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EFFECT OF NITROGEN SOURCE, LEVEL AND NUMBER OF APPLICATION ON YIELD AND QUALITY OF SUGAR BEET IN SOHAG GOVERNORATE

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ABSTRACT

Two field experiments were conducted in 2014/2015 and 2015/2016 seasons at El-Ghrazat, (latitude of 26°61'N, longitude of 31°52'E and altitude of 72 m), Sohag Governorate, Egypt. The goal was to study the effect of nitrogen source, level and number of application on yield and quality of sugar beet grown in a newly reclaimed soil in Sohag. The studied factors included three nitrogen fertilizer sources (Urea, 46.5% N, Ammonium nitrate, 33.5% N and Ammonium sulfate, 20.6% N), three nitrogen levels (80, 110 and 140 kg N/fed) and three nitrogen fertilizer applications (two, three and four doses). The filed experiment was carried out in design a split-split plot arrangements with four replications were used seasons. The main plots were devoted to nitrogen levels, while nitrogen sources were distributed in the sub plots and the doses of nitrogen applications were distributed in the sub-sub plots.

Increasing nitrogen levels attained a positive and significant effect on root length, root diameter, sucrose%, purity% root and sugar yield/fed in both seasons, except purity% in the 1st season, which was not significantly affected. Fertilizing sugar beet with 140 kg N/fed recorded the highest values of the above mentioned traits.

Results cleared that nitrogen sources had significant effect on root length, root diameter, sucrose%, purity% root and sugar yield/fed in both season, except purity% in the 1st season, which was not significantly affected. Using ammonium nitrate fertilizer gave the highest values of yield and its components in both seasons.

Results indicated that increasing number of nitrogen application attained a positive and significant effect on root length, root diameter, sucrose%, purity% root and sugar yield/fed in both seasons, except purity% in the 1st season, which was not significantly affected.

The present results revealed that using ammonium nitrate fertilizer at the rate of 140 kg N/fed in 4-equal doses can be recommended to gets the highest root and sugar yields under the condition of Sohag Governorate.

Key Wards: doses,fertilizer, nitrogen sources, sugar beet, yields and quality