# INFLUENCE OF SOWING DATES AND PLANT DENSITIES ON PRODUCTIVITY OF SOME YELLOW MAIZE (*Zea mays* L.) HYBRIDS

**BY**

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# ABSTRACT

The field experiments were carried out at the Experimental Farm of Gemmeiza Agriculture Research Station, Agricultural Research Center (ARC) , Egypt, during growing summer seasons of 2017 and 2018 to study the influence of some different sowing dates (20$^{th}$ April, 10$^{th}$ May and 1$^{st}$ June) and plant densities (17500, 21000 and 26250 plants/fed) on growth, productivity and quality of some yellow maize hybrids (yellow hybrids single cross 168, 176 and 178). The field experiments were laid-out in a split-split plot design with four replications. The main-plots were occupied with sowing dates. The sub-plots were assigned to yellow maize hybrids. The sub-subplots were allocated with plant densities. The obtained results showed that, the highest values of all the studied flowering and growth characters, yield and its attributes and grains quality a characters were resulted from sowing maize on 10$^{th}$ May, followed by sowing on 20$^{th}$ April) and lastly sowing on 1$^{st}$ June in both seasons and their combined analysis. SC 178 hybrid produced the highest values of all the studied flowering and growth characters, yield and its attributes and grains quality characters, followed by SC 168 hybrid and lastly SC 176 hybrid in both seasons and their combined analysis. The highest values of number of days from sowing to 50 % tasseling and 50 % silking, leaf area/plant, leaf area index (LAI) and total plant dry weight at 45, 60 and 75 days old, ear length and diameter, grains weight/ear, 100-grain weight, oil percentage in maize grains and oil yield/fed were obtained when maize plants were planted in hills, 30 cm apart, which resulted in 17500 plants/fed, followed

by planted in hills, 25 cm apart, which resulted in 21000 plants/fed, while, the lowest values were obtained when maize plants were planted in hills, 20 cm apart, which resulted in 26250 plants/fed in both seasons and their combined analysis. However, the highest values of plant height and first ear height, number of rows/ear, number of grains/row, shelling percentage, ear, grain, stover, biomass (biological) yields/fed, harvest index (HI) percentage, crop index (CI) percentage, migration coefficient (MC) ,relative photosynthetic potential (RPP) of maize biomass, grains and straw, crude protein percentages in maize grains and protein yield/fed were obtained when maize plants were planted in hills, 20 cm apart, which resulted in 26250 plants/fed, followed by planted in hills, 25 cm apart, which resulted in 21000 plants/fed, while, the lowest values were obtained when maize plants were planted in hills, 30 cm apart, which resulted in 17500 plants/fed in both seasons and their combined analysis.

**Finally**, it can be concluded that sowing yellow maize hybrid single cross 178 "SC 178" on intermediate sowing date (10Th May) in hills, 20 cm apart (at the highest plant density of 26250 plants/fed) in order to maximize its growth, productivity and grains quality under the environmental conditions of Gemmeiza district, El-Gharbia Governorate, Egypt.

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