شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

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

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

بعض الوثائق الأصلية تالفة

بالرسالة صفحات لم ترد بالأصل

Effect of irrigation water quality and some practices of organic farming on crop productivity, quality and soil fertility

Submitted By

Asmaa Abd El-Hakam Mohamed Abd El-Ghany

B.Sc. of Agricultural Sciences, (Genatics), Faculty of Agriculture,

Zagazig University, 2004

Diploma of Environmental Sciences, Institute of Environmental Studies &Research

Ain Shams University, 2006

Master of Environmental Sciences, Institute of Environmental Studies &Research

Ain Shams University, 2014

A thesis submitted in Partial Fulfillment

Of

The Requirement for the Doctor Degree

In

Environmental Science

Department of Environmental Agricultural Science

Institute of Environmental Studies and Research

Ain Shams University

2021

Effect of irrigation water quality and some practices of organic farming on crop productivity, quality and soil fertility

Submitted By

Asmaa Abd El-Hakam Mohamed Abd El-Ghany

B.Sc. of Agricultural Sciences, (Genatics), Faculty of Agriculture, Zagazig University, 2004

Diploma of Environmental Sciences, Institute of Environmental Studies &Research
Ain Shams University, 2006

Master of Environmental Sciences, Institute of Environmental Studies &Research
Ain Shams University, 2014

A thesis submitted in Partial Fulfillment
Of
The Requirement for the Doctor Degree
In
Environmental Science

Under The Supervision of:

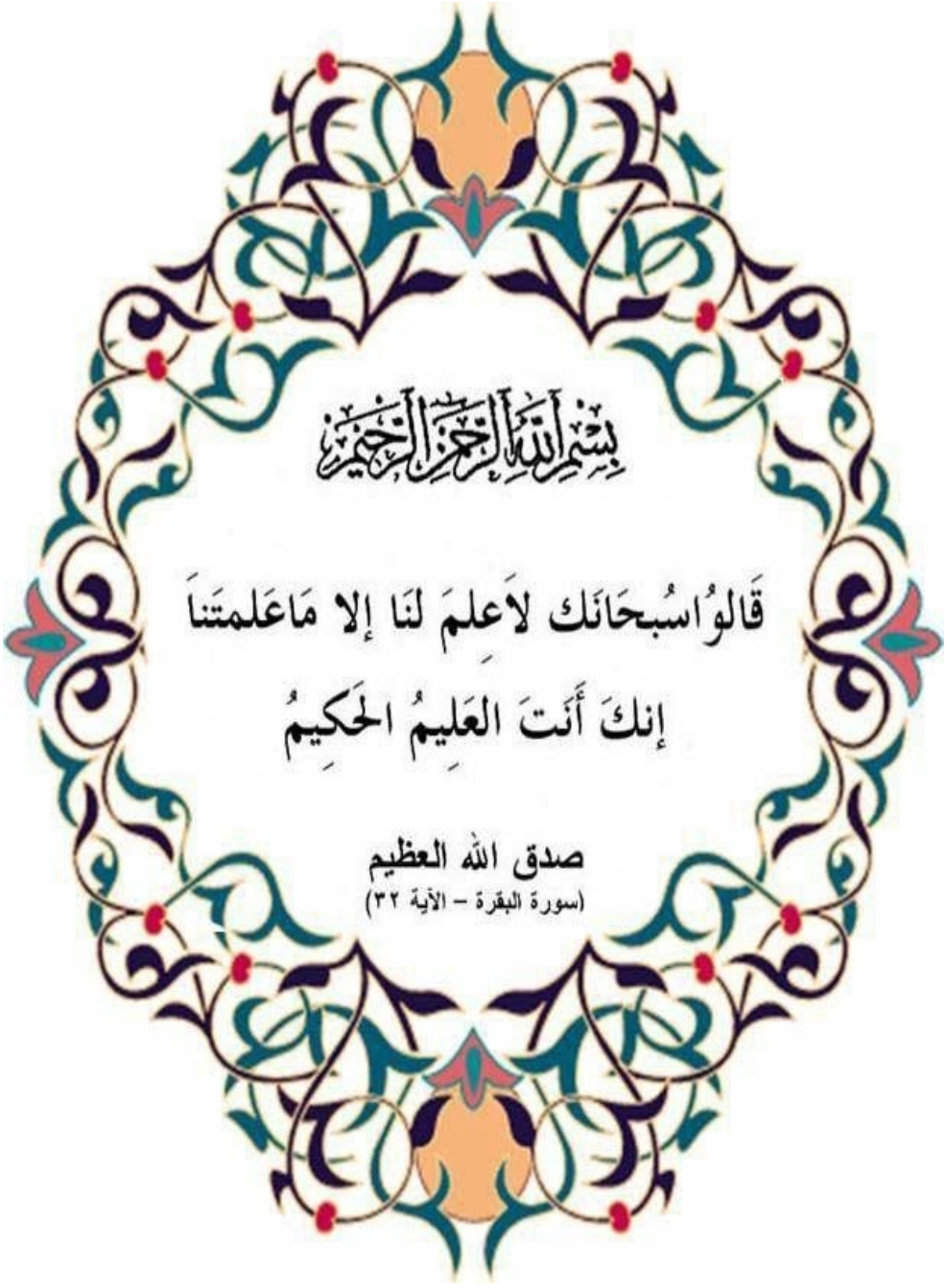
1- Prof. Dr. Ezzat Mohamed Soliman

Prof.of soil & Water, in Department of Environemntal Agricultural Science, Institute of Environemntal Studies & Research Ain Shams University.

