

EVALUATION OF SOME NEW SYNTHETIC VARIETIES OF MAIZE
UNDER DIFFERENT PLANT DENSITIES

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ABSTRACT

Two field experiments were carried out during 1990 and 1991 seasons at the Research and Experimental Center at Moshtohor to evaluate four new synthetic maize varieties (Moshtohor-1, 2, 3 and 4) as well as two local ones namely, Cairo-1 and Giza-2 under three plant densities. The differences among varieties were significant for all of the studied characters. Moshtohor-4 produced the highest grain yield per fad. and outyielded Cairo-1, Giza-2, Moshtohor-1, 2, 3 by 17.81, 15.74, 6.92, 33.31 and 57.36%, respectively. While, Moshtohor-3 had the lowest values for yield and its components. All studied characters were significantly affected by plant densities. The highest grain yield/fad. was obtained when plants were spaced 25 cm apart in the ridge. The effect of the interaction between varieties and plant densities was significant for grain yield/fad. While, the remaining traits were not significantly affected. Moshtohor-4 and plants spaced 25 cm apart on ridge was about the optimal combination under the circumstances of this experiment.

INTRODUCTION

Maize (*Zea mays*, L.) is one of the most important cereal crops in Egypt. Its cultivated area reached 1.976 million fad. (1986). Increasing crop potentiality of maize is of national interest for breeders. synthetic varieties are considered as one of the main activities to produce new maize varieties, which could be utilized as open-pollinated varieties or they may serve as sources for developing new inbred lines.

Synthetic varieties are somewhat more favorable than the hybrid seeds in most of the developing countries, since there is no need to produce its seeds yearly. Recently, many researchers used this method in maize breeding such as: Hallauer and Eberhart (1966); Burton *et al.* (1971); Hallauer, (1971); Eberhart *et al.* (1972); Cross and Hammoud (1982) and El-Hosary and Sedhom (1989).