

NEMATODES POPULATION RESPONSE TO REGULATED DEFICIT IRRIGATION AND SOIL MANAGEMENT PRACTICES IN 'PICUAL' OLIVE TREES

BY

El-Deeb, M. D.*; El-Sebsy, A.A.**; Ahmed, S. A. *** and El-Alakmy, H.A.*

* Plant Production Dept. (Fruit Science), Fac. Environ. Agric. Sci., Suez Canal Univ.

** Soil and Water Dept., Fac. Environ. Agric. Sci., Suez Canal Univ.

*** Plant Production Dept. (plant protection), Fac. Environ. Agric. Sci., Suez Canal Univ.

ABSTRACT

The experiment was conducted in 2005 and 2006 seasons at the Olive Research Farm, Faculty of Environmental Agricultural Sciences, El-Arish, Suez Canal University, Egypt to study the effect of regulated deficit irrigation and soil management practices in 'Picual' olive trees on nematode population. Three irrigation treatments were applied (100%, RDI-70% and RDI-35% of ETo) from March to November. In addition, four soil management practices hand hoeing and three mulching treatments (black plastic mulch, olive pomace mulch and rice straw mulch). Hand hoeing was applied to the depth of about 15 cm in mid April, mid June and mid August, while black plastic, olive pomace and rice straw mulches were spread on ground around trees in mid February. The RDI-35% of ETo with olive pomace mulched trees succeeded in decreasing the population density and total number of nematodes genera.

INTRODUCTION

In arid and semi-arid zones the majority of rain or irrigation water is often lost due to the high evaporation demands. Numerous techniques are still conceived or adapted in order to reduce water losses in such severe conditions. The reduction of these losses may improve water management and hence contribute in realizing a sustainable agriculture. The most commonly used techniques are covering the soil surface by crop residues, straw, plastic sheets or gravel and the establishment of mulch using different surface mulching practices. (Mellouli *et al.*, 1998).

Many Countries have devised development plans on the basis of water mobilization. Important investments have been made for the construction of hydraulic infrastructure during the second half of the last century. Consequently, there has been an impressive expansion of the irrigated lands. But, because of the limitation in water supply, the need for management practices to save water became rapidly vital in many areas.

Recently, large areas in Egypt are planted with olive trees, resulting in the production of large amounts of olive pomace and annually imposing a disposal and pollution burden.

Nematode and weeds are major problems in olive orchards which require special attention. Some problems have resulted in almost complete economic loss and in other cases these problems have required major alterations in the industry. The main losses in yield or oil production are mainly caused by competition between olive trees and weeds or nematode for moisture and nutrients. Managing these problems requires accurate information, proper strategies and production practice inputs in order to maintain economic yields. (El-Shamma and Hassan 2001). Therefore, the main objectives of this study was to investigate the effect of regulated deficit irrigation (RDI) and soil management (SM) practices on nematode population in Picual olive trees.