-1998-1999 seasons, at the Research and Experimental Station of the Faculty of Agriculture at Moshtohor, Kalubia Governorate. Also laboratory experiments were carried out at the plant protection department of the same faculty. The aim of this study was to evaluate some maize varieties to infestation with corn borers and its effect on the yield of corn (*Zea mays*, L.). In the experiment six maize varieties (G2, SC9, SC10, TWC310, TWC320 and L.V.) at two sowing dates [early (May) and Late (July)] were tested. A complete block randomized design with three replicates was used during the various seasons. The obtained results expected for the infestation by the borers were statistically analyzed according to Snedecor and Cochran (1967). The treatment means were compared according to L.S.D. SUMMARAs prescribed by Steil and Torrie (1980). The results could be summarized as follows.

Part I: 1. Botanical characters:

- 1.1. Plant height and stem diameter: The results showed that there were significant differences between varieties for plant height and stem diameter at all samples. Local variety gave the highest values in both seasons followed by SC10. However, SC9 gave the lowest one.
- 1.2. Third leaf angle: Concerning the third leaf angle, Local variety, TWC310 and G2 gave the lowest values of leaf angle. However, SC10 following SC9 and TWC320 gave the highest values.
- 1.3. Leaf chlorophyll content: The results revealed significant differences in the chlorophyll content of the leaves of the various tested corn varieties. SC10 had the highest mean values followed by SC9 and G2 over both seasons. However, Local variety gave the lowest one.
- 1.4. Husk length: During the three seasons, hybrid of SC10 had the highest values in husk length followed by TWC320. However, TWC310 gave the lowest one.
- 1.5. Percentage of not covered ears: Concerning the results of not covered ears %, the hybrids TWC310 followed by SC9 gave the highest value in comparison to other genotypes in early and late sowing dates.

Moisture content of corn grains: In both sowing dates (early and late), the hybrid SC10 had the lowest moisture content. However, TWC310 gave the highest one. Also, the TWC310 gave the highest infestation percentage of ears followed by SC9 by stored insects. This result may be due to high percentage of not covered ears.

2. Yield and its components:

  - 2.1. Effect of season: Effect of season on ear length, stem diameter, no. of rows per ear, no. of grains per row, weight for 100 grains and ear weight) was significant in the first season followed by the second season.
  - 2.2. Effect of planting dates: Concerning the effect of planting dates on the previous traits, all mean values in the early planting date were higher than the corresponding ones in the late planting date.
  - 2.3. Varietal performance: Varietal performance showed that, hybrid variety SC10 gave higher mean values for all characters followed by SC9, except no. of rows per ear. However, local variety gave the lowest

one.2.4. Interaction between planting dates and seasons: Interaction between planting dates and season was significant for ear length no. of rows per ear, 100 kernel weight and ear weight. However, insignificant effect for other characters.