STUDIES ON CONTROLLING SALT ACCUMULATION UNDER DRIP IRRIGATION SYSTEM

By

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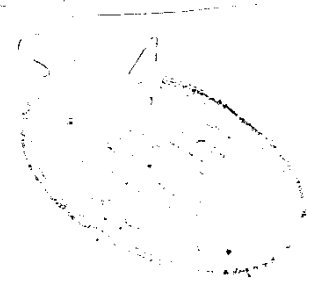

Department Of Soils

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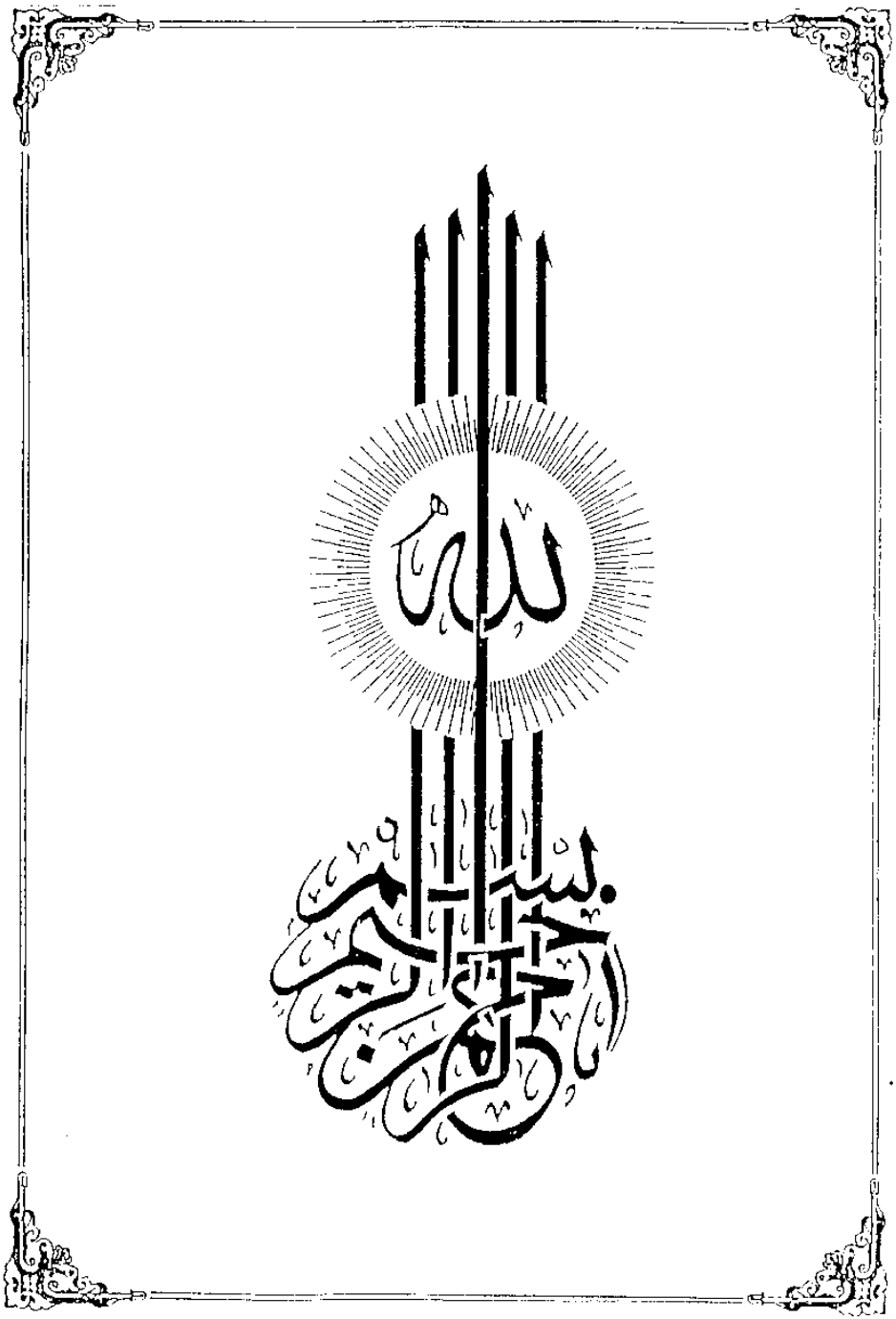

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ABSTRACT

Two experiments were carried out, i.e., lab and field experiments in order to study the salt distribution pattern under drip and submersion irrigation systems and how to control salt accumulation under drip irrigation system by using some natural and synthetic soil amendments. Results of lab experiment indicate that the EC values were clearly increased in the upper soil segments when saline water was added through drip technique to both sandy and clay soils. However, opposite trends were obtained under the other method of water application, i.e. submersion application.

On the other hand, the distribution pattern of certain ions (Ca^{++}, Mg^{++}, Na^{+}, K^{+}, Cl^{-}, HCO_3^{-} and SO_4^{--}) as affected by salinity levels of the applied water under drip and submersion techniques was studied.

Results of field experiments include the effects of the application of sulphur, bentonite, PAM, bitumen, plastic sheets and town refuse (either mixed with the upper 30 cm layer, half mixed + half surface mulch, or banded at 30 cm depth) on the soil pH values, soil salinity values, SAR values, the distribution of soluble Ca^{++}, Mg^{++}, Na^{+}, K^{+}, Cl^{-}, HCO_3^{-} and SO_4^{--} (in both lateral and vertical directions), as well as yield, total soluble solids (TSS) in fruits, water use efficiency for both tomato and sweet ananas plants grown under drip irrigation system for two separate seasons.

The economic evaluation of the used soil amendments was taken into consideration for both tomato and sweet ananas crops grown on sandy soil under drip irrigation system.

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