



INSTITUTE OF FOOD AND
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FLORIDA
COOPERATIVE
EXTENSION SERVICE

PACKINGHOUSE NEWSLETTER

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Key Word Index Cold Treatment, Gift Fruit Day, Quarantine

COLD TREATMENT FOR FLORIDA GRAPEFRUIT

One of the most promising alternatives to ethylene dibromide fumigation for plant quarantine Caribfly control is cold treatment. The Caribfly larvae are killed by exposure to low, above-freezing temperatures for extended periods of time. The Caribfly control temperatures (usually 33^o to 35^o F) and corresponding length of exposure (usually about 2 to 3 weeks) are regulated by the government of the state (e.g. California) or country (e.g. Japan) to which the fruit is to be shipped. The time and temperature regulations are subject to change so they will not be listed here. The time must be continuous--three separate one-week treatments would count for only seven days.

Florida grapefruit are subject to chilling injury at temperatures less than 50^o F (or 60^o F depending on the time of year). The most critical grapefruit chilling injury temperature is believed to be 40^o F. Chilling injury can be minimized or even completely eliminated by curing prior to cold treatment and following the guidelines below when using cold treatment on Florida grapefruit.

General

1. During curing, relative humidity (RH) should be between 80 and 92%. RH should be maintained between 85 and 95% during the cold treatment (33-35^o F). This is critical.
2. The duration of the cold treatment (33-35^o F) should not exceed 21 days (less time if possible).

Early-season Fruit (October through December)

1. Degreening with ethylene should never exceed 72 hours (preferably 48 hours); thus fruit with relatively mature peel is required for degreening to be complete.
2. The "curing" procedure should be at 60^o F and 80 to 92% RH for 7 days.
3. When the cold treatment (33-35^o F, 85 to 95% RH) has been completed, subsequent fruit storage should be at 60^o F and 85-90% RH.

Mid- and Late-season Fruit (January through May)

1. The optimum "curing" procedure is 60⁰F and 80 to 92% RH for 7 days. However, 50⁰F and 80 to 92% RH for 7 days is satisfactory, especially for late-season fruit susceptible to decay.
2. When fruit has completed the cold treatment (33-35⁰F), storage should be at 50⁰F and 85-90% RH.

Sufficient research has been completed to enable the citrus industry to proceed with the cold treatment of Florida grapefruit. The precautions are very important: (a) use only grapefruit degreened 72 hours or preferably less, (b) cure for seven full days, (c) maintain proper humidity during curing and cold treatment, and (d) assure proper storage conditions upon delivery. Cold treatment conditions and times can be achieved on board approved ships enroute to Japan.

Tim Hatton
USDA, Orlando

Will Wardowski
Extension Service
Lake Alfred

CITRUS GIFT FRUIT DAY

The Third Annual Citrus Gift Fruit Day is scheduled Wednesday, May 9, 1984 (Registration 9:00 AM, Program 9:30 AM) at the Citrus Research and Education Center, Lake Alfred. There will be fewer talks than in the past with more time for questions and discussion. Florida Citrus Commissioner, John D'Albora, will be the session moderator. Two gift fruit shippers are scheduled on the program:

Harvesting: Respect for the picker and the fruit - Will Wardowski

Practical thoughts on handling from the tree to the packinghouse - Frank Sullivan

Ethylene degreening - Charles Barmore

Fungicides and decay control - Eldon Brown

Quality control and the use of a consultant - Gene Mixon

Packinghouse machinery for gentle handling - Bill Miller

Gift Fruit plant quarantine treatments - Mohamed Ismail

In addition, Mohamed Ismail hopes to still have some Minneola fruit from a growth regulator experiment. That fruit will be on display in the afternoon along with commercial displays.

There will be morning talks, a lunch, and afternoon equipment displays. This meeting is open to the public. Commercial exhibitors must first obtain an invitation from the Florida Gift Fruit Shippers Association. Lunch tickets must be purchased no later than April 25, 1984 from the Association, 521 N. Kirkman Road, Orlando, FL 32811. Phone (305) 295-1491.

