ABSTRACT

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Two field experiments were carried out in El-Kharga Experemintal Farm of Desert Research Center Al-Wadi Al-Gadeed Governorate under sandy clay loam soil , during 2001 and 2002 summer seasons to study the effect of sowing dates, boron foliar application, and nitrogen fertilization on growth, yield and its components, and chemical composition of sunflower (Vidic variety).

The study included three sowing dates : April 1st, April 15th and May 1st, three levels of Boron, i.e, without borax, 0.1% borax , and 0.2% borax and three levels of nitrogen fertilization i.e, 40 ,60 and 80 kg N /fed. Treatment were arranged in a split –split plot design with six replications, Therefore, the sub-sub plot area was 10.5 m^2.

The obtained results could be summarized as follow:

All growth characteristics in both seasons i.e, plant height (cm), stem diameter (cm), fresh and dry weight of leaves and plant (g), leaf area (LA) dcm^2, leaf area index (LAI), specific leaf weight(SLW), and specific leaf area (SLA) were affected significantly by sowing dates. While , boron foliar application i.e without borax, 0.1% borax and 0.2% borax reflected no significant effect on any of the growth traits studied at 62 and 72 days from sowing in both seasons. On the other hand, increasing nitrogen fertilization from 40 to 80 kg N/fed. increased significantly growth criteria at 62 and 72 days from

sowing in both seasons and yield and yield attributes, except crop index and harvest index.

Stem diameter, number of seeds/head, 100-seed weight, head diameter, seed yield, biological yield, harvest and crop index, oil%, oil yield and protein yield values decreased by delaying of sowing date from 1st April to 1st May except plant height,stem diameter, straw yield in the 1st season and protein% in the two growing seasons.

Foliar spray treatments with boron (0.2%borax) caused significant increase in yield and yield components,oil%, oil yield and protein yield while caused significant decrease in protein%. On the other hand plant height, stem diameter and straw yield were not statistically affected.

Maximum values of number of seeds /head (806.33 and 913.33), 100-seed weight (6.20 and 6.34 g), head diameter (16.07 and 16.4 cm), seed yield (915.73 and 968.13 kg/fed.), biological yield (2623.33 and 2849.33 kg/fed.), oil yield (355.81 and 363.29 kg/fed.), and protein yield (189.29 and 183.93 kg/fed.) in the first and second seasons respectively, were obtained by spraying borax at the rate of 0.2%, 80 kg N/fed. fertilization and April 1st sowing date.

Key words : Sunflower, Al-Wadi Al-Gadeed, sowing dates, boron, nitrogen fertilizer, growth, yield and yield components, chemical content, oil, harvest index,crop index.

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