# EFFECT OF SOME AGRICULTURAL PRACTICES ON EARLINESS, YIELD AND QUALITY OF FRIGO STRAWBERRY FRUITS UNDER DRIP IRRIGATION SYSTEM

By

**AMR ABDELFATTAH HAMED AHMED METWALLY**

B.Sc. Agric. Sc. (Horticulture), Ain Shams University, 2007

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**of**

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# ABSTRACT

**Amr Abdelfattah Hamed Ahmed Metwally: Effect of Some Agricultural Practices on Earliness, Yield and Quality of Frigo Strawberry Fruits under Drip Irrigation System. Unpublished M.Sc. Thesis, Department of Horticulture, Faculty of Agriculture, Ain Shams University, 2013.**

This study was conducted in a Private Farm in Mit Kenana Village, Shebin El Qanater Center, Qalubia Governorate, Egypt, during the two successive seasons of 2009/2010 and 2010/2011. The study was conducted to investigate the independent effect of some stimulators, i.e. chitosan (2.5 and 5 ml/l), seaweed-extract (1 and 2 ml/l), salicylic acid (1.0 mM and 2.0 mM) foliar sprays with different number of applications (once, twice and three times) as well as the effect of mycorrhiza inoculation on growth, chlorophyll and mineral content of leaves, some fruit-quality parameters and yield of cold stored strawberry plants (*Fragaria x ananassa* Duch. cv. Sweet Charlie).

Results indicated that chitosan spraying increased plant length, number of leaves/ plant, leaf area, fresh and dry weight of roots and vegetative growth, crown carbohydrate and phosphorus and potassium contents of leaf tissues compared with the control treatment in both seasons. Also, chitosan treatments increased early and total yields/plant, while average fruit weight response to the tested chitosan sprayings had an oscillating trend. On the contrary, there was no significant effect for the chitosan treatments neither on SPAD readings and leaf nitrogen content nor on fruit quality characters. The most effective treatment was found to be chitosan at 5.0 ml/l three times.

Seaweed-extract spraying improved vegetative growth characteristics, i.e. plant length, number of leaves/plant, leaf area and fresh and dry weight of roots and vegetative growth. Moreover, seaweed extract treatments increased crown carbohydrate, leaf potassium, fruit weight and early and total yields/plant compared with the control treatment in both seasons. Also, seaweed extracts improved fruit-quality characters without significant differences. On the contrary, there was no

significant effect for seaweed extract on chlorophyll, nitrogen and phosphorus contents of leaves The most effective treatment was found to be seaweed extract at 2.0 ml/l two or three times.

Salicylic acid increased vegetative growth characteristics, i.e. plant length, number of leaves/plant, leaf area and fresh and dry weight of roots and vegetative growth. Also, salicylic acid treatments increased crown carbohydrate, leaf phosphorus, soluble solid content of fruits and early and total yields/plant, while leaf chlorophyll content was decreased. There was no significant effect for the tested treatments on nitrogen and potassium contents of leaves and fruit quality characters, i.e. fruit firmness, titratable acidity, SSC/ titratable acidity and ascorbic acid. The most effective treatment was found to be salicylic acid at 2.0 mM three times.

Mycorrhiza inoculation to strawberry roots significantly increased all recorded data of vegetative characteristics, e.g. plant length, number of leaves per plant, fresh and dry weights of both roots and vegetative growth, crown total carbohydrates content and NPK percentages of leaves compared with the control treatment during both seasons. Also, the mycorrhiza inoculation increased leaf area, chlorophyll content of leaves, average fruit weight and early and total yields/plant. Moreover, root colonisation by the mycorrhiza inoculation enhanced the quality characteristics of strawberry fruits, although these increases were not significant compared with thecontrol treatment in both seasons.

**Key words:** Strawberry, *Fragaria* x *ananassa* Duch., Chitosan, Seaweed, Salicylic acid, Mycorrhiza, Growth, Yield, Earliness.

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