EFFECT OF SOME AGRONOMIC TREATMENTS ON YIELD AND QUALITY OF SUGAR BEET UNDER KAFR EL-SHEIKH REGION

By

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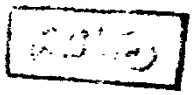

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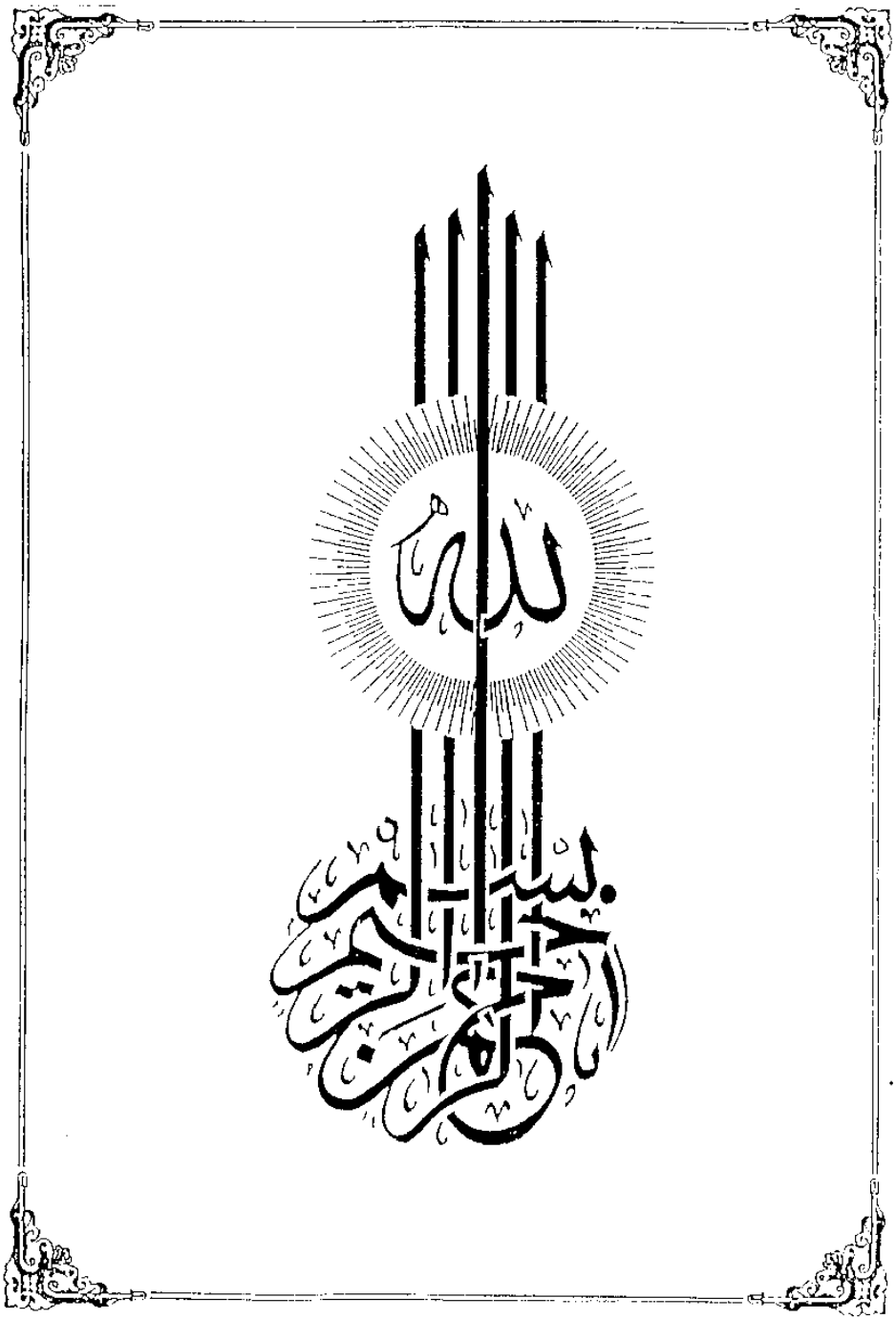

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ABSTRACT

Two field experiments were carried out at Sakha Research Station, Kafr El-Sheikh Governorate in two growing seasons 1988 - 89 and 1989 - 1990 in order to find out the optimal plant density under different levels of nitrogen and potassium fertilizers to get the highest yield and quality of sugar beet plant from unit area. The two experiments consisted of twenty seven treatments which were the combination between three levels of plant population (42, 56, 70 thousand plants/fad.), three levels of nitrogen fertilizer (45, 60, 75 kg N/fad.) and three levels of potassium fertilizer (0, 48, 96 kg K_2O/fad.). A split plot design with five replications was used.

The results obtained showed that there was an inverse increase in top fresh weight, root dimensions, fresh weight and dry matter of sugar beet roots accompanied the increase in plant populations. However, the additional doses of nitrogen were always accompanied by a gradual and significant increase in these characters. As the medium dose of potassium i.e. 48 Kg K_2O/fad. almost produced the highest values of root dimensions as well as fresh weight and dry matter of sugar beet roots; the effect of potassium fertilizer exerted a limited effect on top fresh weight per plant. TSS and sucrose percentages positively responded to the increase in plant population. Moreover, increasing nitrogen fertilizer dose from 60 to 75 Kg N/fad. decreased sucrose percentage by 0.33% at harvest. Also, sucrose percentage tended to increase by increasing potassium dose. Increasing plant density and potassium fertilizer had an enhanced effect on purity percentage.

The highest top yield was obtained as sugar beet plants were sown at 70,000plant/fad. with 75 Kg N and 96 Kg K_2O/fad. The highest root yield was produced when the plant population reached 56,000 plants/fad. and fertilized with 75 Kg N and 96 Kg K_2O/fad. The highest sugar yield was obtained by cultivating 56,000 plant/fad. with the application of 60 Kg N and 96 Kg K_2O/fad.

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INTRODUCTION