

Leafy Sevillano Olive Cuttings

rooting readily obtained under mist humidification produced satisfactory trees in experiment at Davis

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Most varieties of olives can be propagated readily by either leafy softwood cuttings or by hardwood cuttings. However, the Sevillano—one of the leading commercial olive varieties in California—has been difficult to propagate by cuttings; so nurserymen have resorted to grafting on seedlings as a means of propagation.

By the use of mist humidification techniques, leafy cuttings of the Sevillano root easily in fairly high percentages. It is necessary, however, to treat the cuttings prior to rooting with a root-promoting hormone. Otherwise, no roots are produced.

In the rooting tests at Davis, mist humidification equipment was used both under greenhouse and lath-house conditions. Air conditioning spray nozzles—which deliver about 1½ gallons of water per hour—were used. In the greenhouse the nozzles were spaced at 3' intervals in a covered propagating bench. A small electric fan placed at the end of the bench created sufficient air movement to give an even distribution of the mist. The nozzles were turned on and off at intervals by a solenoid valve operated by an electric time clock. During the day the nozzles were on and off in alternate periods of about one hour each. They were off all night except for two equally spaced 15 minute on periods.



Rooted Sevillano olive cuttings after 11 weeks under mist humidification.

Bottom heat of about 70° F from thermostatically controlled electric soil cables was maintained continuously under the cuttings.

In the lath-house the mist nozzles were placed over the propagating bed, with two nozzles every 2'. They were controlled by a solenoid valve operated by an electric time clock, and operated continuously during the daylight hours but were off during the night. Continuous bottom heat at a temperature of 70° F was provided by electric soil cables.

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Root Production on Leafy Sevillano Olive Cuttings Under Mist Humidification. Cuttings Started September 18, 1953—Dug December 7, 1953. Forty Cuttings per Treatment.

Hormone treatment	Source of cutting wood	Cuttings rooted %	Av. No. of roots per cutting	Av. length of roots (mms.)
In Greenhouse				
*IBA 4000	Mature tree ...	23	10.3	66
IBA 4000	Young tree ...	10	5.7	65
IBA 4000 plus Phygon XL	Mature tree ...	58	7.8	63
IBA 4000 plus Phygon XL	Young tree ...	25	7.5	53
IBA 4000 plus Phygon XL	Mature tree water-sprout growth .	73	9.7	43
IBA 4000 plus Phygon XL	Mature tree fruiting wood ..	25	5.9	55
Check No treatment	Mature tree ...	0	0.0	0
Check No treatment	Young tree ...	0	0.0	0
In Lath-house				
IBA 4000	Mature tree ...	43	3.1	52
IBA 4000	Young tree ...	45	7.4	43
IBA 4000 plus Phygon XL	Mature tree ...	55	4.8	59
IBA 4000 plus Phygon XL	Young tree ...	58	8.0	39
Check No treatment	Mature tree ...	0	0.0	0
Check No treatment	Young tree ...	0	0.0	0

* Indolebutyric Acid, 4000 parts per million.



Above. Propagating bench in the greenhouse provided with mist humidification nozzles. Below. Mist humidification equipment over an open propagating bed in the lath-house.





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SEVILLANO

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As shown in the table, it was essential to treat the cuttings with a root-promoting hormone to obtain any rooting. A solution of indolebutyric acid in 50% alcohol at a concentration of 4,000 parts per million was used. The cuttings were dipped in this for about five seconds before inserting in the root medium. In some cases the cuttings were also dipped in a fungicide—50% 2,3-dichloro-1,4-naphthoquinone—before rooting. This was beneficial in increasing root production in both the greenhouse and lath-house tests.

A coarse—house insulation—grade of vermiculite was used as the rooting medium in all treatments, as previous work had shown this to be satisfactory for olives under mist humidification.

With many plants, better rooting occurs if the cuttings are obtained from young rather than mature trees. This comparison was made in these tests, but any differences appeared to be in favor of the wood from mature trees. However, in comparing the use of watersprout growth and fruiting wood—both from the same mature tree—as a source of cutting wood, the watersprout type of growth gave the better results.

In rooting cuttings under mist, a much

greater leaf area can be retained than is otherwise possible. This undoubtedly contributes to the better rooting obtained. Also under mist humidification—contrary to expectations—no losses from disease-producing organisms were experienced.

Sevillano olive trees started from cuttings appear to be entirely satisfactory. Such trees under observation, which are now in their fifth year of growth, are equal in all respects to those propagated on seedling rootstocks.

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