



UC DAVIS

POSTHARVEST TECHNOLOGY

March 2011 News from UC Davis

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Director's Update

As we await the arrival of spring-like weather in Davis, California, staff and Specialists at the Postharvest Technology Center have been busy planning for upcoming activities. Our Fruit Ripening and Ethylene Management Workshop, coordinated by Carlos Crisosto, is setting up for another sell-out crowd at the end of April. We continue to update our website, including adding new categories and companies under our Postharvest Yellowpages. Congratulations to Courtney Lorca in the Postharvest Technology Center office for being selected as the UC Davis Student Assistant of the Year!!

--Elizabeth Mitcham



News from the Center

Postharvest Technology Short Course More than Half Full

Enrollments are well underway for the 33rd Annual Postharvest Technology Short Course, scheduled for June 13 – 24, 2011. Participants will be joining us from more than ten countries, to learn the latest information about the postharvest biology and handling of horticultural crops. The course is an intensive one week study of the biology and current technologies and best practices associated with the postharvest handling of fresh fruits, nuts, vegetables and ornamentals in California. The optional second week field tour will visit a wide variety of postharvest operations from harvest to retailing. For complete information or to enroll, contact the registration coordinator, Penny Stockdale at pastockdale@ucdavis.edu; or visit the web page: <http://postharvest.ucdavis.edu/Announce/shortcourse.shtml>



A few Spaces still Available for the Advanced Topics in Microbial Safety of Fresh Produce Workshop

Food safety professionals employed by growers, handlers, or fresh-cut processors who are involved in design, implementation, and audit compliance of prerequisite programs such as Good Agricultural Practices (GAPs) and Good Handling Practices (GHPs) will find this workshop, sponsored by a USDA Specialty Crops grant, beneficial. The strategy of the workshop will include exploring the strengths and weaknesses of the current science and data-basis for key guidance, standards, and microbiological limits that are defining preharvest, harvest, and postharvest food safety programs and performance expectations.



The first offering of this workshop, held at UC Davis in early March, received feedback such as, “[I liked] bringing real world examples into discussion. This was a very good shot at attempting to bring science into an area where the research is lacking and diversity of commodities and growing practices/conditions is large.”

To maximize the interactive discovery process, enrollment will be capped at 40 qualified participants who meet the prerequisite professional requirements. The Florida session of this workshop will be held April 27-29 in Wimauma, Florida. To learn more, please see the [workshop’s web page](#).

Full House for the April 26-27, 2011 Fruit Ripening Workshop

With just over a month to go, there are only about five spaces left for the “Fruit Ripening & Ethylene Management” workshop. Facilitated by Dr. Carlos Crisosto, the workshop will be held on the UC Davis campus in the Buehler Alumni and Visitors Center. This workshop provides useful information for shippers, fruit handlers (wholesale and retail) and produce managers involved in handling and ripening fruits and fruit-vegetables and managing ethylene effects on produce. The workshop focuses on how to increase profits by delivering ready-to-eat, delicious fruits and fruit-vegetables to the consumer and provides



tools for managing the positive and negative effects of ethylene. For complete information about this workshop, or to enroll, link to the web page: <http://postharvest.ucdavis.edu/Announce/fruitripening.shtml>



2011 Fresh-cut Products: Maintaining Quality & Safety Workshop

We are pleased to announce the opening of enrollments for the September 13-15, 2011 Fresh-cut Products: Maintaining Quality & Safety Workshop which will be held at the Buehler Alumni and Visitors Center. This workshop provides an overview of many issues affecting the freshness, nutrition, and safety of fresh-cut products. Topics on the production, processing, packaging, sanitation, temperature, raw material quality, marketing trends and more are included. In 2011, more emphasis will be placed on sensory evaluation of fresh-cut fruit and vegetable products, with sessions on the principles of sensory testing and practical sensory demonstrations. The enrollment cost for this 3-day workshop remains at \$1,050, and includes instruction, course materials, lunches and break refreshments. For more information, or to enroll, link to the web page: <http://postharvest.ucdavis.edu/Announce/freshcut.shtml>

WE REALLY DO WANT TO EAT MORE PRODUCE: How a grant from the USDA to UC Davis and University of Florida will get us there.