2- Prof. Dr. Usama Salah El-Din El-Bialy

Prof. of Soil Sciences, Soil, Water and Environmental Research Institute, Agriculture Research Center, Giza, Egypt.

2021


بسم الله الرحمن الرحيم
قَالوُاسُبحَانَك لاَعلمَ لنَا إلا مَاعَلمتَناَ
إنكَ أَنتَ العَلِيمُ الحَكِيمُ
صدق الله العظيم
(سورة البقرة – الآية ٣٢)

Acknowledgement

All praise to ALLAH, the Almighty **GOD**, *the absolute source of knowledge and wisdom. His grace and help were the two main factors that made the completion of this work possible.*

Grateful thanks and deep appreciation are due to **Prof. Dr. Ezzat Mohammad Soliman,** *Professor of Soil Sciences, Institute of Environmental Studies & Research, Ain Shams University, Agricultural Science Department, for his supervision, encouragement, valuable guidance, valuable advices, and constructive criticism which made the completion of this work possible.*

Deep thanks are also presented to **Prof. Dr. Usama Salah El-Dean El-Bialy** , *Prof. of Soil Sciences, Soil, Water and Environment Research Institute, Agricultural Research Center, Giza, Egypt. for his encouragement, sincere helps, valuable guidance throughout the preparation of this research work.*

Deep thanks are also presented to **Prof. Dr. Abd EL-Aziz Ibrahim EL-Desouky EL-Shafie and Prof Dr. EsamEldin Abd El-Aziz Mohamed Osman,** *Prof. of Soil Sciences, Soil, Water and Environment Research Institute, Agricultural Research Center, Giza, Egypt. For his encouragement, sincere helps, valuable guidance throughout the preparation of this research work.*

I owe my research work to my dear, **father and mother** *for their unconditional love and support, constant encouragement. Without them this work would not have been possible. I, d like to express my deepest thanks to my* **sisters and my brothers** *for their continuous help.*

The special thanks to my husband, **Mr. Ahmed El-Husseiny** , *for his patient , continuous encouragement, and hard work with me in finishing this work, by always he being beside me.*

ABSTRACT

Three field trials were conducted at Al-Betaia village – Mashtoul El-Souk District –Sharqia Governorate during two successive winter seasons (2016-2017, 2017-2018). The main objective of this study is detecting the effect of irrigation water quality and some practices of organic farming on wheat (Triticum aestivum L.) crop productivity , quality and soil fertility .

The three experiments included the same treatments which were arranged in split-split plot design including three rates of spraying algae extract (zero, 0.50, 0.75 cm/l) , three doses of compost fertilizer(zero, 6, 8 ton/fed.) and two rates of bio fertilizer(zero, cerialine + phospharine + potassium dissolving bacteria). Wheat plants were sawn in the three sites. The first site was irrigated using potable water (Nile water) where the second site was irrigated with underground water, The third site was irrigated using the agricultural drainage water. At the same area wheat plants were cultivated on isolate experiment included the recommended NPK fertilizer to evaluate such treatments for the productivity of wheat crop from the pratical point of view.

The most important results could be summarized in both seasons as follows:

1- In most cases, grain yield and yield components of wheat plants were responded significantly, where the highest value of such treatment resulted in the highest grain yield and best yield components. The result of this study improved that the trible treatment of 0.75 cm/l as algae extract spray , 8 ton/fed. of Compost fertilizer in the presence of bio fertilizer was superior comparing the other treatments.
2- The results obtained from applying the recommended NPK fertilizer were relatively near to those obtained from the trible treatment of 0.75 cm/l as algae extract spray ,6 or 8 ton/fed. of compost fertilizer in the presence of bio fertilizer.
3- Nutrient contents of N,P and K elements in grain and straw of wheat were increased in most cases according to high levels of such treatments comparing to the control ones.

4- The obtained results in two growing seasons were the best when wheat plants were irrigated by Nile water in comparison with the other two sources (underground and agricultural drainage water) .
5- Some chemical properties of the alluvial soil under study including organic matter content, soil salinity and the degree of acidity (PH) were estimated towards the safe state compared to its values before conducting the three experiments through the two growing seasons

Key words: Irrigated water quality- Compost- Bio fertilizer- Algae extracts.

List of Contents

List of Tables