

**IMPROVING PRODUCTIVITY AND QUALITY
OF SWEET CORN (*ZEA MAYS* L.) USING
SOME AGRICULTURE PRACTICES.**

By

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1 - INTRODUCTION

Sweet corn (*Zea mays var. rugosa*) is one of the most important promising vegetable crops, grown in Egypt for local market and exportation. It differs from other corns (field maize, popcorn and ornamental) because the kernels have high sugar content in the milk or early dough stage.

Sweet corn is one of the most important exportable vegetable crops (fresh, frozen or canned kernel) due to it is the most popular vegetable for consumption in many countries i. e. Europe, Japan and South-East Asia,

Plant growth, ear yield and quality of sweet corn kernel were differed according to variety, sowing date and fertilization.

Climatic conditions of planting region is most important factors which affecting the vegetative growth, yield and ear quality of sweet corn. Sweet corn is a warm-season, crop and the growing season temperature of 15–32°C. It is ready to pick in 75–105 days, depending on the cultivar, locality and sowing time. Planting time is strongly influenced by the temperature of the soil at sowing date, which should be at least 12°C.

Potassium fertilizers levels or doses application is the most important factor affecting the vegetative growth, yield and ear quality of sweet corn. Optimum K-fertilizers requirements to obtain the best yield and quality of sweet corn differed according to soil content of potassium. Dividing potassium application into many doses make a continuance supply to plants with potassium, which gave the best vegetative growth, yield and ear quality of sweet corn. Potassium is a regulator for many of the metabolic processes in the cells, plays an important role on promotion of enzymes activity and enhancing the translocation of assimilates and protein synthesis.

Storage condition i. e. wrapping film, storage temperature and storage period were the most effective on sweet corn kernels quality after picking. Wrapping film decreased the moisture loss and weight loss from the ears. The highest weight loss may be attributed to the highest

transpiration as well as respiration rates under the higher temperature in the unwrapped sweet corn ears at long storage period compared to those held at low temperature and wrapped sweet corn ears.

Film packaging maintained freshness, reduced firmness, weight loss, microbial spoilage, moisture loss, senescence and denting, which affect positively the visual quality. Regarding the storage period, data showed that visual quality was decreased with extending the storage period. The unwrapped ears were highest in total and reducing sugars values comparing to wrapping films. This result might be due to the high and rapid moisture loss in the kernel of unwrapped treatment compared to wrapped ones.

Concerning the storage period, total and non reducing sugars were decreased as well as reducing sugars increased, gradually, by lengthening the storage period. This might be attributed to the consumption of sugars in respiration and/or the conversion of sugars to starch. The reducing sugars increase during storage may be attributed to the conversion of sugars to reducing sugars which are used in starch biosynthesis.