Americans really do want to eat more fruits and vegetables. Really, we do. Making them taste better would get us a long way to that goal. Sponsored by a grant to UC Davis and the University of Florida from the USDA Specialty Crops Research Initiative, the first Delivering More Flavorful Produce Workshop really hit home with attendees. The 2-day February workshop, led by Beth Mitcham of UC Davis and Jeff Brecht of the University of Florida covered a variety of in-depth topics on how to increase flavor quality of produce.



With attendees being a mix of breeders, growers, shippers, marketers, retailers and researchers, the course succeeded in stimulating participant interest and encouraging relevant discussions. The workshop also had a diversity of instructors. “[I liked] the range of sources of information, i.e. academic research to industry and distributors”, one participant reported. Other participants appreciated the recent research results and strong discussions.

The Workshop will be repeated in Florida May 4-5, 2011 at the University of Florida in Gainesville. A limited number of spaces remain for this workshop. You can find more information and register on-line at the Postharvest Technology Center website, <http://postharvest.ucdavis.edu/SCRI-Grant/deliver-flavorful-produce.html>. If you wish to enroll by phone or for further information, please contact Ms. Penny Stockdale at 530-752-7672 or pastockdale@ucdavis.edu.

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We hope you will join us for our 2011 UC Davis Postharvest Learning Opportunities:

- April 26-27, 2011: **Fruit Ripening & Ethylene Management Workshop** - 17th Annual will be held on the UC Davis campus, in the Buehler Alumni Center's AGR Room. *Registration is now open.*
- June 13-24, 2011: **Postharvest Technology Short Course** – 33rd Annual will be held on the UC Davis campus, with an optional field tour covering the San Joaquin Valley and Coastal California. *Registration is now open.*
- September 13-15, 2011: **Fresh-cut Products: Maintaining Quality & Safety** – 16th Annual, at the UC Davis Buehler Alumni Center's AGR Room. *Registration is now open.*

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Featured Postharvest Publications



Special Offer Extended through April 15th on "Tecnología Postcosecha de Cultivos Hortofrutícolas"

We are offering a special 25% discount on the Spanish CD version of "Postharvest Technology of Horticultural Crops. To order up to four copies, please use our [Online Order Form](#) by April 15, 2011. For a complete listing of all our publications see:

http://postharvest.ucdavis.edu/Pubs/pub_list.shtml.

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What's New on Our Website this Month

Brief Book Review

"Modified Atmosphere Packaging for Fresh-cut Fruits and Vegetables" is the title of a new book recently reviewed by Dr. Adel Kader. Link below to read the entire review:

<http://ucce.ucdavis.edu/datastore/detailreport.cfm?usernumber=25&surveynumber=277>

New Articles Added to Postharvest Publications Organized by Topic

Our [datastore](#) is currently comprised of more than 1,300 postharvest documents, organized by topic, and is searchable by title or author. It is one of the premiere sources of postharvest information.

- [Comparing ripening and storage characteristics of 'Oded' peaches and its nectarine mutant 'Yuval'](#), A. Dagar, A. Weksler, H. Friedman, E.A. Ogundiwin, C.H. Crisosto, R. Ahmad, and S. Lurie. *Postharvest Biology and Technology* 60:1-6 (2011)
- [Changes in pH, acids, sugars and other quality parameters during extended vine holding of ripe processing tomatoes](#), Gordon E. Anthon, Michelle LeStrange, and Diane M. Barrett. *J Sci. Food Agric.*, 4312, 7 pages (2011)
- [Manual de Prácticas para el Mejor Manejo Postcosecha del Mango](#), editor, Dr. Jeffrey K. Brecht. National Mango Board, 78 pages (2011)
- [Manipulating the Postharvest Environment to Enhance or Maintain Resistance](#), Noel F. Sommer. *Phytopathology* 79:1377-1380 (1989)
- [Freezing points of fruits, vegetables, and florist stocks, T.M. Whiteman.](#) USDA-ARS. Marketing Research Report No. 196, 25 pages (1977)

- [Suppression of Postharvest Plant Pathogenic Fungi by Carbon Monoxide](#), M.A. El-Goorani and N.F. Sommer. *Phytopathology* 69: 834-838 (1979)

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Postharvest Specialists' Activities

New Survey: How do you get your postharvest information?

