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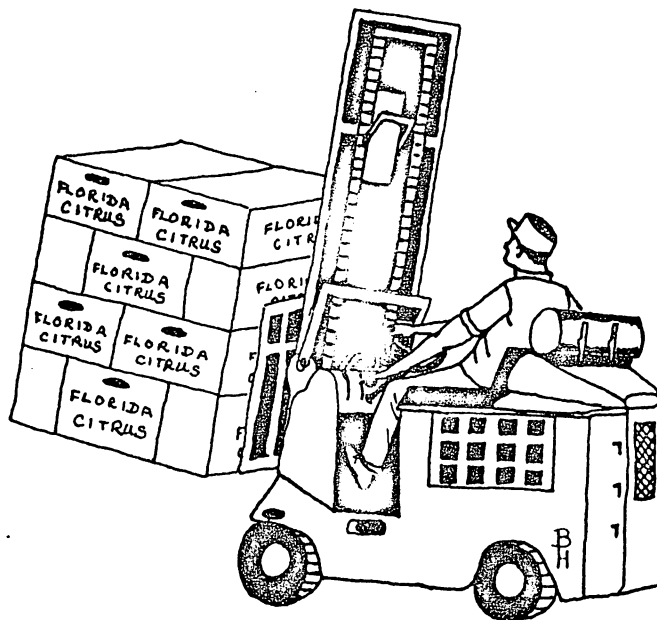
Packinghouse Newsletter

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.



Key Word Index

Benlate, Decay Control, Decay Fungi, Peel Injuries,
 Picking, Sanitation, Thiabendazole (TBZ)

January 29th, 1974

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

GREEN MOLD RESISTANT TO TBZ AND BENLATE

There is little evidence that strains of green mold (Penicillium digitatum) resistant to TBZ and Benlate exist to any extent in Florida citrus packinghouses. However, resistance by this fungus to TBZ has become a problem in lemon storage rooms in California, in the packing and storage facilities at the Agricultural Research and Education Center at Lake Alfred, and at the USDA Horticultural Laboratory in Orlando. Strains resistant to TBZ are also sufficiently resistant to Benlate to render this fungicide ineffective for control of rots caused by these resistant strains. We want you to be aware that a problem with resistance can occur, especially where citrus fruit treated with these fungicides are held over an extended period of time.

In the usual packinghouse operation, treated fruit are either in transit, at the market, or purchased by the consumer before mold sporulation occurs. During extended holding of treated fruit, however, there is time for resistant strains of molds to infect, sporulate, and reinfect other fruit. Resistant mold strains could cause problems where successive treatments of TBZ and/or Benlate are used. To improve decay control in degreened fruit, we have suggested the trial application of Benlate in the grove or Benlate or TBZ in the packinghouse before degreening. Eventually, this may subject the packer to a buildup of resistant molds. Resistant strains could also become prevalent in cold storage facilities where treated fruit are being held for later shipment or stored for summer sale.

Some commercial packinghouses in Florida have been checked without finding resistant molds, except in two instances. In one house, treated fruit were being held for an extended length of time; and in the other, untreated fruit were held in pallet bins and degreening rooms that were contaminated with resistant spores. Limited studies at Orlando with 65 TBZ and Benlate resistant isolates of mold showed that these strains were not resistant to sodium o-phenylphenate (SOPP or Dow A), diphenyl, or 2-aminobutane. Application of these materials with or in lieu of TBZ or Benlate may be necessary if a problem with resistance is encountered.

Good sanitary practices in the packinghouse are recommended to maintain green mold spore concentrations at a minimum. With the knowledge that fungicide resistant molds can also occur, sanitation becomes even more important. All cull fruit, particularly those which are treated with TBZ or Benlate, should be removed daily from the packinghouse. The area around the packinghouse should also be maintained in a clean condition. All areas in the packinghouse which become wet as a result of the packing operation should be cleaned daily by hosing with water. This is particularly important in areas where juice from fruit may accumulate. At this time, we do not recommend chemical treatments in the packinghouse for the control of TBZ and Benlate resistant mold spores.

When more information is available on the handling of this problem, it will be printed in a later edition of this Newsletter.

Eldon Brown, FDOC, Lake Alfred
Andy McCornack, FDOC, Lake Alfred
John Smoot, USDA, Orlando

Note: At this writing, State and Federal permits for use of Benlate on citrus have expired. The manufacturer expects this situation to be rectified in the near future and will keep us informed.

