INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES
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PACKINGHOUSE NEWSLETTER

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Key Word Index Benlate, Decay Control, Ethion, Exports, Produce Workshop, Residue Tolerance

MAILING LIST REVISION

This is your last copy of Packinghouse Newsletter unless it is mailed to you by your employer or association (for example, The Florida Citrus Packers), or you returned the form in Issue 125. If you failed to mail the form and wish to continue receiving Packinghouse Newsletter, send your complete mailing address to Will Wardowski now. Thank you for the kind letters and notes included with those forms.

Editor

STABILITY OF BENOMYL (BENLATE) IN POSTHARVEST APPLICATIONS

Benomyl is an effective postharvest fungicide for the control of stem-end rot caused by Diplodia natalensis and Phomopsis citri and green mold caused by Penicillium digitatum. The chemistry of benomyl is rather complex, however, and certain precautions are needed in the use of the material to assure that it does not convert into a form which is relatively ineffective as a fungicide.

When benomyl is mixed with water or water-emulsion waxes it starts to convert to MBC. Although MBC is also an effective fungicide for stem-end rot and mold control, it is not as systemic as benomyl. That is, MBC does not penetrate the fruit peel and therefore is very similar to thiabendazole (TBZ) in that most of the residue is on rather than within the peel. At ambient temperatures in water or water emulsion waxes, at or below pH 8, approximately one-half of the benomyl may be converted to MBC within 2 weeks. After a month at pH 8 or less, most of the benomyl will have been converted to MBC. However, benomyl does not convert equally to MBC but, instead, forms approximately 33% less MBC than benomyl. For optimum decay control with benomyl, suspensions at pH 8 or less should be utilized within the week of preparation when most of the fungicide exists as benomyl. If it is not utilized within 1 week, the concentration of benomyl in mixtures at pH 8 or less should be increased to compensate for the loss in fungicide material due to conversion to MBC. Such mixtures should be utilized within a month.

More serious problems occur with benomyl stability in suspensions prepared at a pH above 8. Many commercial water waxes or soap preparations are above pH 8. In such suspensions, benomyl is changed to STB which is not an effective fungicide for stem-end rot or mold control. Rate of change increases as pH increases from pH 8 to pH 10.5. At pH 9, nearly 20% of the benomyl will be changed to STB within a 2-week period. At a pH of 10, approximately 25% of the benomyl will be converted to STB after 2 days and 50% within 2 weeks. Approximately all of the benomyl will be converted to STB within 1 day at a pH of 10.5

If you are applying benomyl in a water emulsion wax or soap preparation, where the pH normally exceeds 8, then only fresh preparations should be applied. Optimally, these should be prepared daily in suspensions near pH 10 and at least twice a week where preparations range from pH 8-9.

Benomyl is an effective fungicide for control of our major decays. However, these precautions as described should be heeded to obtain optimal results with benomyl.

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1982 EASTERN POSTHARVEST PRODUCE WORKSHOP

The 1982 Eastern Postharvest Produce Workshop is being organized by a group of produce research and extension specialists. The workshop is to meet at the Continuing Education Center of Rutgers University, New Brunswick, New Jersey, from the evening of Monday, December 13, through Thursday, December 16, 1982. The workshop with a maximum of 70 participants will be on produce condition and handling from harvest to retail market with the main emphasis on the wholesale level.

Subjects to be covered include: fruit (non-citrus), citrus fruit, vegetables, ornamentals, wholesale and retail produce handling, wholesale marketing systems - design and operation and market and nutritional losses. Instructors will include Dr. Will Wardowski (citrus) and Dr. Mark Sherman (vegetables) from Florida and several from other states. This intensive program will include a one-day bus tour which will cover Sea-Land operations, supermarket distribution centers, ornamentals marketing and the New York City Hunts Point Produce Market.

Lodging and meal costs are to be arranged for and covered by participants through the conference center. The $150.00 registration fee includes instruction, materials and the tour. This fee is due September 30, 1982 to Dr. George Mattus, Department of Horticulture, Virginia Polytechnic Institute, Blacksburg, VA 24061.

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CITRUS HANDLING FOR QUALITY SHIPMENTS

Abstract submitted to International Society for Horticultural Science Meeting
August 1982, Germany

Precautions to ensure quality citrus fruit arrivals start prior to picking. Prepicking examination must ensure that internal quality, e.g. % juice, maturity index (°Brix/acid ratio,), stem-end drying, etc. are within the legal standards of the receiving country and meet the buyer's specifications. Worldwide, deteriorating harvesting is causing monetary losses and eroding consumer confidence due to consequent losses from decay and fruit deformation. (Fruit mishandled in the field is peculiarly liable to distortion after packing.) Oleocellosis (oil spotting) is a particular hazard when some types of citrus are picked early in the day. This is due to handling fruit when turgor pressure within the fruit is high and not to rain or dew per se. No fruit should be allowed to touch the ground and harvesting containers should be clean and free of splinters, protruding nails, etc. When degreening is necessary, use high humidity, aample ventilation, not over 5 ppm C_2H_4 and the temperature at which fruit from that district degreens most rapidly. At the packinghouse, unless they are efficiently chlorinated, soak tanks, water dumps, etc. should be avoided as potential sources of decay inoculum. Brushing (polishing) should be minimized as it can reduce postharvest life. A fungicide acceptable in the country of arrival is advised. Waxes must also meet specifications of the receiving country, have demonstrated shrinkage control and persistence of gloss, and must not "chalk" on contact with water or exudate from a decayed fruit. Containers should be well ventilated and never over-packed. Transit to market should be as swift as possible and at a temperature suited to the particular type of citrus.

Bill Grierson and Charles Barmore AREC
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AVAILABLE PUBLICATIONS

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

"Effect of harvest date and preharvest and postharvest treatments on Florida grapefruit condition in export to Japan" by L. G. Albrigo, K. Kawada, P. W. Hale, J. J. Smoot and T. T. Hatton. Proc. Fla. State Hort. Soc. 93:323-327. 1980.

"Effects of film packaging in-carton air filters and storage temperatures on the keeping quality of Florida grapefruit" by K. Kawada and L. G. Albrigo. Proc. Fla. State Hort. Soc. 92:209-212. 1979.

"Diphenyl absorption and decay in 'Dancy' and 'Sunburst' tangerine fruit" by S. Nagy, W. F. Wardowski and C. J. Hearn. J. Amer. Soc. Hort. Sci. 107(1):154-157. 1982.

Available from Mr. Kevin Gillespie, Editor, Packingshed Newsletter, Department of Agriculture, Waikerie 5330, SOUTH AUSTRALIA

"Is plastic film wrapping of citrus a practical proposition?" by B. Tugwell and K. Gillespie, Packingshed Newsletter No. 9. March 16, 1982.

Available from Dr. Michael S. Reid, Postharvest Extension Specialist, Ornamental Crops, University of California, Davis, CA 95616

"Saving energy costs in perishables handling" with articles by A. A. Kader, R. F. Kasmire, F. G. Mitchell and M. S. Reid. Horticultural Crops Perishables Handling, Issue No. 50. March 1982.

This newsletter is published at a cost of $85.32 or 6 cents per copy, to give the latest news to the packinghouse industry

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