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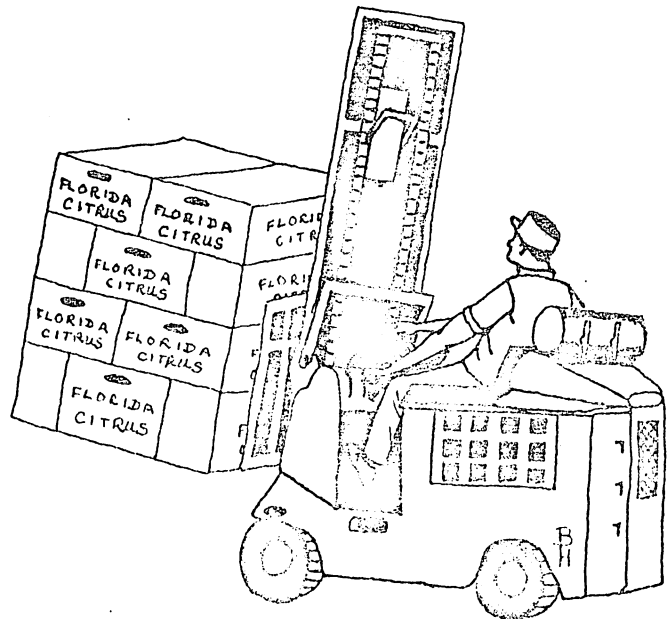
# Packinghouse Newsletter

UNIVERSITY OF FLORIDA INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES

and

STATE OF FLORIDA, DEPARTMENT OF CITRUS

\*Anyone wishing to receive this newsletter  
may send a dozen stamped, preaddressed  
envelopes to the above address.



April 1, 1973

## Harvesting and Handling Section

P A C K I N G H O U S E

N E W S L E T T E R

BENLATE--APPROVED FOR EXPERIMENTAL USE

A temporary tolerance for the use of limited quantities of benomyl (Benlate) on citrus has been approved by the Environmental Protection Agency. Benomyl residue in or on citrus from pre- and/or postharvest application of this fungicide is set at 10 ppm. Under this temporary tolerance, Benlate-treated fruit may be used for processing and the pulp for feeding animals.

The expiration date for this temporary tolerance is January 11, 1974. The experimental data obtained under this tolerance are to be used to establish a permanent tolerance.

Export (including Canada) remains a problem. The only residue tolerance established by a foreign government that we know about to date is from West Germany.

Benlate is manufactured by E. I. DuPont de Nemours and Company as a 50% wettable powder. Experimentally, Benlate has been a highly effective fungicide against our major postharvest diseases, stem-end rot and green mold.

Preharvest Application

Benlate can be used preharvest as a means of treating fruit with a fungicide before degreening. Preharvest fungicidal applications are not intended to replace postharvest applications, but should supplement them to achieve improved decay control.

(1) Method of Application--Dilute sprays of Benlate have been used in most of our experimental work. Limited studies with concentrate applications indicate that they would probably be effective also.

(2) Spray Concentrations--Decay control has been obtained using 1 lb. Benlate/500 gal. with even better control at 2.5 lb./500 gal. No studies have been made at the label rate of 1 lb./A.

(3) When to Apply--The application should be made within 3 weeks before harvest.

Postharvest Application

Benlate can be applied in the packinghouse to unwashed fruit before degreening and/or to washed fruit after degreening.

(1) Method of Application--Apply Benlate as a nonrecovery water spray or in a water-based wax. These suspensions must be agitated continuously so the fungicide will not settle out. There is no rapid method of determining strength of Benlate suspensions so at present, only non-recovery treatments are recommended. Benlate is only slightly soluble in water or water-based waxes.

(2) Treating Strength--The suggested treating strength is 600 ppm (1 lb. of Benlate per 100 gal.). Benlate, at this concentration, is as effective as TBZ at 1000 ppm. Increasing the concentration of Benlate in the treating suspension does not improve the decay control appreciably.

(3) When to Apply--Excess surface water should be removed from fruit before applying Benlate. The best point on the packing line to apply Benlate is before drying, whether Benlate is applied in a water suspension or in water-based wax. To reduce decay during degreening, Benlate may be applied as a water suspension before degreening without washing fruit. Following degreening and washing, a second fungicide application should be made.

(4) Container Labeling--All labeling requirements that apply to other post-harvest fungicides are required for Benlate. A label might read: "Benomyl used as a fungicide." Benomyl is the generic name which must appear on the label.

Decay control obtained with Benlate in the packinghouse will be comparable to that resulting from proper use of TBZ. Both fungicides are effective on the same fungi, particularly green mold, and the two fungi that cause stem-end rot. If Benlate is properly applied, good control of these fungi can be expected. Benlate does not control sour rot or Alternaria (black) rot. Fungicides cannot take the place of good handling methods from picking through packing.

All experimental use must conform with the label which will be found on Benlate containers. During the period permitted for experimental use of Benlate, the Division of Fruit and Vegetable Inspection will gather data prior to enforcing the State minimum residue requirement.

We are interested in working with anyone planning to apply Benlate either sprayed on trees or applied in the packinghouse. The purpose of this experimental permit is to obtain information that can be related directly to commercial application of this fungicide.