Dr. Carlos Crisosto is interested in learning what our readers' sources of postharvest information might be. Please take a few minutes and complete the [linked survey](#). Thanks!

New Options for Better Process Control School

Dr. Diane Barrett's FDA-approved Online Better Process Control School (BPCS), which was introduced in October 2010 to serve processors of low acid (pH > 4.6) and acidified foods in safe preserving of foods in cans, jars, flexible and semi-rigid packages, is proving to be a popular alternative to the in-person BPCS, which is still offered every February at UC Davis. 130 people have registered to date, 68 of those have completed the course. Roughly a third of the people who have completed the course are smaller food preservers who have chosen the "Acidified Foods Only" chapters, meaning that they aren't currently working with large retort systems. We are finding the Online BPCS Course to be especially useful to these smaller companies, as well as being popular with the larger ones. For more information on the course, see the [web page](#).

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Postharvest Positions

Research Associate Position at Driscoll's

A research associate is currently sought by [Driscoll's](#). The position will support the Regional Research Scientist in a wide range of breeding program tasks including: test plot farming, harvest coordination, data management, and postharvest fruit quality assessments. This position will also assist in the identification of improved plant varieties and the commercialization of these varieties under the direction of the Breeding Department. Minimum education requirement is a BS in an agriculture-related area of emphasis. Responsibilities include planting, mapping and growing of small plot trials; breeding and development. For details, contact Miguel H. Ahumada, (805) 419-2148.

Purfresh seeks Senior Food Scientist/Director of Food Science

An experienced Sr. Food Scientist or Director of Food Science is currently sought by [Purfresh](#). The position will head up the activities of Purfresh's Product and Application Research laboratory which includes routine quality evaluation of fruits, vegetables and ornamentals, as well as coordinating commercial sampling and field applications. This position will manage a small team of technicians in the lab as well as activities with academic institutions and industry partners. Qualifications include a Masters or Ph.D. in Postharvest Biology, Horticulture, Agriculture, or Chemistry with lab experience and at least 3-5 years working in food industry. For details, contact Andy Smith at Purfresh, Inc., 510-580-0770, ext. 309.

Also of Interest

The UC Davis Department of Food Science and Technology's Job Listing site currently includes a number of positions which may be of interest: <http://wineserver.ucdavis.edu/fstjobs/>

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Postharvest Calendar: Upcoming Conferences, Courses and Workshops