Editor

USDA GAINS ECONOMIST

"Dear Dr. Grierson:

Just a note to introduce myself to you and your staff. I am replacing Al Biales as agricultural economist at the USDA's Orlando U.S. Horticultural Research Laboratory, due to his most untimely death.

I will be working with Mr. Tom Moffitt, completing projects which Al had on-going and initiating new projects in the continuing search for less costly and improved techniques in handling, loading, and transport which will result in improved quality of fruits and vegetables reaching markets.

I fully intend to continue the cordial cooperative relationship between industry and this station which has been demonstrated over the years. Do not hesitate to contact Tom or myself on matters which you feel we can be of assistance, or potential project areas which will benefit our fruit and vegetable industry. In this era of energy shortages, unprecedented costs, and the great demand for high quality fruits and vegetables, much can be accomplished through our cooperative efforts.

Please note that the former office location at 2607 North Orange Avenue is now U.S. Horticultural Research Laboratory, 2120 Camden Road (corner of Princeton and Camden), Orlando, Florida 32803; phone 305: 898-6791.

Bill Miller
Agr. Economist
USDA, Orlando "

HOT WATER NOT RECOMMENDED

Citrus packinghouse managers asked if we recommend hot water to control sour rot (Geotrichum candidum). Answer: NO!

Claims have recently been made that hot water will control sour rot, and further that the "Experiment Station" endorses such a treatment. Tests at USDA, Orlando and AREC, Lake Alfred indicate sour rot is not controlled by hot water.

Will Wardowski, Extension Service, Lake Alfred
John Smoot, USDA, Orlando
Eldon Brown, FDOC, Lake Alfred

PACKINGHOUSE DAY

Now that you all have your 1974 calendars, please reserve Wednesday, September 4, 1974, for the lucky 13th Annual Citrus Packinghouse Day, Agricultural Research and Education Center, Lake Alfred.

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.

PICKING IN WET HUMID WEATHER

Our recent wet foggy weather, combined with abnormally warm temperatures, has caused considerable losses in both fresh and cannery fruits.

It is never advisable to pick citrus when wet. However, it may be unavoidable and when that happens every precaution must be taken to avoid fruit damage that results in rapid decay. Even after surface water has evaporated off the fruit surface, the fruit may still be so turgid that oil cells rupture very easily. Broken oil cells not only provide a particularly effective entry point for decay spores, the extruded oil kills the surrounding cells making dark sunken areas (oleocellosis) that soon decay.

An increasingly serious problem is decay due to Sour Rot which is caused by a soil-borne fungus. Damp turgid fruit dropped to the ground, banged against dirty pallet boxes, picking bags, etc. readily become infected with Sour Rot which is not controlled by any of our current fungicides.

Precautionary methods advised are:

1. Strict supervision of pickers to prevent dropping of fruit, overloading of picking bags, pallet boxes, etc.
2. Prompt handling of fruit. If fruit cannot be run immediately it should not be picked in such weather. Holding fruit picked under these conditions on trucks or on the packinghouse floor over the weekend can result in expensive decay claims.
3. Refrigerate packed fruit if at all possible. Ideally, the fruit should be cooled to transit temperature before loading. If only limited precooling facilities are available give first preference to specialty fruits ('Temples', tangerines, tangelos).

W. Grierson
AREC, Lake Alfred

AVAILABLE PUBLICATIONS

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

"Tangerine Handling" by W. Grierson, A. A. McCornack, F. W. Hayward. Circ. 285, 1965.

Available from Prof. R. L. Perry, Dept. of Agr. Engineering, University of California, Davis, California 95616.

"Mechanization of harvest and related operations for subtropical and tropical fruits" Proc. 18th Int. Hort. Congress Vol. IV, 395-403, 1970.

Available from Supt. of Documents, U.S. Govt. Printing Office, Washington, D.C. (40¢)

"The nature and extent of retail and consumer losses in apples, oranges, lettuce, peaches, strawberries, and potatoes, marketed and graded in New York" MRR No. 996, 1973.

Available from Division of Fruits & Vegetable Storage, Agricultural Research Organization, The Volcani Center, P. O. B. 6, Bet Dagan, Israel.

"Reduction of pitting of grapefruit by thiabendazole during long-term cold storage" by Mina Schiffmann-Nadel, E. Chalutz, J. Waks, and F. S. Lattar, HortScience 7(4):394-395. August, 1972.