



**UNIVERSITY OF
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Cooperative Extension Service

Institute of Food and Agricultural Sciences

PACKINGHOUSE NEWSLETTER

W. Wardowski
Citrus REC
700 Experiment Station Road
Lake Alfred, FL 33850
Phone: (941) 956-1151
FAX: (941) 956-4631

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CITRUS PACKER MODEL SANITATION PROGRAM

Will Wardowski, Citrus REC, Lake Alfred
Mark Ritenour, Indian River REC, Ft. Pierce

Florida fresh citrus packers generally follow Good Agricultural Practices (GAPs) and Good Manufacturing Practices (GMPs), but times are changing. GAPs and GMPs are guidelines developed by the FDA to address food safety issues in the harvesting, handling and processing of fresh produce. The produce industry and consumers are becoming more aware of food safety issues so that GAPs and GMPs processes will need to be documented. Further, the produce marketing industry may require independent third party verification of GAPs and GMPs in order to reassure customers that the product is "safe". Each citrus packinghouse is different, so the Model Sanitation Program will be similar, but unique for each organization. Always keep in mind that preventing contamination in the first place is far more preferable to decontamination of the product. Key points are to, 1) prevent contamination and 2) document, document, document.

Approach

The general approach to setting up a packinghouse sanitation program is to designate a Food Safety Officer responsible for the Program. The facilities would then be surveyed with documentation of facilities and procedures. At this point, procedures would not necessarily be altered unless the survey revealed the need for improvements.

A plan with schedules including cleaning, employee instruction and employee compliance/signature sheets would need to be established. The compliance/signature documents should indicate that each employee received and understood the instruction.

Product Tracking Back to the Grove

The use of bar codes and computer records now allow or will soon allow the tracking (traceback) of fruit in the market back to the grove. The more sophisticated systems would make it possible to determine everything that happened to the crop from blossom time through marketing. For example, it may be possible to find records for grove spray and fertilizers, irrigation and rainfall, harvesting and packing dates, degreening and fungicides, shipping temperatures, and much more. These records are critical for the grower, packer and marketer if there should be a problem with the crop.

Hygiene for People

Periodic training of employees about personal hygiene issues should be a key part of a Model Sanitation Program. How often is periodic? That would depend on how well the information is retained and how closely the GAPs and GMPs are followed. New employees will need to be trained whenever there is employee turnover.

A little understood concept is that gloves may protect the fruit or the worker's hands, but gloves are not necessarily a guarantee of hygiene. A contaminated glove can spread pathogens just as easily as the human hand. Glove usage is not a substitute for proper hand washing. Hand washing before an employee returns to the work station after an absence has been suggested as a better alternative to gloves.

Sanitation for Things

Citrus canker sanitation procedures are a good starting point for ground equipment sanitation. Focal points for sanitation of things are floors, walls, equipment, pallet bins, picking bags, gloves and vehicles.

All Florida citrus packinghouses already clean and sanitize equipment on a regular basis, usually at least daily. Approved sanitizers are available from supply companies. In most operations this is not formally documented (how, who, when) and logged or recorded. Documenting the completion and sanitation procedures is suggested.

Pest Control

The elimination and exclusion of pests could avoid cross contamination from the pests. Animals and insects should be the focus of such a pest program. A pest control service may be in order, even when there is no apparent problem. Special attention should be paid to cartons and storage areas.

Fruit Treatment

Water is the most obvious item needing attention. A source of clean water is important for it impacts all fruit treatments. Recycled water warrants special attention to maintain high sanitation. When water is recycled it is essential to eradicate microbes with a treatment such as chlorine (at a neutral pH), ozone or heat.

Alkaline cleaners or SOPP are effective to remove and kill surface microbes. To be effective there needs to be sufficient material to wet the surface with a 30 second minimum contact time. Application of approved sanitizers can reduce potential microbial build-up and cross contamination during fruit processing. Such sanitizers include chlorine and must have FDA and EPA fruit contact approval. Alkaline (high pH) coatings (waxes) help to reduce surface microbes in cold storage.