- April 7-13, 2011. **V International Course on Postharvest Technology and Minimal Processing of Fruit and Vegetables.** Offered by the Postharvest and Refrigeration Group (GPR) of the Technical University of Cartagena, Spain.
- April 11-14, 2011. **International Congress of Postharvest Pathology.** University of Lleida, Lleida, Catalonia, Spain.
- April 26-27, 2011. **Fruit Ripening & Ethylene Management Workshop.** 17th Annual. UC Davis campus.
- April 27-28, 2011. **Advanced Topics in Microbial Safety of Fresh Produce Workshop.** (Florida Session in Wimauma, Florida)
- April 30-May 4, 2011. **IARW-WFLO Annual Convention & Expo.** New Orleans, Louisiana.
- May 2-5, 2011. **United Fresh 2011 Convention,** New Orleans, LA, USA; United Fresh Produce Association.
- May 4-5, 2011. **Delivering More Flavorful Produce Workshop.** University of Florida - Gainesville campus
- May 23-26, 2011. **Postharvest Unlimited 2011.** Wenatchee, Washington.
- June 13-24, 2011. **Postharvest Technology Short Course.** 33rd Annual, UC Davis campus/field tour.
- June 28, 2011. **2nd Annual Produce Research Symposium.** Orlando, Florida.
- July 17-21, 2011. **Second International Conference on Quality Management of Fresh Cut Produce: Convenience Food for a Tasteful Life.** Torino, Italy.
- September 10-12, 2011. **I International Symposium on Mycotoxins in Nuts and Dried Fruits.** Damghan, Iran.
- September 13-15, 2011. **Fresh-cut Products: Maintaining Quality & Safety.** 16th Annual. UC Davis campus.
- October 14-17, 2011. **Fresh Summit International Convention & Expo,** Atlanta, GA, USA; Produce Marketing Association.
- December 3-6, 2011. **International Conference on Quality Management in Supply Chains of Ornamentals.** Radisson Hotel, Bangkok, Thailand. Contact Sirichai Kanlayanarat (66)2-470-7720 or gmsco@kmutt.ac.th.
- December 3-6, 2011. **Southeast Asia Symposium on Quality Management in Postharvest Systems (SEAsia2011).** Bangkok, Thailand. Contact Sirichai Kanlayanarat (66)2-470-7720 or seasia@kmutt.ac.th
- December 3-6, 2011. **Asia Pacific Symposium on Postharvest Quality Management of Root and Tuber Crops.** Radisson Hotel, Bangkok, Thailand. Contact Sirichai Kanlayanarat (66)2-470-7720 or sirichai.kan@kmutt.ac.th.
- June 18-29, 2012. **34th Annual Postharvest Technology Short Course.** UC Davis Campus, plus optional field tour.
- June 25-29, 2012. **7th International Postharvest Symposium.** Kuala Lumpur, Malaysia.
- September 18-20, 2012. **17th Annual Fresh-cut Products: Maintaining Quality & Safety Workshop.** UC Davis campus.
- October 16-19, 2012. **X International Symposium on Postharvest Quality of Ornamental Plants.** Porto de Galinhas, Pernambuco, Brazil. Contact Prof. Fernando Luiz Finger (55) 3138991128 or ffinger@ufv.br.

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Q. Lately, we've had some problems with the Fuyu persimmons we are buying from various vendors. They are stored in a 34-36 degree cooler, but we are having some problems with them becoming soft within 5- 10 days of arrival.

We thought that maybe we were storing them too cold and they were getting chilled, so we looked up persimmons on the UC Davis Postharvest Technology website, but we are a bit confused about the information: it says 32 degree storage is optimal storage temp, but that chilling damage happens between 36 and 59 degrees. How does chilling damage occur at a higher temp than optimal storage temp? Is this the same as what happens with stonefruit when stored at 36 – 50 degrees? (C.B.)



A. Your analogy between persimmon and stone fruits is correct, but the mechanism (biochemical and physiological basis) is different. Persimmons are extremely sensitive to ethylene and if you want to keep Fuyu persimmons firm, do not store them with other fruits like apples that produce ethylene unless they are packaged in plastic bags that maintain the optimal range of oxygen (3-5%) and carbon dioxide (5-8%) which protects the persimmons from ethylene action. The photographs linked to Produce Facts on our website (see link) illustrate the effects of temperature and ethylene on Fuyu persimmons. The recommended storage temperature for Fuyu persimmon is 32 F beginning soon after harvest and until placed on display at retail. If modified atmosphere packaging is used, it should be done soon after harvest of firm fruits and before exposure to ethylene that initiates softening. Some marketers of Fuyu persimmons who follow these recommendations continue selling firm fruit that were harvested in November until February or March of the following year.

--Adel A. Kader



Q. I am working for a private concern with fresh fruits & vegetable exports. We are frequently having calyx browning problems in egg plant. We maintain the product at 10 degree Celsius and 90% relative humidity. We took care of handling of produce and forced air precooling @ 6 degree Celsius, but the problem was not solved. Please advise. (S.S.)

A. Based on the photo, these eggplants have substantial areas of damage and so I think the calyx browning is the least of your worries. In my experience the calyx browning is related to water loss (which can occur at the conditions that you have) and chilling injury. In the latter case, the entire calyx changes color whereas in the case of water loss, the edges show browning first. That seems to be what you have occurring. For more information and photos showing calyx defects and chilling injury symptoms see this linked photo.

--Marita Cantwell

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If you have a postharvest question that you'd like answered, please send it to postharvest@ucdavis.edu.

Link to a data store of all our previous "Ask the Produce Docs" questions and answers,

or link to archived copies of our monthly E-Newsletter as PDF documents.

Link to our Postharvest Yellowpages, or email us with additions or corrections.

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