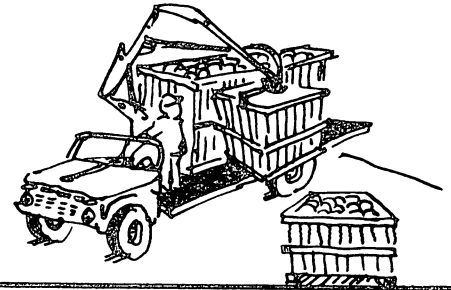


Florida Cooperative Extension Service

PACKINGHOUSE NEWSLETTER

Institute of Food and Agricultural Sciences
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Key Word Index Degreening, Ethephon, Ethylene Analyzer, Packinghouse Day Program.

USE OF ETHREL ON TANGERINES

We have cooperated with a number of growers in making experimental applications of Ethrel (ethephon) to tangerines and tangelos for color improvement and fruit loosening. When properly used, Ethrel has usually resulted in less postharvest degreening time and in partial loosening, hence fewer plugs. The USDA, Orlando, has done much of the work on this chemical and has a recent publication listed in the available publications. Ethrel has been cleared by FDA for use on tangerines and tangerine hybrids, and suggested application rates are as follows:

250 ppm for all varieties except Orlando tangelos

5/6 pt. per 100 gal or 4 pt. per 500 gal.

200 ppm for Orlando tangelos

2/3 pt. per 100 gal or 3-1/3 pt. per 500 gal.

Apply 400 to 600 gal per acre, depending on tree size, for good coverage.

Special notes concerning application

1. Do not apply until 10-20% colorbreak is achieved and the fruit is passing minimum quality requirements.
2. Ethrel is subject to removal by rain the first 12-15 hrs, so try to avoid its application when rain probability is high.
3. Avoid application to trees showing symptoms of low vigor, freeze injury, or drought stress, as excessive defoliation may occur.
4. Treated fruit should be monitored daily for coloring and loosening until desired response is obtained. Generally, the response time is 4 to 8 days. Some leaf drop may occur 3 to 5 days after application, but this shouldn't exceed 10 to 15% which is not adverse to the tree.

5. No surfactant should be used. Experiments have shown that a surfactant greatly increases the amount of leaf drop obtained. Inclusion of other pesticides is also not advisable until we have more information concerning this chemical.
6. Growth regulators can be erratic at times, so small acreages should be treated initially to gain experience in using the chemical.

Roger Young and Otto Jahn
 USDA, Orlando
 Bill Wilson and Earl Rowland
 Florida Dept. of Citrus, Lake Alfred

WHY PAY MONEY TO RUIN FRUIT?

Concentration of ethylene for degreening citrus fruit as recommended by the Research Center (see Available Publication) at Lake Alfred is 1 to 5 ppm and never above 10 ppm. Use of higher ethylene concentrations are not only of no benefit to the degreening process, but increases the daily ethylene use cost and can increase decay claims (see Available Publications). The following table gives the daily cost of ethylene when used at various concentrations which are (unfortunately) not uncommon in the citrus industry.

| Ethylene concn ppm | Ethylene use cu.ft./hr. | Cost/day \$ |
|-----------------------|----------------------------|----------------|
| 5 | 0.12 | 0.24 |
| 10 | 0.24 | 0.48 |
| 20 | 0.48 | 0.96 |
| 50 | 1.20 | 2.40 |
| 100 | 2.40 | 4.80 |

The above table is based on a 20'x20'x60' room which would hold approximately 200 pallets of fruit with a complete air exchange every hour. Cost of ethylene is \$34.70 per cylinder which contains approximately 415 cu. ft. Thus, if you are using 50 ppm ethylene to degreen, your cost is 10 times greater than it should be and you are paying to increase your decay claims. Invest in an ethylene analyzer and save money.

C. R. Barmore
 AREC, Lake Alfred

CITRUS PACKINGHOUSE DAY WEDNESDAY SEPTEMBER 3, 1975 LAKE ALFRED

The program for Citrus Packinghouse Day, Wednesday, September 3, 1975, AREC, Lake Alfred is scheduled for 9:30 A.M. with registration at 9:00 A.M. Equipment demonstrations confirmed at this writing are:

Solar Energy Fruit Drying - John Petersen, Petersen Industries, Lake Wales, Fla.

Net Rope Stock Bagger - Dick Rath, Filper Corp., Fairport, N.Y. and Rodger Keller, DuPont Vexar Div., Brandon, Fla.

MGD Water Purification System - Amos Shaler, SMS Associates, State College, Pa.

The program will be a series of 10 minute presentations as follows:

HARVESTING VALENCIA ORANGES WITH NEW ABSCISSION CHEMICALS - Bill Wilson and Earl Rowland, Florida Department of Citrus, Lake Alfred.

ETHEPHON RELEASED FOR USE ON CITRUS - Otto Jahn and Roger Young, U.S. Horticultural Research Laboratory, ARS, USDA, Orlando.