A. A. McCornack  
G. E. Brown  
Florida Department of Citrus

#### FLORIDA AGRICULTURE LOOKS TO EXPORT MARKETS

During the week of March 4 to March 9, the Florida Department of Agriculture and Consumer Services conducted a tour of European fruit and vegetable buyers. This was attended by 17 executives of some of the biggest fruit and vegetable importing companies from Belgium, Denmark, England, France, West Germany, Norway, Sweden, and Switzerland (see Available Publications for list of addresses). Some of the discussions and observations on citrus fruit should be of interest to anyone contemplating entering or continuing to trade in the export market. Larry Risse, USDA, Orlando, was invaluable to the Department throughout the tour.

All buyers emphasized very strongly that there must be a "will to export" whereby the exporter will cooperate to maintain a steady flow of fruit, at times waiving a short term profit in order to establish a long term outlet. This can be accomplished by a form of pooling.

External appearance is of critical importance in European markets, for which grade standards are conditioned far more for exterior appearance than internal quality. It was difficult to get agreement as to what a "grade" meant. Since a given package of fruit would have different grades under different systems (e.g. U.S. grades for Florida oranges, European ISO grades for oranges generally, and

occasionally a Florida grade that might differ somewhat from U.S. standards). Bill Pent and Novell Hall, Florida Fruit & Vegetable Inspection, Winter Haven, led a discussion on grades.

There was general agreement that grapefruit afforded the best prospects for export with increasing interest in specialty fruit such as tangerines, 'Temples', tangelos, and 'Murcotts'. Drs. Bill Grierson and Will Wardowski, University of Florida, Lake Alfred, gave a talk and demonstration on packaging, emphasizing the value of tray packs for specialty fruits if they were to survive the long journey overseas. Fruit which arrive misshapen and bruised are unsaleable, and hence, a liability.

The European buyers who participated in the Seminar were very much concerned about the practice of Florida shippers overpacking. A question asked by a buyer from Belgium illustrates the general attitude of all the buyers on this subject. "Why fill the container so high that you have to use a hammer to close it?" He was very much concerned about damage to the product which results from overfilling containers. This appeared to be the number one concern of all the buyers in regard to packaging of Florida products.

A third point of concern to these buyers is the emphasis which Florida shippers place on private labels. They felt that if the word "Florida" were emphasized it would help sell fruit. One buyer said there is much goodwill for "Florida", while the private labels do not mean anything to European buyers.

Elmer G. Close, Economist  
Florida Department of Agriculture and  
Consumer Services  
Tallahassee

FUNGICIDES SAFE, BUT NOT THAT SAFE

We get letters --

February 22, 1973

Dear Doctor:

Your Packinghouse Newsletter of February 16, 1973, has me all shook-up. The soothing words about the safety of TBZ on oranges are just too much!

The Merck Manual, 12th ed., gives human dosage as: Thiabendazole 22 mg/kg b.i.d. for 1 or 2 days depending on the type of infection.

The dosage for a 50 lb. child is therefore  $22.72 \text{ kg} \times 22 \text{ mg} = 0.5$  grams b.i.d. or 2.0 grams in 2 days.

...Florida residue regulation 105-1.43 requires 0.1 ppm. In California, where 0.5 ppm is a more typical residue, 881,000 lbs. of fruit would contain about 200 grams TBZ, or enough to treat a 5000 lb. elephant!

Now it happens that our Chienne, who weighs about 50 lbs., has a case of the nasties, but she doesn't like oranges very well. What do I do?

Sincerely yours,

Confused

P.S. I think that your floating decimal point sank.

April 1, 1973

Dear Confused:

There is no way you could have known we assumed 0.3 ppm TBZ, a reasonable amount for treated Florida oranges. Also, you could not know we made a 60X error. The 50 lb. child would only have to eat 14,683 lbs. (over 7 tons) of treated oranges, peel and all, in two days in order to get a TBZ medical dose.

Thanks to my friend, Hugh Fitzpatrick, FMC Corporation, Riverside, California, for serving crow in such a pleasant manner. Actually, Hugh, crow is not so bad when you get used to it.

W. Wardowski  
Extension Service

AVAILABLE PUBLICATIONS

Available from Dr. W. Wardowski, Harvesting and Handling Section, Agricultural Research and Education Center, P. O. Box 1088, Lake Alfred, Florida 33850.

"Grove application of benomyl and its persistence in orange fruit" by G. Eldon Brown and L. Gene Albrigo. *Phytopathology* 62(12):1434-1438. December, 1972.

Available from Elmer G. Close, Florida Department of Agriculture and Consumer Services, Mayo Building, Tallahassee, Florida 32301.

"Buyers who participated in the Florida Export Marketing Seminar and Tour, March 4-9, 1973". This list includes companies and addresses.

Available from Falconbridge International Limited, Executive & Sales Office, P. O. Box 40, Commerce Court West, Toronto, Canada.

"Conversion factors, weights and measures, and atomic constants", Copyright, 1968, J.A.M. Gaboury.

This public document was promulgated at an annual cost of \$201.60, or two and one-half cents per copy to inform county agricultural directors, ranchers, and growers of research results in harvesting and fresh fruit handling and marketing.