

Name of candidate: Hamdy Abd El-Naby Zaki Hussein

Degree: M.Sc.

Title of Thesis: Evaluation of Some Olive Cultivars Grown Under Fayoum New Land Conditions

Supervisors: Prof. Dr. Mohammad Ali Galal; Prof. Dr. Gamal Abd Allah Abd El-Samad and Dr. Ali Ismail Abo El Azayam

Department: Horticulture

Branch: Pomology

Date of Examination: 13/ 3/2010

ABSTRACT

This investigation was conducted during two successive seasons of 2007 and 2008 to evaluate some olive cultivars (*Olea europaea*, L.) namely; Arbequina, Cairo 7, Chemlali, Coratina, Frantoio, Hojiblanca, Koroneiki, Manzanillo, Manzanilla Cacerna, Moraiolo, Picual, Picudo and Villalonga grown in Kom Oshem farm, Fayoum Governorate and established by the Egyptian and Spanish project, Ministry of Agriculture in Egypt. Most of these cultivars are newly introduced to Egypt and consequently have not been evaluated before under the climatic conditions of Fayoum.

From the obtained results, the studied olive cultivars could be classified according to:-

A) Growth parameters 1). The vigorous trees, include Manzanillo, Picual, Cairo 7 and Hojiblanca cvs. ;2). Semi vigorous trees, include Moraiolo, Chemlali, Koroneiki, Frantoio and Villalonga cvs. 3). The Small trees, include Arbequina, Picudo, Manzanilla Cacerna and Coratina cvs.

B) Flowering time 1). Early flowering cultivars include Cairo 7, Hojiblanca, Arbequina and Manzanillo cvs.; 2). Mid flowering included: Picual, Picudo, Moraiolo, Manzanilla Cacerna, Koroneiki, Chemlali and Coratina Cvs. 3). Late flowering include: Villalonga and Frantoio cvs.

C) Self-incompatibility index; The first group is self-compatible cultivars with (SI-index ranged from 0.375 to 0.483) which include Villalonga, Picudo, Arbequina, Coratina, Frantoio, and Chemlali cvs. The second group is partially self-incompatible with (SI-index ranged from 0.15 to 0.30) include Hojiblanca cv. which has SI-index = 0.252. The third group is self-incompatible with SI-index less than 0.15. This group include Moraiolo and Manzanilla Cacerna, Manzanillo, Picual Koroneiki and Cairo 7 cultivars.

D) Productivity and alternate bearing. Manzanillo, Hojiblanca and Cairo 7 were the most productive. Coratina, Frantoio and Moraiolo olive trees were the lowest productive cultivars in the present study.

The alternate bearing was clearly obvious for Picual, Picudo, Manzanilla Cacerna and Manzanillo trees more than in Koroneiki, Arbequina, Villalonga and Chemlali trees.

E) Fruit weight and oil content. 1). The first group: had small fruits (less than 2 g. with oil content ranged from 45.08 to 52.47%) and include Chemlali, Arbequina and Koroneiki cvs. These cultivars are suitable for oil purpose.; 2). The second group: medium fruits (more than 2g. and less than 5g. with oil content ranged from 40.00 to 46.14%): and include Cairo 7, Frantoio, Coratina, Hojiblanca, Villalonga, Picudo, Manzanilla Cacerna and Picual cvs.; 3). The third group: large fruits (more than 5 g. with oil content less than 38%): and include Moraiolo and Manzanillo cvs. Consequently, cultivars of the second and third groups are suitable as double purpose.

From the above mentioned results it could be concluded that Hojiblanca, Villalonga, Arbequina, Koroneiki, Manzanilla Cacerna are promising olive cvs. under Fayoum condition.

Keywords: olive cultivars, vegetative growth, flowering time, self-incompatibility index, alternate bearing, fruit weight and oil content.