Florida Cooperative Extension Service

PACKINGHOUSE NEWSLETTER

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Key Word Index Brushes, Cleaning Brushes, Firmness of Fruit, Grants, OSHA, Safety, Shape of Fruit, Waxing.

CHANGES IN SHAPE, FIRMNESS AND INTERNAL QUALITY OF EXPORT GRAPEFRUIT BETWEEN PACKHOUSE AND SALEPOINT

(Summary Report-see Available Publications for full report. Editor)

During the 1971 and 1972 export seasons, large quantities of large Southern African 'Marsh' grapefruit from most production areas were soft and sheepnosed (pyriform-shaped) at point of sale in Europe. This led to considerable loss because the fruit had to be sold at a discount or be repacked. The packhouses from which the fruit originated claimed that it was firm and round when packed, and the fruit Inspection Services at the ports maintained that it was satisfactory when it passed through their hands. Could the fruit have changed during shipping? We thought it was possible that softening might have taken place, but a change in fruit shape was unlikely.

The paper described a two-year study made to establish whether fruit shape may become more pyriform during shipping and under what normal circumstances the fruit become soft. The effect of gibberellic acid on fruit firmness and use of a puncture probe method for predicting degree of softening during shipping were investigated.

It was found that no basic change in fruit shape takes place during shipping and handling, but that the fruit lose weight, volume and firmness. The loss was considerably greater in fruit packed late in their normal harvest season. These fruit lose three times the weight and volume lost by fruit packed early in the season and the greater softening makes them more prone to malformation. Late-season fruit also showed more fruit-to-fruit variability in volume-loss, weight-loss and softening during shipping.

Juice percentage, peel percentage and skin thickness decreased during shipping. The total soluble solids percentage increased. Acid concentration did not change. Variability between fruit of different origin in juice and total soluble solids changes was high.

A gibberellic acid spray (8 ppm GA) applied at colorbreak gave firmer late season fruit that were less variable in firmness between fruits. It was shown that it is possible to pack GA-treated fruit a month later than untreated fruit and still get satisfactory firmness.

Change in fruit firmness between packhouse and point of sale was predicted fairly accurately by a puncture probe test. An 8mm diameter probe was used. The test requires an instrument capable of measuring to an accuracy of 0.1 Kg.

I. M. Gilfillan, J. A. Stevenson
Outspan Citrus Centre, South Africa

CLEANING WAXER BRUSHES

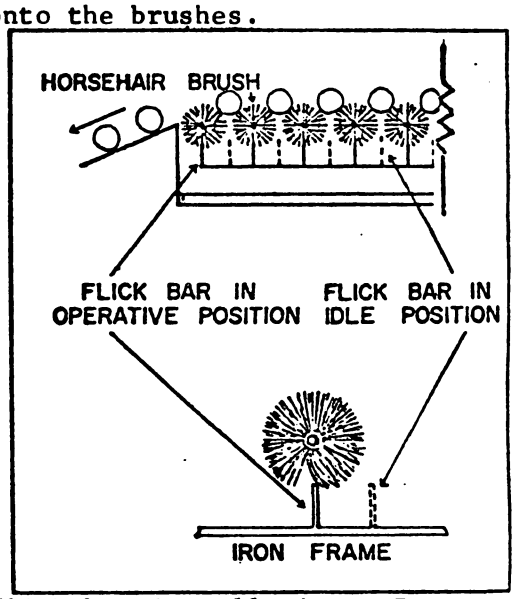
We have had enquiries from packers concerned as to whether they can switch to and fro between non-fungicidal water wax for the Japanese export market and fungicidal wax for domestic market. Their very real concern is that the export fruit may be condemned if fungicide carries over from the brush-bed of the applicator.

Fortunately this is a routine problem in our research on waxes and fungicides. We have solved the matter by putting a sliding rack of "flick bars" under the horsehair brushes of the applicator. Except when rinsing, they are positioned with the flick bars between the brushes and so inoperative.

First rinse out the wax lines and nozzles thoroughly. There is no point in cleaning the brush-bed and then flushing out the nozzles onto the brushes.

To rinse:

1. Start the brushes (never start the brushes with the flick bars in place because of the excessive drag on the motor).
2. Pull flick bars back so each is in contact with its equivalent brush.
3. Hose down for at least a minute with the flick bars in place and the brushes revolving.
4. After hosing, leave flick bars in place for another 15 or 20 seconds to dry off brushes and avoid diluting the wax.
5. Push flick bars into the "neutral" position and start up with the next lot of wax.



Anyone is welcome to visit here to check on our own flick-bar installation. It is very simple indeed and applicable to any standard brush-bed.

Bill Grierson
AREC, Lake Alfred

Here's an OSHA list of lessons learned, but "The Hard Way"

The PMA Report
Volume 8, No. 13
July 9, 1976

Put to use the lessons learned — and paid for — by others, by evaluating your work practices against the following list of 1975's most often violated OSHA standards. Each standard violated could have represented a fine and possibly caused injury to someone. Remember, each standard you comply with adds toward a smoother, safer work place.

