

MODERATOR HARTMANN: Thank you, Don. We will hear a series of three talks from the Four Winds Nursery at Mission San Jose, California, dealing with a most interesting operation of rooting cuttings and healing a graft union simultaneously under mist. The speakers will be Mr. Floyd Dillon, Mr. Fred Real, and Mr. Don Dillon. Floyd Dillon will start. Floyd.

SIMULTANEOUS GRAFTING AND ROOTING OF CITRUS UNDER MIST

Part One—"Environment and Mother Plants"

FLOYD DILLON

Four Winds Growers

Mission San Jose, Fremont, California

Optimum citrus environment is the reason for the location of our growing grounds at historical Mission San Jose, Alameda County, California. We are now a part of the new City of Fremont.

Here, in 1797, the 14th Mission of the ultimate 21 Mission chain, was established. It proved to be an ideal climatic location.

In the 1840's Captain Fremont, after exploring most of the West, selected Mission San Jose as the place for his future permanent home, "Casa Fremontia."

I quote a portion of a letter, now in the Bancroft Library, University of California, from Fremont, written at Mission of San Jose in September, 1846.

"This is a pretty place — this Mission. The gardens or orchards might be made handsome places, but to render them valuable, possession of the water which comes from a ravine in the hills is essential. A handsome plain of good lands extends from the hills towards San Francisco Bay and could be well watered."

I will add — he didn't get this land — but Fremont is a rightful name for our city. Our 6-acre growing grounds are on Mission land, on the foothill bench, sloping to the west.

The drainage of cold air is ideal. The Mission elevation is 300 feet, ours about 200 feet, while Niles, about 3 miles from us has an elevation of 45 feet.

This is a thermal belt, relatively frost free (but we had snow last winter!) Orange trees are common here in the dooryard gardens of the older homes. The sun gives ample heat. The area is free of noxious weeds, difficult scales, and free of the lethal virus, Tristeza — commonly called "Quick Decline." We ship pinto tag. Our water is from Hetch Hetchy reservoir (San Francisco water supply), and of exceptionally good quality. The right climatic environment is basic because all of our propagation is from mother-plant twigs. These mother plants are grown in the open air, without shelter from the elements. Having the right wood to propagate is essential. However, the propagation of these twigs and their simultaneous healing and rooting is done under controlled hot house conditions.

We grow our own original mother plants, both rootstocks and scions. Our selections and methods are based on "research," if you will pardon our usage of this word with this definition — "If one appropriates another man's idea, that is stealing; but if you combine the ideas of many experts along with your own, that is research." We should confess plagiarism in "twig-grafting." Dr. Halma and fellow member Ted Frolich of UCLA really taught us their methods. Ted not only grafts two twigs, he often sandwiches them 3 or 4 high in his researching at UCLA. We hold to this belief — to secure identical results and keep on producing identical results, we must use identicals, both rootstock and scion. While the specific scion strains are generally well known and recognized, this does not hold true with rootstocks. Citrus seedling rootstocks are quite variable. That is why we use twigs of rootstock mother plants, not seedlings, in our propagation. Most of our scion varieties are progeny of one mother tree of the variety. To a lesser degree this is true of our rootstocks. Our objective is to have every twig-graft, both rootstock and scion, the progeny of a specific mother plant. Conditions change, however; nucellar strains are causing the abandonment of old-line strains. The California citrus industry now is committed to a long range program of producing an indexed, disease-free planting at Lind Cove, in Tulare County. This is being ably developed by Dr. William Bitters and associated horticulturists of the University of California at Riverside. It takes a long time to draw conclusions. When such new, indexed, budwood is available, our mother plants will be replaced with new mother plants which will grow from Lind Cove buds.

An ample supply of the right hardened-off twigs of new growth are a must to successful twig grafting. Both scionwood and rootstock wood must be simultaneously available at the right time.

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Part Two—"Propagation"

FRED REAL

Four Winds Growers

Mission San Jose, Fremont, California

In grafting and rooting citrus simultaneously, our propagators go out into our mother blocks and cut twigs of scion wood and understock, using the last growth cycle. When the twigs are grafted and ready to be flatted, they are on the average 12 inches long. Our propagators gather their own wood each morning and never is the wood allowed to get dry. The twigs are always kept moist and when they are brought into our propagating room they are dipped into a fungicide solution containing 1/2 cup P.C.N.B. and 2 1/2 cups of Captan (40 percent wettable powder) in 20 gallons of water.

When the preceding preparations have been made, our propagators start making their grafts. The cut for the graft is 1/2 to 3/4 inches long at about a 30° angle. After the graft has been made, it