Grading is probably the easiest and most effective means of achieving citrus fruit sanitation. Removing plugs and punctures, and especially decaying fruit, gives a big boost to effective sanitation. In addition, your fruit will have less decay and dehydration in the markets with effective grading.

Refrigeration and Storage

Storage areas should be cleaned and regularly inspected to ensure appropriate conditions are maintained for storing fruit. Inspections of storage areas should be documented. Refrigeration can prevent microbial growth. Temperatures at 40°F or lower are optimal for inhibiting microbial growth on citrus. Also, postharvest pitting is virtually eliminated when these temperatures are established immediately after packing.

Transportation

The packinghouse Food Safety Officer should be responsible for monitoring GAPs and GMPs until the product leaves the property. Part of this responsibility would be to inspect trucks to ensure that they are clean inside and outside and suitable for fruit transport. A note should be made of recent cargo hauled, especially high risk items such as meat or poultry. All physical and odor evidence of previous cargos should be eliminated.

Overview

The demand for Good Manufacturing Practices is market driven and is becoming a growing concern. Produce marketing organizations are increasingly requesting, if not demanding, that GMPs be followed. Much of this can be accomplished by common sense, and indeed is already being done. However, it is often not being documented. Third party verification is likely to be used by packers to demonstrate and document that the best practices are being followed.

AVAILABLE PUBLICATIONS

Available from Dr. W. F. Wardowski, Citrus REC, 700 Experiment Station Road, Lake Alfred, Florida 33850

Enhancing Microbiological Safety of Fresh Orange Juice by Fruit Immersion in Hot Water and Chemical Sanitizers, by Steven Pao and Craig L. Davis. 1999. J. Food Prot. 62(7):756-760.

Reduction of Microorganisms on Citrus Fruit Surfaces during Packinghouse Processing, by Steven Pao and G. Eldon Brown. J. Food Prot. 61(7):903-906.

Sanitizing Effects of Fruit Waxes at High pH and Temperature on Orange Surfaces Inoculated with *Escherichia coli*, by S. Pao, C. L. Davis, D. F. Kelsey, and P. D. Petracek. 1999. J. Food Sci. 64(2):359-362.

**INTERNATIONAL SOCIETY OF CITRICULTURE
NINTH CONGRESS
DECEMBER 3-7, 2000 IN ORLANDO, FL
DISNEY'S CORONADO SPRINGS RESORT**

The International Society of Citriculture (ISC), founded at Riverside, California in 1969, held its first Congress in Spain in 1973. Since then, the Society has met every 4 years in a citrus producing country with a local, volunteer host for the event. The goals of the Society are to foster the exchange of ideas among scientists and growers on the science and state-of-the-art of citrus production and utilization. Congress 2000 will begin with tours of the Florida citrus industry the week before the formal meeting. A Welcome Reception on Sunday night, December 3rd, will open formal sessions. Three days of oral and poster presentations on citrus science, production and utilization problems will be offered Monday, Tuesday and Thursday with scientific tours offered on Wednesday. The formal meeting will close on Thursday evening with a banquet. It is anticipated that about 1000 people from 40 to 50 countries will register for this Congress, making this an excellent opportunity for recognition as an exhibitor or sponsor.

Cutting-edge information on production including horticulture, insect and disease problems, packinghouse technology and utilization methods will be presented for grower and general citrus industry interest during sessions offered throughout the first two days. In addition, international researchers will present technical data on all phases of citrus production and utilization. Many of the technical presentations will be of interest to industry people as well. The initial two days are oriented to increase the participation of growers in the Congress. A Trade-Show will coincide with these first two days that are grower and industry oriented. Registration information will be available in a May, 2000 announcement. Registration deadline will be September 1st. To be placed on the mailing list for the registration announcement or for more information about the trade show or being a sponsor, please contact Dr. Gene Albrigo, General Chair, by email: albrigo@lal.ufl.edu or at 863-956-1151 or write to ISC Congress c/o CREC, 700 Experiment Sta. Rd., Lake Alfred, FL 33850.