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# SUMMARY

A field experiment was carried out at the Experimental Farm and the Laboratory of Seed Technology at Sakha Agricultural Research Station, Kafr El-Sheikh, Egypt to investigate the effect of irrigation interval on grain yield and quality of some maize hybrids (SC 128, SC130 and SC168) during 2013 and 2014 growing seasons. A split plot design with three replicates was used. The main plots were devoted to three irrigation intervals (10, 20 and 30days) and the sub –plots were assigned to three hybrids of maize (SC 128, SC130 and SC168). Some traits such as ear length, ear diameter, number of rows per ear, number of kernels per row , grain yield (ton/hact.), final germination percent, electrical conductivity, 100-grain weight, oil percentage, protein percent, moisture percent, root length, shoot length, seedling fresh and dry weight were measured.

**The obtained results could be summarized as follows:-**

**A- Yield and its components:-**

**1- Ear length (cm):-**

- Ear length was decreased significantly by increasing irrigation interval.

- SC168 gave the highest ear length.
- SC168 with irrigation every 10- days gave the highest ear length.

**2- Ear diameter (cm):-**

- Increasing irrigation interval significantly decreased ear diameter.
- SC168 gave the highest ear diameter.
- SC168 with irrigation every 10- days gave the highest ear diameter.

**3- Number of rows/ear:-**

- Shorting irrigation interval significantly increased number of kernels per row.
- SC168 recorded the highest number of kernels per row.
- Highly significant differences were obtained in number of kernels per row due to the interaction between irrigation interval and hybrid.

**4- Number of kernels/row:-**

- Number of kernels per row was significantly decreased with increasing irrigation interval.
- Significant differences were found between hybrids and SC 168 was the best.
- The interaction between irrigation interval and hybrid was significant.

**5- Grain yield (ton/hact.):-**

- Grain yield was significantly increased with shorting irrigation interval.
- Highly significant differences were observed between hybrids and SC168 had the highest value.
- Grain yield was significantly affected by the interaction between irrigation interval and hybrid.

## B- Grain viability:-

**1- Germination percentage (%):-**

- Increasing irrigation interval decreased germination percentage.
- Hybrids varied in germination percentage and SC168 had the highest value.
- Significant differences were found in germination percentage by the interaction between irrigation interval and hybrid.

**2- Electrical conductivity(µ-mhos/g) :-**

- Increasing irrigation interval significantly increased electrical conductivity.
- No Significant varied was found in electrical conductivity test.
- SC128 with irrigation every 30- days gave the highest value in (E.C) indicating a great decline in grains.

### 3- 100- grain weight(g):-

- Increasing irrigation interval significantly decreased 100-grain weight.
- SC128 gave the heaviest 100- grain weight.
- No significant differences were obtained due to the interaction between irrigation interval and hybrid.

## C- Grain chemical composition:-

### 1- Protein percent (%):-

- Increasing irrigation interval significantly increased grain protein percent.
- There were highly significant differences among hybrids and SC168 gave the highest percent.
- Protein percent affected significantly by the interaction between irrigation interval and hybrid. SC168 with irrigation every 30-days gave the highest percent.

### 2- Oil percent (%)-

- Oil percent significantly increased with increasing irrigation interval.
- Hybrids varied significantly in oil percent and SC168 had the highest value.
- Sc168 with irrigation every 30- days gave the highest oil percent in the first season.

**3- Moisture percent (%):-**

- Shorting irrigation interval significantly increased moisture percent.
- Significant difference was found between hybrids and SC 168 had the highest value.
- There were highly significant differences between irrigation interval and hybrid in both seasons.

## D- Seedling vigor:-

**1- Shoot length (cm):-**

- Increasing shoot length increased with shorting irrigation interval.
- Hybrids differed significantly and hybrid SC128 gave the highest shoot length in both seasons.
- The interaction between irrigation interval and hybrid was significantly and SC168 with irrigation every 10- days gave the highest value.

**2- Root length (cm):-**

- Root length increased with increasing irrigation interval.
- SC168 gave the highest root length.
- SC168 with irrigation every 30- days gave the highest root length in both seasons.

**3- Seedling fresh weight (g):-**

- Seedling fresh weight significantly decreased by increasing irrigation interval.

- SC168 recorded the highest value.
- Highly significant differences were observed due to the interaction between irrigation interval and hybrid.

**4- Seedling dry weight (g)-**

- Increasing irrigation interval significantly decreased seedling dry weight
- SC168 had the highest seedling dry weight.
- SC168 with irrigation every 10- days gave the highest value in the second season.

**CONCLUSION**

From the obtained results and from the economic point of view under the same conditions, it can be concluded that sowing S.C. 168 and irrigation every 10- days interval could be recommended for maximizing maize yield and its components as well as, grain quality and viability.