

**RESPONSE OF SOME CEREAL CULTIVARS
GROWN IN FAYOUM REGION TO DIFFERENT
INTER- AND INTRA-
ROW SPACING TREATMENTS.**

By

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Abstract

The productivity of several maize and wheat cultivars, as affected by different inter- and intra-ridge or row spacing's, producing different plant distributions in the field and hence different densities, was investigated during 1997/98 and 1998/99 seasons. In each summer season, two maize experiments were conducted at the experimental farms of the faculty of agriculture in Fayoum region, at Dar El-Ramad and Demo locations. On the other hand, during winter season, two wheat experiments were carried out at the same locations. Treatments from different combinations of the mentioned variables, in each crop, were arranged in a split-split-plot design with three replications. Different inter-ridge or row spacing's were allocated to the main plots. Further, different intra-plant distances were applied in sub-plots, while maize or wheat cultivars were distributed in sub-sub-plots.

The study suggest that selection of cultivars and spacing's of adjoining plants are important considerations for cereal crop productivities.

Maize: Growth and development measurements, flowering characters, yield and yield component traits. Besides some quality attributes of grains, were discussed. The combined data indicated that the optimum geometric arrangement of maize plants which would produce maximum yield resulted from rectangular plant spacing through decreasing the ratio of inter- and intra-ridge spacing's, where plant density resulting from the distribution of 60 x 25 cm, out yielded the other plant distributions and densities. However, the maize three-way cross cultivar 320, gave grain yield almost comparable to the cultivar 321 under the density of 30000 plants/fad. Accordingly, three-way cross cultivars 320 and 321, having plant density of 30000 plant/fad., resulting from planting at ridges of 60 cm width together with a hill spacing of 25 cm would attain the highest yield. **Wheat:** Plant growth measurements, yield component traits, biological and grain yields beside some grain quality attributes affected by the studied variables were discussed. The combined data showed that inter- and intra-row spacing variables had significant effects in most of the yield component traits. Low dense plants with the distribution of 20 x 10 cm for inter- and intra-plant spacing is prerequisite. Regardless of plant densities, cultivars Sids 6 and Sids 7, produced favorable grain yields and were closely followed by Sakha 69 and Giza 164 cultivars. However, inconsistent trend was observed during the two studied seasons.

Key words: Inter- and intra-row, ridge spacing's, plant distribution and densities, cereal cultivars.