

CALIFORNIA OLIVE COMMITTEE

FINAL 2013 YEAR RESEARCH REPORT: ONGOING PROJECT UPDATED 7/09/2014

Workgroup/Department: Olive / Plant Sciences, UC Davis

Project Year 2013

Anticipated Duration of Project: 1/10 year

Project Title:

Propagating Dwarfing Olive Rootstocks and Establishing a Long Term Orchard

Project Leaders:

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Commodity: Olive Relevant AES/CE Project No.

Year Initiated: 2013

Current Funding Request: 23,865.00

Problems and Significance:

To facilitate mechanical harvesting the newest table olive orchards are planted in hedgerows and require regular mechanical pruning to keep the trees small.

Such plantings and mechanical harvesting could be facilitated if, rather than cultivars propagated by cuttings and grown on their own roots, they could be grafted on dwarfing rootstocks. This could have favorable impacts on productivity in a manner similar to apples grafted onto dwarfing rootstocks.

The National Clonal Germplasm Repository for Tree Fruits, Nut Crops, and Grapes is a USDA-ARS facility that operates in collaboration with UC Davis and maintains the national collection of olives. The collection consists of more than 200 genetically different olives, some with slow growth and potential as dwarfing rootstocks.

Among those olives with promise for use a dwarfing rootstocks are: Nikitskaya, *Olea cuspidate* Verticillium resistant Oblonga Seedling and Dwarf D (20 rooted cutting).

We propose to propagate these rootstocks and test them for their dwarfing potential with 'Manzanillo' to produce a tree that is more amenable to mechanical harvesting.

This application for initial funding was for two purposes:

- I. Propagation and grafting of the rootstocks with 'Manzanillo' scions.
- II. Establishing the next generation olive hedgerow orchard on the UC Davis campus for evaluation of mechanical harvesters.

Objectives: Experimental Procedures:

Objective I: Develop the procedures for propagating the dwarfing rootstocks.

Objective II: Establish a split plot 4 acre, 10 x 15 and 8 X 15 hedge row 'Manzanillo' table olive orchard at UC Davis.

Progress Report Updated Through July 9, 2014:

Objective I:

Dr. John Preece successfully propagated Nikitskaya, *Olea cuspidate* Verticillium Resistant Oblonga Seedling and Dwarf D. However we still need, 8 Nikitskaya, 10 *Olea cuspidate* Verticillium Resistant Oblonga Seedling and 12 Dwarf D rootstocks. Dr. Preece is currently propagating these.

Objective II:

The orchard was planted May 19-21 2014 on the north side of Hutchinson Road the UC Davis campus. The block was split into 4 replications of 13-tree rows of the following rootstocks, Nikitskaya, *Olea cuspidate*, Verticillium Resistant Oblonga Seedling and Dwarf D. Two rows of Manzanillo were also included in each replication, one to be self grafted with Manzanillo and another to remain ungrafted. The purpose is to determine if grafting has any effect on dwarfing. An excel map is attached. Sevillano pollinizer rows are planted between each N-S replication and E-W between the two different spacing plots and in all the border rows. The trees were staked, tree wraps installed and an irrigation system with 1, 2 gallon per hour dripper per tree installed. Figure 2 below is the orchard being planted on May 21st, 2014.

We are lacking 40 Sevillano pollinizers in the west and north border rows,. As soon as our supplier has these they will be planted.

The trees will be grown through the summer and fall of 2014 and grafted in the fall of 2014 by Dr. John Preece's staff.



Fig. 1. The four acre dwarfing rootstock trial being planted May 19th, 2014 on the north side of Hutchinson Road on the University of California Davis campus.

