UNIVERSITY OF FLORIDA | Cooperative Extension Service
Institute of Food and Agricultural Sciences

PACKINGHOUSE NEWSLETTER

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Key Index Words: Citrus Hall of Fame, Stem-end rind breakdown

STEM-END RIND BREAKDOWN

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Stem-end rind breakdown is a postharvest peel disorder of citrus that is characterized by the collapse and sinking of rind tissue in irregularly shaped regions near the stem end. The collapsed region becomes soft and brown as the disorder progresses and may eventually blacken as peel dies. One distinctive feature of stem-end rind breakdown is the presence of a narrow band of unaffected tissue that fully or partially encircles the stem scar. The precise mechanism by which this band is protected from degradation are unknown, but it is presumed related to a lack of stomata in this region. This disorder can, but usually will not lead to decay. It does make the fruit unmarketable due to the appearance of the peel.

The events that lead to stem-end rind breakdown are not fully understood. However, it is generally accepted that the disorder is closely associated with excessive water loss that occurs after harvest and before a protective wax coating is applied in the packinghouse. Control of stem-end rind breakdown consequently requires that water loss be minimized.

Other factors affect stem-end rind breakdown. All varieties of citrus may develop stem-end rind breakdown, but oranges and Temples are most susceptible. The most severe and earliest symptoms are usually seen on small fruit. Thin-skinned fruit tend to be affected more than thick skinned fruit. In general, late season citrus are more susceptible than early season fruit.

This disorder appears to be associated with a nutritional imbalance involving nitrogen and potassium, particularly potassium deficiency. This relationship is poorly defined so that there are no specific nutritional suggestions except to maintain a well balanced nutritional program.

The fruit should be held at very high relative humidity (over 90%) during degreening or during delays before waxing. If high humidity storage is not available, susceptible crops should be kept in the shade and handled as quickly as possible during the interval between harvesting and waxing. Also, excessive brushing on the packing line should be avoided as this can accelerate moisture loss and increase stem-end rind breakdown. Automatic packingline brush wipe-outs will reduce time on the brushes and may reduce the severity of stem-end rind breakdown.

Soaps have been shown to enhance water loss of fruit. Adequate rinsing of the fruit to remove soap residues may therefore be beneficial. Finally, an adequate and even coat of wax will help to reduce drying during shipping and storage.

DR. WILLIAM GRIERSON IN CITRUS HALL OF FAME

Will Wardowski
Citrus Research & Education Center, Lake Alfred

Bill Grierson is not one for formality, but this is one occasion where Dr. and William should be used. Bill is one of four being inducted in to the Citrus Hall of Fame. Among his many accomplishments are this Newsletter first published September 1, 1965 and Citrus Packinghouse Day. Long retired from this Center, but as active as ever, Bill is responsible for many citrus packinghouse innovations over the last 50 years. It is unusual for an "academic person" to be included in the elite Citrus Hall of Fame group. Dr. William (no middle initial) Grierson is worthy of the honor. Congratulations, Bill.

NEW FDOC RESEARCH DIRECTORS, ISMAIL AND STINSON

Will Wardowski
Citrus Research & Education Center, Lake Alfred

This Center has two new Florida Department of Citrus Research Directors. They replace Dr. John Attaway, who was carried out those duties for twenty-six (26) years. Both are new directors located at this Center.

Our own Dr. Mohamed A. Ismail is the director of the Fresh Fruit Research Unit. Mohamed has been in fresh citrus research for twenty-eight (28) years and is well known as a contributor to this newsletter.

Dr. William S. Stinson, Jr. will direct the research of the Processed Products Research Unit. Dr. Stinson was recently senior director of product development for the Hershey Foods Corporation.

THIRTY-FOURTH ANNUAL
CITRUS PACKINGHOUSE DAY
Thursday, September 7, 1995
Registration 8:30 AM
Program 9:15 AM
Commercial Exhibits Afternoon
Citrus Research and Education Center
Lake Alfred, Florida

Available from Dr. W. Wardowski, CREC, 700 Experiment Station Road, Lake Alfred, Florida 33850

Practical Measures for Control of Rind Breakdown of Oranges, by A. A. McCornack and W. Grierson. 1965. Circular 286. University of Florida, IFAS, Florida Cooperative Extension Service.

Market Diseases and Blemishes of Florida Citrus Fruit, by A. A. McCornack and G. E. Brown. 1991. Florida Department of Citrus.

Postharvest Decay Control Recommendations for Florida Citrus Fruit, by W. F. Wardowski and G. E. Brown. 1993. Circular 359-A. University of Florida, IFAS, Florida Cooperative Extension Service.

International Research Linkages Benefit Florida Citrus Industry, by Walter J. Kender. 1993. Proc. Fla. State Hort. Soc. 106:75-78.

Glycosidase Activities in Grapefruit Flavedo, Albedo and Juice Vesicles During Maturation and Senescence, by Jacqueline K. Burns and Elizabeth A. Baldwin. 1994. Physiologia Plantarum. 90:37-44.

Carpellary Outgrowth Development in the Endocarp of Grapefruit, Citrus paradisi (Rutaceae), by Jacqueline K. Burns, Diann S. Achor, and Ed Echeverria. American Journal of Botany. 8(16):760-769.