

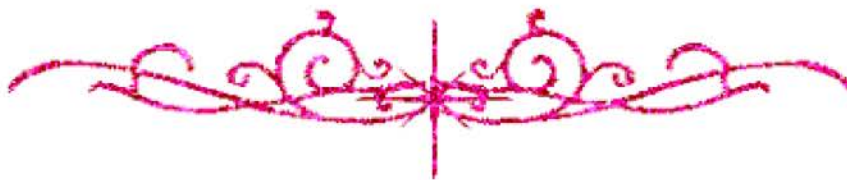
بسم الله الرحمن الرحيم



HOSSAM MAGHRABY



شبكة المعلومات الجامعية التوثيق الالكتروني والميكرو فيلم



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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
على هذه الأقراص المدمجة قد أعدت دون أية تغيرات



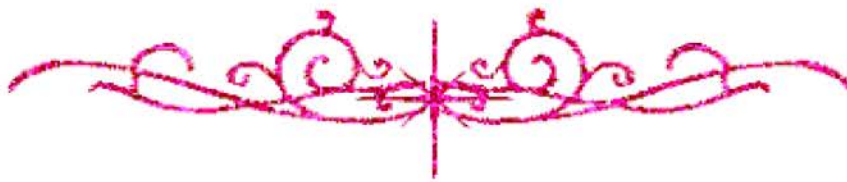
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لم ترد بالأصل



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B105V.

STUDIES ON FERTILIZERS USE EFFICIENCY FOR TOMATO PLANTS

BY

FARID SHAWKI FARID BADAWI

B.Sc. (Soil Sci.), Fac. of Agric., Ain Shams University, 1990

A thesis submitted in partial fulfillment

of

the requirements for the degree of

MASTER OF SCIENCE

in

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Department of Soil Science

Faculty of Agriculture

Ain Shams University

1997

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APPROVAL SHEET

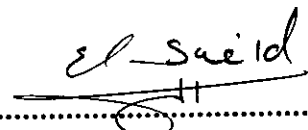
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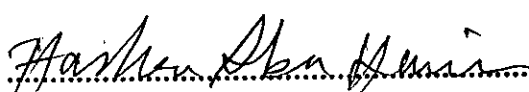
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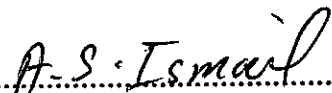
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ABSTRACT

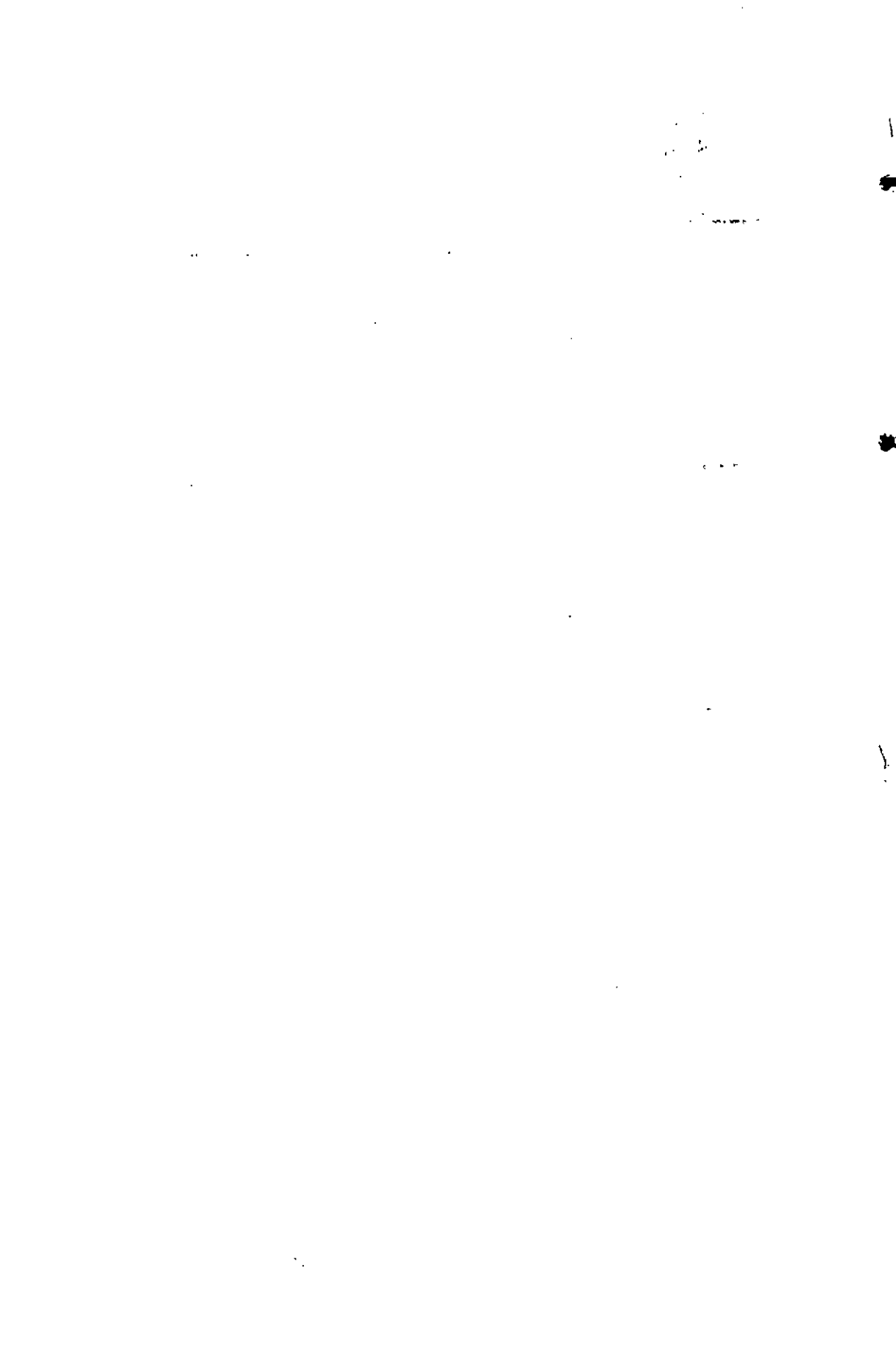
Farid Shawki Farid Badawi, Studies on fertilizers use efficiency for tomato plants. Unpublished Master of Science, University of Ain Shams, Faculty of Agriculture, Department of Soil Science, 1997.