The following list is released by the Labor Department and includes the most commonly violated standards that occurred during the period. Officials running approved state plans confirm that it reflects their experience as well.

Violations include improper arrangement and/or missing equipment.

STANDARD	NUMBER OF VIOLATIONS
GENERAL	
Electrical (includes grounding, disconnect marking, exposed wiring improper use of flexible cords and other violations of the National Electrical Code adopted by OSHA for immediate compliance.	37,273
Exit Marking	6,121
Housekeeping	5,204
Posting, notice of the Act	5,079
Injury & illness log preparation	3,826
Annual summary preparation & posting	3,669
First aid training	1,893
FIRE EXTINGUISHERS	
Maintenance	5,965
Mounting	3,657
Location & accessibility	2,692
Inspections	2,009
Obscured from view	1,792
Operable condition	1,505
Distribution	1,482
Mounting height	1,014
GUARDING	
Pulleys	6,037
Horizontal belts & ropes	5,431
General	4,779
Fan blades	4,758
Abrasive wheel design	4,416
Vertical & inclined belts	4,240
Point of operation	3,301
Abrasive wheel guard adjustment	3,285
Radial saws	2,694
Sprockets & chains	2,526
Gears	1,146
Flywheels	1,032
EXITS AND WALKING SURFACES	
Walking-working surface guarding	5,321
Floor loading, marking	3,505
Stairway railings	2,810
Aisle & passageway, appropriate marking	2,318
Aisle & passageway blockage	1,750
Storage, secure against sliding or collapse	1,704
Exits, locked or blocked	1,675
Exits, non-exit marking	1,210
OTHER	
Abrasive wheel work rests	6,662
Welding, cutting & brazing cylinders	6,196
Compressed Air, reduction for cleaning	4,116
Flammable & combustible liquid storage	2,548
Personal protective equipment, general	2,458
Portable wood ladders, care of	1,772
Noise exposure	1,181

For a copy of the standards or assistance, contact your state safety and health organization or, if your state has no approved OSHA plan, you should talk informally with a Federal representative who handles your area.

Additional assistance is available through your insurance carrier — most insurance carriers are capable of thoroughly advising and supplying you with safety details for your work place.

In Memoriam

There is a season for all things, but of late it seems that the time for losing really good people is crowding in on us. It was a shock to hear of the death from cancer of Norton Moree, Superintendent of the Adams packinghouse in Auburndale. Quiet, modest, immensely capable, he combined a talent for organization with inventiveness and mechanical ingenuity. It was always a pleasure to stop off at Adams to talk with someone who was always looking for a better way to do things--and often finding it. The industry needs such men who are always looking to the future, we can ill-afford the loss of one of the most long-sighted.

Bill Grierson
AREC, Lake Alfred

RESEARCH GRANTS MAKE A BIG DIFFERENCE

A surprising amount of the research at a Research Center such as this one gets done, at least in part, due to financial grants from companies and outside agencies. Most grants come with "tight strings" attached, being for the execution of some specific project such as testing a new chemical for a company, some aspect of environmental protection for the E.P.A., etc. Not much grant money comes the way of our Harvesting and Handling Section (though, of course, our Florida Department of Citrus staff members are completely supported by the Citrus Commission).

For a while much of the expenses of our chilling injury research was covered by a Ford Foundation grant assigned to us by Citrus Commissioner "Buster" Hancock. Then, just as it was running out, Capt. John Brewster of Capt. John Brewster, Inc., Marine Surveyor, Tampa gave us a $2,000 grant for the general support of our program on problems involved in the export of fresh fruit, particularly grapefruit to Japan.

That we have had a productive season has been in part due to having funds instantly available for small, mostly unforeseen expenditures. That $2,000 has been the oil on the creaky hinge when it came to getting things done.

In particular, we are beginning to find out just how and why grapefruit vary so in their response to refrigeration temperatures throughout the year. From this, advice and recommendations are now appearing on the Packinghouse Day Program, in this newsletter and, ultimately, in publications as we reach agreement on various points with our colleagues in the USDA.

Thank you Captain Brewster.

Bill Grierson
AREC, Lake Alfred

AVAILABLE PUBLICATIONS

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

"Preservation of citrus fruits" by W. Grierson. Refrigeration Service Engineers Society. Section 7:1-11. 1976.

Available from Dr. I. Gilfillan, Outspan Citrus Centre, P. O. Box 28, NELSPRUIT. 1200, South Africa.

"Changes in shape, firmness and internal quality of export grapefruit between packhouse and salepoint" by I. M. Gilfillan and J. A. Stevenson. The Citrus and Subtropical Fruit Journal. 507:5-12. February, 1976.

W. Wardowski, Editor
Associate Professor-
Extension Horticulturist

This newsletter is published at a cost of $82.74, or 7.5 cents per copy, to give the latest news to the packinghouse industry