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Harvesting and Handling Section

PACKINGHOUSE NEWSLETTER

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TANGERINE HANDLING[1]

We are entering a period of potential danger in tangerine shipping due to the condition of drought stress that is apparent in many tangerine groves. This newsletter is being drafted on Monday, November 28, and comments on "future" weather are as of this date.

If tangerines go into the picking season with adequate moisture, we have little reason to expect damage from occasional rain other than the oleocellosis (oil spotting) that is caused when oil cells of moist, turgid, fruit break due to rough handling. If, however, tangerine groves that are definitely dry get a heavy (3/4 inch or more) rain, a potential "zebra skin" condition may result. In such a case, the important points to remember are:

Timing

It takes 3 to 4 days on the tree for the condition to occur. Peak losses appear quite suddenly in fruit picked on the third or fourth day and, thereafter, decline slowly for about a week.

Symptoms

The "zebra skin" condition appears 2 or 3 days after packing. Longitudinal dark streaks appear over the segments. Decay follows very rapidly.

Degreening

Ethylene is extremely harmful to tangerines in an incipient "zebra skin" condition. After ethylene degreening, they become so sensitized that even the most gentle packinghouse handling results in "zebra skin."

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[1]The condition discussed here has been described (with color photographs) in Florida Agricultural Extension Service Circular 285, May 1965. This has been distributed to most recipients of this newsletter. Additional copies are available from: Mailing Room, Rolfs Hall, Agricultural Experiment Station, University of Florida, Gainesville, Florida, 32601.

Fruit size

The condition always seems to be worst on the small sizes.

Fruit color

Some of the worst "zebra skin" we have seen has been on tangerines that were picked full color, but went through a degreening room unnecessarily because they were mixed in with green ones.

We hope that there will be no calamitous rain prior to the Christmas market. If there is, however, the following measures are suggested to minimize decay claims:

Pick early after the rain

Using great care, and, in particular, being careful not to overfill field boxes, tangerines can be brought in with minor risk as soon as the water is off the trees. Any fruit that are roughly handled may develop oil spotting, but this can be seen by alert graders. From the third day on, there is risk of "zebra skin" if the trees have been dry prior to the big rain.

Spot pick

If suitable pickers can be obtained, spot pick for both size and color. If this is not possible, dump and pregrade out the green ones so the "tree-colored" tangerines can be run immediately.

Selecting groves to pick first

We cannot prove it; but common sense indicates that groves that have been well irrigated prior to the heavy rain should suffer least damage and recover first.

Pack in well ventilated containers

Tangerines should be packed, without a bulge, in very well ventilated containers.

Fungicides

Dow-hex or other forms of Dowicide A are of some help, but cannot stop "zebra skin." Diphenyl can be used at up to 2 pads per well ventilated half-box container.

Prompt handling

Reduce time between picking and packing by all possible means and on no account attempt to "dry out" or "harden" tangerines.

Refrigeration

Prompt refrigeration to 32° to 34° F is helpful.

The main thing to avoid decay claims is to realize that, once it is established that "zebra skin" is occurring, ethylene cannot be used.

ETHYLENE CONCENTRATION IN DEGREENING ROOMS

Now that we have a simple, effective, portable ethylene analyzer, we are beginning to get a clearer picture of some of our troubles in the degreening season.

One part per million (1 ppm) is adequate for good degreening and more than this will not speed up degreening. Excess ethylene will, however, stimulate Diplodia stem-end rot, the major cause of decay at this time of year. We have found occasional commercial degreening rooms with 5 ppm and one with 50 ppm!

Portable ethylene analysis equipment is available for less than $100 and is simple and reliable to use. Two makes are available and details will be supplied on request.

We are working on improved ethylene metering devices. Much of the trouble has been because flow rates for the new big degreening rooms are high enough that it is hard to count bubbles accurately. (The recommended rate is still one bubble per 10 field boxes capacity.)

DEGREENING WASHED OR WASHED AND WAXED CITRUS

Don't do it!

NEW PUBLICATIONS AVAILABLE

Decay control

The pamphlet on decay control by the Florida Citrus Commission, Citrus Experiment Station, and U.S.D.A. Market Quality Research Division, Orlando, has been rewritten and distributed. Individual copies can be obtained from any of these agencies.

Refrigeration

We have a few reprints of 2 technical papers on refrigeration of Florida citrus. These are:

"Rapid Cooling of Florida Citrus Fruits with Forced-Air," by J. Soule, G. E. Yost, and A. H. Bennett. Proc. Fla. State Hort. Soc. 78: 263-268, 1965.

"Certain Heat Characteristics of Oranges, Grapefruit and Tangelos During Forced-Air Precooling," by J. Soule, G. E. Yost, and A. H. Bennett. Trans. Am. Soc. Agr. Eng. 9(3): 355-358, 1966.

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NOTE

The observations and advice in this newsletter are based on the work of A. A. McCornack, Assistant Horticulturist, Florida Citrus Commission; Dr. G. Eldon Brown, Assistant Plant Pathologist, Florida Citrus Commission; Dr. F. W. Hayward, Associate Biochemist, Citrus Experiment Station; and the undersigned.

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