PRODUCTIVITY OF SUNFLOWER UNDER HEAT AND WATER STRESSES IN NEWLY RECLAIMED LANDS

By

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ABSTRACT

Mostafa Gamal AL-Din Ibrahim Soliman Shahin: Productivity of Sunflower under Heat and Water stresses in Newly Reclaimed lands. Unpublished Ph.D. Thesis, Department of Agronomy, Faculty of Agriculture, Ain Shams University, 2018.

To investigate the sowing dates, irrigation levels, and ascorbic acid (AsA) and their interaction effects on sunflower, Sakha 53 cultivar, two field experiments were conducted in the seasons of 2014 and 2015 in the Experimental Station of Agricultural Production and Research Station, National Research Centre, El Nubaria region, El Behaira Governorate, Egypt. The results revealed that yield, yield attributes and water use effeicincy (WUE) were significantly decreased as sowing date was earlier or delayed than the mediate sowing date (May 21), except head diameter for earlier sowing date was not significant compared as mediate sowing date. Increasing the amount of irrigation levels up to 100% of water requirment enhanced head diameter, head weight, seed weight $head^{-1}$, seed index, seed yield fed^{-1}, oil yield fed^{-1} and WUE. Plants grown in untreated plots with AsA exhibited the lowest values for head diameter, head weight, seed weight $head^{-1}$, seed index, seed yield fed^{-1}, oil yield fed^{-1} and WUE.

The maximum increases in Ch *a*, Ch *b*, and Ch *a* + Ch *b* contents were achieved through sowing sunflower in May x $ET_{100\%}$ x $AsA_{(+)}$. The distinctive practice in enhancing growth traits was sowing sunflower in May 21 x supplying plants with $ET_{100\%}$ x AsA spraying. The maximum values of head diameter, head weight, seed weight $head^{-1}$, seed index, seed yield fed^{-1}, oil yield fed^{-1} and WUE are resulted from sowing sunflower on 21st May in conjunction with both well-watered treatment ($ET_{100\%}$) x $AsA_{(+)}$. Sowing sunflower delaying (in 21st June) or earlier (in 21st April) each in combination with 70% of water requirment without spraying ascorbic acid recorded the lowest values of oil% and iodine.

Keywords: Sunflower, Sowing dates, Irrigation levels, Ascorbic acid, Seed yield, Oil yield.

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