



DEPARTMENT OF AGRICULTURE

PACKINGSHED NEWSLETTER

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A STANDARD FOR WAXING CITRUS

The Australian Food standards Committee has recommended that the Food Science and Technology Subcommittee (FST) of the National Health and Medical Research Council (NH & MRC) should consider providing a standard for waxing of citrus fruit.

The NH & MRC Food Standards Code permits the waxing of apples with waxes formulated from approved food grade ingredients and introduction of a similar standard for citrus waxes is recommended.

Wax is applied to citrus fruit after washing to reduce weight loss and improve appearance during marketing. While the majority of citrus peel is not eaten small quantities of peel are consumed as candied peel, marmalade and in cocktails. For this reason it is desirable that waxes should be formulated from approved food additives suitable for human consumption.

Food grade products already approved for use in formulating waxes for application to apples include Carnauba wax, shellac and beeswax. Wax mixtures may also contain, ammonium hydroxide, casein, hexose monosaccharides oleic acid, soy protein isolates, sucrose and triethanolamine.

Citrus packers should check with wax manufacturers to ensure that their products are formulated from food grade materials.

Barry Tugwell

APPROVAL OF CITRUS WAXES

The citrus Board of South Australia and the department of Agriculture will prepare a submission to the Food Science and Technology Subcommittee of the NHMRC requesting that a standard for wax coating of citrus be included in the Food Standards Code.

The submission will include technical information supporting the need to apply wax to reduce water loss and improve the appearance of citrus fruit after it is washed and graded prior to packing.

The Citrus Board will also write to all wax manufacturers and ask them to submit formulation and toxicity data to the Food Science and Technology Subcommittee for consideration. Application forms for food additive evaluation are available from Mr A Farrant of the Food Policy Section, Canberra, Phone No (062) 897 350.

Barry Tugwell

CITRUS WAX PERFORMANCE

Wax is applied to citrus to reduce weight loss and shrinkage to the maximum extent without harming the fruit. The wax should also give the fruit a shiny appearance that will last through the marketing process and slow the development of rind disorders which spoil the appearance of the fruit.

Citrus waxes formulated for Australian conditions should reduce shrinkage by 30% to 50%, provide a glossy lasting shine and be resistant to whitening or chalking when exposed to condensation. Shellac based waxes provide the best shine but are more likely to chalk on removal from cold storage. Polyethylene and carnauba are very effective in controlling weight loss but are not as shiny. Wax manufacturers can blend these ingredients to provide a product which will provide both shrinkage control and shine.

Citrus packers should test waxes in their equipment to ensure that the wax dries quickly, provides a durable shine, and does not damage the rind of the fruit or cause off flavours. Control of weight loss can be checked by weighing a sample of waxed fruit and comparing the weight loss with that from non-waxed fruit. Resistance to chalking can be determined by cooling waxed fruit to 0°C and allowing moisture to condense on the fruit on removal from the cold room.

Barry Tugwell

WAX APPLICATION

The performance of citrus wax is dependent on the method of application. The amount of wax applied and the uniformity of application are extremely important.

Fruit should be damp dry prior to wax application to prevent dilution.

Wax should be applied at full strength at the rate of 1.5 litres per tonne of fruit, waxes should never be diluted with water.

Wax should be sprayed onto the fruit over a bed of brushes. The brushes should have at least 50% horsehair to help spread the wax over the fruit. A minimum of 8 brushes should be used. Brush speed should not exceed 100 r.p.m.

It is desirable to apply a uniform amount of wax to each fruit. Wax application should be controlled by the flow of fruit and more than one nozzle should be used in case of blockage. The ideal system would adjust the rate of application precisely to the volume of fruit moving through the equipment.

COOLING MAINTAINS QUALITY

During summer months harvested oranges rapidly lose quality due to rind dehydration unless the fruit is promptly waxed and held in a coldroom prior to marketing.

At 30°C Valencias can lose up to 1.2% weight per day and become unmarketable within 5 days. The same fruit held in a coldroom at 10°C will lose only 0.2% weight per day.

Rind dehydration and loss in quality can be reduced or eliminated by the following procedures:

- * Avoid harvesting fruit from trees under stress, water them first.
- * Keep picked fruit in the shade, and transport it to the packing shed as soon as possible after picking.
- * Wash and wax the fruit as soon as possible after arrival at the packing shed.
- * After packing, hold fruit in a coldroom preferably at 8°C to 10°C.

PUBLICATION

Citrus Varieties of the World

This book by James Saunt gives the latest information on characteristics, origin and production of varieties available today. The book illustrates in colour more than 120 citrus varieties from around the world.

The book is available from:-

Sinclair International Limited,
PO Box 411
Norwich, Norfolk, NR650X,
England.

APPOINTMENT OF POST HARVEST EXTENSION OFFICER

As stated in the last Packingshed Newsletter, Mr Kevin Gillespie has retired from the Department.

Kevin's position has been filled by Mr Jim Hill. Jim, who is currently the Dried Fruits Specialist will take up this position once the apricot drying season is over. This position will be based at Loxton.

Before coming to Loxton as Dried Fruits Specialist, Jim worked at Northfield in the Post Harvest Section.

