جامعة الفيوم
Fayoum University
كلية الزراعة

STUDIES ON SOIL FERTILITY STATUS IN RELATION TO THE ENVIRONMENTAL AND SOIL CONDITIONS IN FAYOUM GOVERNORATE, EGYPT.

By

Azza Hassan Ismail Mabrouk

2018

جامعة الفيوم
Fayoum University
كلية الزراعة

STUDIES ON SOIL FERTILITY STATUS IN RELATION TO THE ENVIRONMENTAL AND SOIL CONDITIONS IN FAYOUM GOVERNORATE, EGYPT.

By

Azza Hassan Ismail Mabrouk

B.Sc. Agric. Sci. (Soils), Fac. of Agric., Fayoum University, 2011

THESIS

Submitted in Partial Fulfillment of the

Requirements for the Degree of Master

In

Agricultural Sciences

(Soils)

To

Soils and Water Department

Faculty of Agriculture

Fayoum University

Egypt.

2018

ABSTRACT

The present work wascarried out to study the impact of Lake Qarun, soil forming sediments and some environmental conditions on Fayoum soils fertility and their characteristics. Seventeen soil profiles were excavated to represent the studied soils. Soil samples were collected from each profile at the depths(0 – 30cm),(30 -60cm) and (60 – 90cm) and analyzed for particle size distribution, ECe,pH,$CaCO_3$,Organic matter Content and AB-DTBA extractable P,K,Mn,Zn,Fe and Cu and hot water extractable NO_3-N.

Data obtained indicated that soils developed on recent lacustrine sediments adjacent to Lake Qarun hadgreater values of each of the studiedcomponents in comparison with those of alluvial origin. The greatest ECe values were found in Barren soils very closed to Lake Qarun. The mean values of AB-DTPA extractable Zn and hot water extractable NO_3-N in most of the studied soil profiles were found below their critical deficiency limits, however the mean concentrations of extractable Mn and Cu were assessed as sufficientin all the studied soil profiles. Variable levels of availableP, Fe and K were observeddepending upon soil forming sediment, quality of irrigation water and soil depth ranging fromlow to marginal.

Positive correlationcoefficients were found between values of AB-DTBA extractablenutrients, hot water extractable NO_3-N and each of Clay, Organic matter content but except Zn and P with Clay content negative correlations were observed with Sand % except P and Soilscultivated under organic farming practicescontained more organicmatter% and LessECe values in Comparison with thoseconventionally managed. Soils that have been irrigatedusingmixed Nilewater with drainage water had greater values of ECe, Organic matter and allavailable nutrients as compared to soils irrigatedwith Nile water.

Key words:Soil fertility, Soil nutrients, Soil sediments, Environmental conditions, Fayoum.