OSHA REGULATIONS - Clark Ghiselin, Citrus Industrial Council, Lakeland.

BENZIMIDAZOLE RESISTANT MOLDS - Eldon Brown and Andy McCornack, Florida Department of Citrus, Lake Alfred.

POSTHARVEST WEIGHT LOSS OF FLORIDA CITRUS FRUITS - Andy McCornack, Florida Department of Citrus, Lake Alfred.

EARLY AND LATE SEASON CHILLING INJURY - Will Wardowski, Extension Service, Bill Grierson, Agricultural Research and Education Center and Mohamed Ismail, Florida Department of Citrus, Lake Alfred.

A PROPOSED WATER TREATMENT SYSTEM FOR RECYCLING OF CITRUS PACKINGHOUSE EFFLUENT - Mohamed Ismail, Florida Department of Citrus and Will Wardowski, Extension Service, Lake Alfred.

EVALUATING AND USING PACKINGHOUSE PER-BOX COST ANALYSES - Daniel Tilley, Food and Resource Economics, University of Florida, Gainesville.

SOLAR ENERGY ROOF COLLECTORS - Earl Bowman, ARS, USDA, Gainesville.

UTILIZATION OF SOLAR ENERGY IN PACKINGHOUSE OPERATIONS - Direlle Baird, Department of Agricultural Engineering, University of Florida, Gainesville and Will Wardowski, Extension Service, Lake Alfred.

HUMAN INTESTINAL ABSORPTION OF NUTRIENTS FROM CITRUS PRODUCTS - Edward W. Nelson, M.D., College of Medicine, University of Florida, Gainesville.

EQUIPMENT DEMONSTRATIONS - Will Wardowski, Extension Service, Agricultural Research and Education Center, Lake Alfred.

WINDSCAR RESEARCH - Gene Albrigo, Agricultural Research and Education Center, Lake Alfred.

REPORT ON FUMIGATION CHAMBERS - John Whitesides, Citrus Bureau, Division of Fruit and Vegetable Inspection, Winter Haven.

AUSTRALIAN CITRUS - Brian Freeman, Fruit Crops Department, Gainesville (on leave from Australia).

EXPORTING GRAPEFRUIT IN VAN CONTAINERS - Bill Miller, U.S. Horticultural Research Laboratory, ARS, USDA, Orlando.

SOME OBSERVATIONS OF FLORIDA GRAPEFRUIT ARRIVING IN JAPAN - Tim Hatton, U.S. Horticultural Research Laboratory, ARS, USDA, Orlando.

GRAPEFRUIT TO JAPAN--SOME OBSERVATIONS CONCERNING CARTONS, FUNGICIDES AND QUALITY -
John Smoot, U.S. Horticultural Research Laboratory, ARS, USDA, Orlando.

AVAILABLE PUBLICATIONS

Available from Dr. W. F. Wardowski, AREC, P. O. Box 1088, Lake Alfred, FL 33850

"Regulation of fruit ripening with ethylene" by Charles R. Barmore. Lake Alfred AREC Research Report-CS75-6. June, 1975.

"Recommendations for degreening Florida fresh citrus fruits" by W. F. Wardowski and A. A. McCornack. Florida Extension Service Circular 389. May, 1973.

"Effect of ethylene degreening on decay of Florida citrus fruit" by A. A. McCornack. Fla. State Hort. Society 84:270-272. 1971.

"Orlando tangelo" by T. E. Crocker and W. F. Wardowski. Fla. Coop. Ext. Serv. Circular 400. 6-7.5M-75.

"Factors affecting postharvest development of Collectotrichum gloeosporioides in citrus fruits" by G. Eldon Brown. Phytopathology 65(4):404-409. April, 1975.

Available from Orange County Farm Bureau, 2750 W. Washington, Orlando, FL 32805
Price \$6.00 plus \$.50 tax and mailing. Checks to: Orange County Farm Bureau
Foundation, Inc.

Countdown for agriculture in Orange County, Florida by Henry F. Swanson. 1975.
This 338 page hardback book with 76 illustrations includes the past, present and trends in Orange County agriculture.

Available from Frank Ballard, American Plywood Association, 1863 Sailfish Rd. S.,
St. Petersburg, FL 33707.

"Plywood design manual, industrial and agricultural pallet bins" American Plywood Association Publication No. Y205. 24 pp. 1974.

Available from Dr. Roger Young, U.S. Horticultural Research Center, USDA, 2120
Camden Road, Orlando, FL 32804.

"Coloring and loosening of citrus fruits with ethephon" by Roger Young, Otto Jahn and J. J. Smoot. Fla. State Hort. Soc. 87:24-28. 1974.

This newsletter is published at a cost of \$81.85, or 8.2 cents per copy, to give the latest news to the packinghouse industry



W. Wardowski, Editor
Associate Professor-
Extension Horticulturist