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شبكة المعلومات الجامعية

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ALEXANDRIA UNIVERISTY

Faculty of Agriculture

(Saba Basha)

Plant Production Dept.

**EFFECT OF NITROGEN FERTILIZATION AND
IRRIGATION ON YIELD AND ITS COMPONENTS ON
SOME BARLEY CULTIVARS**

A Thesis

**Presented to the Graduate School
Faculty of Agriculture, Alexandria University
In Partial fulfillment of the
Requirement for the Degree**

Of

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In

Agronomy

By

DOAA KHAMIS MOHAMMED KHAMIS

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Chapter One

INTRODUCTION

1. INTRODUCTION

Barley is the main cereal crop which grows along the North Western Coast of Egypt under rainfed conditions. Also, it grows in the newly reclaimed lands and old ones. Barley has been recognized as an adapted crop to adverse conditions as heat, salinity, drought and poor soils. Most of these new lands are characterized sandy and suffer at least, from two problems, low water holding capacity and macronutrients as well as low organic matter content . Therefore, sprinkler irrigation became a necessity system to overcome these problems and utilize the limited water supply more efficiently.

In Egypt, barley faces severe competition in old valley with other winter crops i.e., wheat, sugar beet, legumes and clover ect. The total cultivated barley area was 116640 fed in 2006/2007 season, with an average yield of 10-11 ard /fed. *

In Egypt, the national production of cereals is relatively lower than the consumption demands so that; it was suggested to use barley as complementary cereal crop to minimize this gap. This idea is based on the ability of this crop to grow well under drought stress compared in other cereals especially with the problem of water shortage in the country. However, interest in using barley for human consumption is increasing recently. Therefore, hull-less barley has been considered as an ideal type to achieve this goal (El – Sayed 2002 a).

Nutrition is essential for plant life and production, therefore mineral fertilization and agronomic practices lead to improve productivity.

Nitrogen fertilizer has contributed greatly to improve grain yield, although nitrogen fertilizer effects on barley production has been exclusively studied, further studies on determination of the optimum nitrogen level is still needed. Moreover, the importance of the nitrogen source is still debatable.

Most of the developed countries have adapted environmentally policies to sustain the earth ecosystem and reduce the consumption of non-renewable sources of energy of manufacturing fertilizers. This led to considerable interest in biological N₂-fixation and other biofertilizer technology (Kotb, 1998).

Bio-fertilizers are N₂ – fixing bacteria and contribute to nitrogen requirements for barley plants. Inoculation with N₂ – fixing bacteria increased field crop production even in agricultural systems where mineral N supplementation is not a major problem (Mitkees *et al* 1996).

The importance of bio-fertilizer is to limit N- fertilizer level, pollution due in N dinitrification products that affect ozone and increase production costs (Zaid, 1992).

This investigation was designed to study the effect of nitrogen fertilization and irrigation on yield and its components on some barley cultivars.

* Central Administration of Economics, Ministry of Agriculture and land Reclamation, Egypt, 2006/2007.

Chapter Two

REVIEW OF LITERATURE