Efficiency of fertilizer use in several tomato varieties, commonly cultivated in the A.R.E under both field and protected agriculture, was evaluated under using different fertilization policies. Such policies were designed to involve the effect of application of different levels and sources of some nutrients believed to have a critical role(s) in optimizing tomato growth and yield. Application of different levels and forms of nitrogen as a macronutrient and a major fertilizatic element as well as using different levels of the micronutrients iron and manganese as well as their different combinations were used in the nutrition programs of tomato varieties through out different culture techniques. Response of plant growth as well as the contents of the desired nutrients along with their uptake in the different tissues of tomato plants were evaluated using both water and sand culture techniques. Then, the most promising treatments were subjected to be finally applied under field conditions.

The water culture experiment aimed to evaluate the effect of application of different forms and levels of nitrogen on growth and nutritional status of tomato plants to select one form appropriate for growing tomato plant. Different modified concentrations of the selected form of nitrogen were then supplied to different varieties of tomato plants grown in sand culture technique. The efficiency use of nitrogen fertilizer was tested either as applied alone or as accompanied with different levels of both iron and manganese believed to play a vital role in N- utilization by plants. The promising treatments including different levels of N, Fe and Mn were applied to different tomato varieties grown under field conditions to complete the evaluation. Growth, nutritional status, tomato fruit yield along with the residual effects of such fertilizer policies on availability of such nutrients to the next yield were taken in consideration.

Obtained results from water culture experiment showed that although NO_3^- -N followed by Urea- N has the superior effect on plant growth compared to NH_4^+ -, urea-form revealed the superiority in keeping the rhizosphere against any significant change in its acidity and subsequently may initiate a good nutritional balance internal the tomato plant tissues particularly under heavy fertilization conditions. On the other hand, results of sand culture experiment revealed a significant interaction among the used levels of the tested nutrients, i.e., N, Fe and Mn in the growth and uptake of such nutrients by tomato varieties along with reflection on accumulation of such nutrients in the different tissues. Results of field experiment showed a significant response for plant growth and its nutritional status to the interaction between the investigated nutrients with variations being obtained in responses of tomato varieties may be related to their genetic factors. On the other hand, obtained data revealed again the variation in response of tomato yield to the studied interaction. Residued amounts of concerned nutrients were also affected by application of the different fertilizer combinations.

Key words: Tomato plants, Nitrogen fertilization, Micronutrients (iron and manganese), Interaction effect, Water culture, Sand culture, Field conditions



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