Will Wardowski
Extension Service

CITRUS PACKINGHOUSE DAY

The Twenty-third Annual Citrus Packinghouse Day is scheduled for Wednesday, September 5, 1984 at the Agricultural Research and Education Center, Lake Alfred. This well-established meeting is for commercial citrus packers and the supporting industry. Reserve this date on your calendar if you have an interest in fresh citrus fruit.

Will Wardowski
Extension Service

POSTHARVEST TECHNOLOGY SHORT COURSE

This June 18 through 29, 1984, U. S. Davis will repeat a special two-week course on postharvest technology of fresh horticultural crops. The first week (June 18-22) will include an intensive program of lectures, discussions, and demonstrations. The second week (June 25-29) will be spent in a field trip to visit selected packinghouses, cooling and storage facilities, produce distribution centers, modified atmosphere facilities, and transportation terminals in California.

The course fee is \$125 for the first week only or \$325 for the total course. For more information about registration, housing, and related matters, contact: Sharon Munowitch, University Extension, University of California, Davis, CA 95616; Telephone No.: (916) 752-6021.

Editor's Note: This is an annual short course.

Perishables Handling
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AVAILABLE PUBLICATIONS

Available from Dr. W. Wardowski, AREC, 700 Expt. Stn. Rd., Lake Alfred, FL 33850

"Pesticides and Plant Growth Regulators Registered for use on Florida Citrus, 1984" by J. L. Knapp, D. P. H. Tucker, T. R. Fasulo and W. F. Wardowski. Univ. of Fla. Fact Sheet ENT-55A. 4 pages.

Available from Dr. Tim Hatton, USDA, ARS, 2120 Camden Road, Orlando, FL 32803

"Preferred temperature for prestorage conditioning of 'Marsh' grapefruit to prevent chilling injury at low temperatures" by T. T. Hatton and R. H. Cubbedge. HortScience 18(5):721-722. 1983.

"Reducing Chilling Injury in Grapefruit by Prestorage Conditioning" by T. T. Hatton and R. H. Cubbedge. USDA/ARS AAT-S-25/June 1982. 6 pages.

"Effects of ethylene on chilling injury and subsequent decay of conditioned early 'Marsh' grapefruit during low-temperature storage" by T. T. Hatton and R. H. Cubbedge. HortScience 16(6):783-784. 1981.

"Conditioning Florida grapefruit to reduce chilling injury during low-temperature storage" by T. T. Hatton and R. H. Cubbedge. J. Amer. Soc. Hort. Sci. 107(1):57-60. 1982.

Available from Division of Fruit & Vegetable Inspection, P. O. Box 1072, Winter Haven, FL 33880

"1982-83 Season Annual Report."

Available from Florida Fruit Digest Co., 333 Laura Street, Suite 360, Jacksonville, FL 32202

"The Florida Fruit and Vegetable Directory, 1984 Season" published by Florida Fruit Digest Co. Price: \$7.00. Add 95¢ postage domestic or \$1.32 postage foreign, and 35¢ sales tax for Florida residents.

Available from Dr. Brian Wild, Gosford Horticultural Postharvest Laboratory, P.O. Box 355, Gosford, N.S.W. 2250

"The colours of Penicillium moulds of citrus" by B. L. Wild. Rural Newsletter, September, 1983. Pages 31-32.

"Citrus green mould resistance to the unrelated fungicides Panoptine & Benlate" by B. L. Wild. Rural Newsletter, September, 1983. Pages 26-27.

"Synergy between a Benzimidazole-sensitive isolate and Benzimidazole-resistant isolates" by B. L. Wild and J. W. Eckert. Postharvest Pathology and Mycotoxins 72(10):1329-1332. 1982.

"Problems of fungicide resistance in Penicillium rot of citrus fruits" by J. W. Eckert and B. L. Wild. Pest Resistance to Pesticides. Plenum Publ. Corp.: 525-556. 1983.

"Double resistance by citrus green mould Penicillium digitatum to the fungicides guazatine and benomyl by B. L. Wild. Ann. Appl. Biol. 103:273-241. 1983.

This newsletter is published at a cost of \$90.28 or 7 cents per copy, to give the latest news to the packinghouse industry.

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