EFFECT OF PLANT DENSITY AND FERTILIZATION ON THE GROWTH AND PRODUCTIVITY OF POTATOES

By

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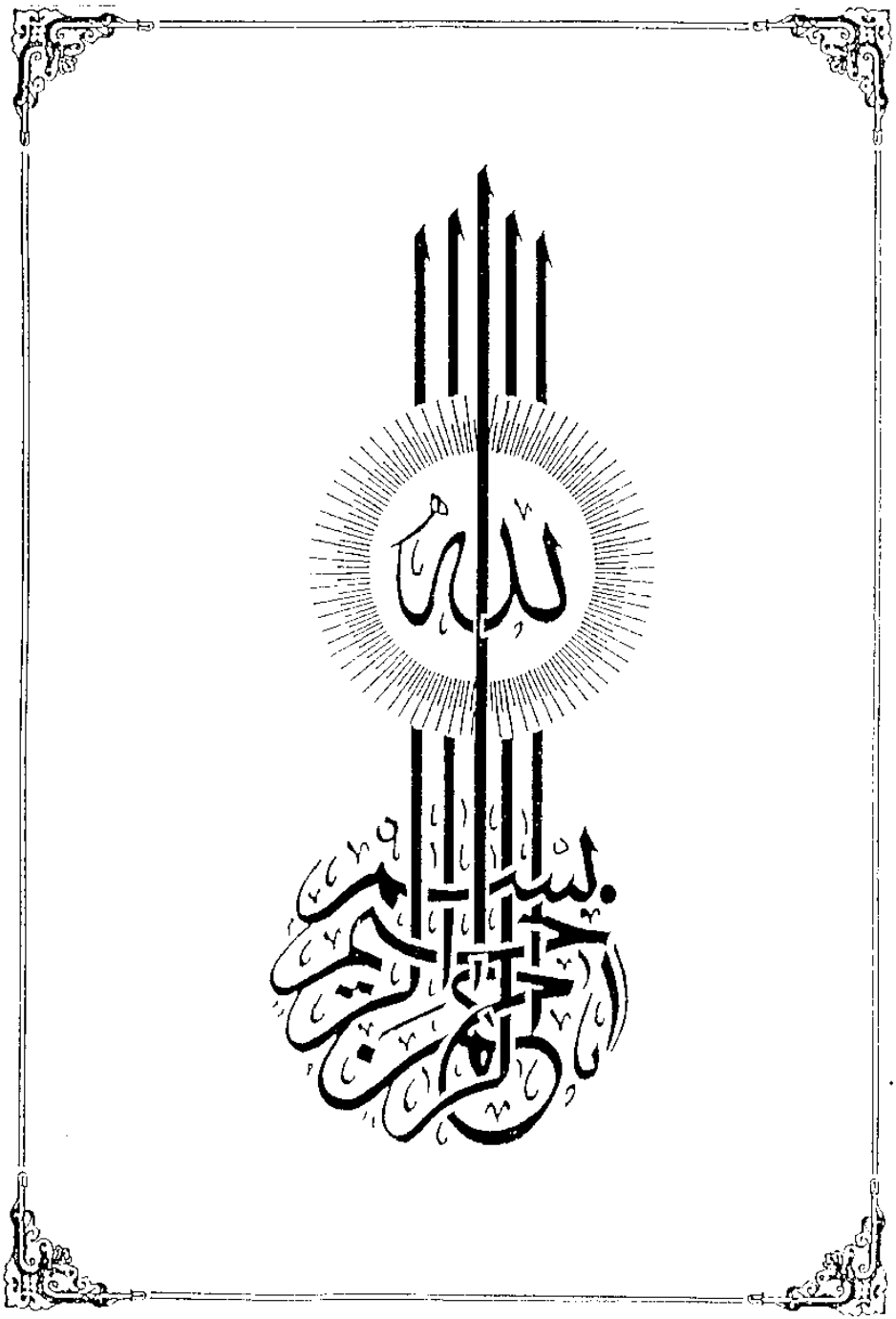

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ABSTRACT

Field trials were carried out in 1991 and 1992 seasons in Shalakan Experimental Station to study the effect of plant density, nitrogen, sulphur, potassium and magnesium fertilization on vegetative growth, chemical composition, yield and physical and industrial properties of potato (cv. Alpha).

Row width of 78 cm and 45 cm within row gave the highest fresh and dry weight of leaves and shoots. The highest total soluble sugars, total carbohydrates and potassium percentage in leaves and shoots were obtained from plant density of 78 width and spacing of 45 cm between plants. Growing potato at 78 cm X 45 cm gave the highest yield, tuber size and the highest percentage of grade I chips.

Fertilization with 240 kg nitrogen and 500 kg sulphur per feddan gave the tallest plants and the highest content of fresh and dry weight of leaves and shoots. The same rates mentioned above gave the highest total carbohydrates and sulphur percentage in leaves and shoots. Tubers obtained from fields fertilized with the above mentioned rates contained the highest percentage of total soluble solids, protein and starch as well as the highest tuber weight, yield tuber size and the highest percentage of grade I chips.

Using potassium and magnesium sulphate at the rate of 400 kg and 75 kg per feddan respectively produced the tallest plants and the highest fresh weight of leaves and dry weight of shoots. Concerning total soluble sugars, total carbohydrates, potassium and magnesium percentages in leaves and shoots, the above mentioned rates gave the highest percentage. Potato tubers obtained from plants fertilized with the above mentioned rates gave the highest protein and starch percentage, as well as the highest tuber weight, total yield, tuber size and grade I chips percentage.

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