



# UC DAVIS

## POSTHARVEST TECHNOLOGY

### April 2011 News from UC Davis

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#### Director's Update

The Postharvest Technology Center will soon be welcoming 62 participants for our annual Fruit Ripening and Ethylene Management Workshop in late April while another part of our team participates in the second Advanced Topics in Microbial Safety of Fresh Produce Workshop in Florida in collaboration with the University of Florida. Our existing courses and workshops remain popular as we explore ideas for new workshops to serve the produce industry. We have begun work on a fourth edition of our popular book, Postharvest Technology of Horticultural Crops, and have just made the English and Spanish versions of the Third Edition of this popular book available as PDFs for [download](#). Be sure to purchase a copy for your computer for handy postharvest information when you are traveling or in the field. Thanks to those who completed the postharvest sources of information survey. If you haven't responded yet, please take a few minutes and complete the [linked survey](#) now.)



--Elizabeth Mitcham

#### News from the Center

### Postharvest Technology Short Course Nearly Full

The 33<sup>rd</sup> Annual Postharvest Technology Short Course is scheduled for June 13 – 24, 2011, and enrollment activity continues to be brisk.

Participants will learn the latest information about the postharvest biology and handling of horticultural crops. The course is an intensive one week study of the biology, 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.

Participants from the 2010 course provided us with remarkably positive feedback, including comments such as “Instructors are more than wonderful. Great in presentations. Great in answering questions—to the instructors there were no foolish questions. This is very encouraging. I am very satisfied, very impressed with the rapport. You guys are great!” and “I registered to take this course with no knowledge about what the course will be like. I have learned a lot. I never expected that this course would be this great (the food, people, lectures, activities.) I feel really privileged to be able to take this class. It also allowed me to be exposed to the people in the industries & have an idea of how the knowledge learned can be applied to real life situations.”



For complete information or to enroll, contact the registration coordinator, Penny Stockdale at [pastockdale@ucdavis.edu](mailto:pastockdale@ucdavis.edu); or visit the web page: <http://postharvest.ucdavis.edu/Announce/shortcourse.shtml>

### Just a few days left to Register for the Advanced Topics in Microbial Safety of Fresh Produce Workshop – April 27-29

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. 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](#), or contact us at [postharvest@ucdavis.edu](mailto:postharvest@ucdavis.edu).



### 2011 Fresh-cut Products: Maintaining Quality & Safety Workshop

The September 13-15, 2011 Fresh-cut Products: Maintaining Quality & Safety Workshop will be held at the Buehler Alumni and Visitors Center. This workshop will provide 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>



### Delivering More Flavorful Produce Workshop – May 4-5 in Florida

Sponsored by a grant to UC Davis and the University of Florida from the USDA Specialty Crops Research Initiative, the Gainesville, Florida offering of this 2-day workshop, led by Beth Mitcham of UC Davis and Jeff Brecht of the University of Florida, will cover a variety of in-depth topics on how to increase the flavor quality of produce.

A limited number of spaces remain for this workshop. You can find more information and register on-line at the Postharvest Technology Center's 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](mailto:pastockdale@ucdavis.edu).

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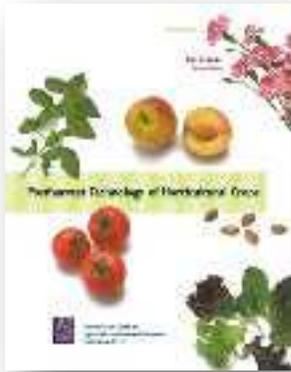
## Postharvest Workshops

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

- *June 13-24, 2011: **Postharvest Technology Short Course** – 33<sup>rd</sup> 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** – 16<sup>th</sup> Annual, at the UC Davis Buehler Alumni Center's AGR Room. *Registration is now open.**

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## Featured Postharvest Publications



### **Now Available Electronically: “Postharvest Technology of Horticultural Crops, 3<sup>rd</sup> Edition” and “Tecnología Postcosecha de Cultivos Hortofrutícolas”**

We are pleased to announce that, in collaboration with the UC DANR Communications team, the venerable titles of Postharvest Technology of Horticultural Crops (English), and Tecnología Postcosecha de Cultivos Hortofrutícolas (Spanish Translation) are now available for purchase as a PDF file. Simply click on the title above to purchase the electronic versions. Note: The file will be available for download one business day after the purchase transaction. If you’ve always wished for a more transportable version of this most useful postharvest book, you are in luck!

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## **What’s New on Our Website this Month**

### **New Title 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.*

### **Now Available as a Free Download:**

- [Postharvest Technology for Small-Scale Produce Marketers: Economic Opportunities, Quality and Food Safety](#), Kitinoja, L, and J.R. Gorny. Postharvest Horticulture Series No. 21. April 1999. 386 pages.

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## **Postharvest Specialists’ Activities**

### **Institute of Food Technologists Bestows Carl R. Fellers Award on Dr. Christine Bruhn**

Dr. Christine Bruhn will be presented with the Carl R. Fellers Award on June 11 at the Institute of Food Technologists Annual Meeting in New Orleans. This annual award is presented to an individual who is a member of Institute of Food Technologists and Phi Tau Sigma, and who has brought honor to the profession of food science and technology through a distinguished career displaying exemplary leadership, service, and communication skills that enhance the effectiveness of all food scientists serving society.

### **20<sup>th</sup> Anniversary Congratulations to the Produce for Better Health Foundation**

The Produce for Better Health Foundation held its annual meeting in Monterey, March 31-April 2 where the foundation took the opportunity to celebrate its 20<sup>th</sup> Anniversary. Dr. Roberta Cook attended the meeting, where she also played a key role as chair of the research subcommittee. She reported that there were many excellent presentations that are now available for review online. Additionally, the video that was made for the 20<sup>th</sup> anniversary of the Produce for Better Health Foundation is also available at the link below:

<http://www.pbhfoundation.org/members/membership/board/communications/>

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## **Postharvest Positions**

### FAO Seeks an Agro-Industries Officer in Postharvest Systems

With a duty station in Rome, the Food and Agriculture Office of the United Nations is seeking an individual who will provide support to the post-production sector activities of the Agro-Food Industries Group. The candidate should have an advanced University Degree in Agricultural Engineering, Food Science, or Food Technology with specialization in post-harvest technology, or a university degree in these fields and an advanced university degree in Agricultural Economics. Candidate should also have five years of relevant experience in the field of postharvest technologies focusing on agricultural produce handling, storage and distribution; and also a working knowledge of English, French, or Spanish, and limited knowledge of one of the other two. Application deadline is April 29, 2011. For more information, click on Position 2517-AGR at the following [link](#).

### Food Project Manager Position at Sensitech

This Food Project Manager position will conduct projects designed to help companies involved in the production or distribution of temperature sensitive food products to determine the root cause of cold chain problems and the appropriate corrective actions. The Project Manager will have significant interaction with our customers including QA Managers and Operations Managers, as well as front line workers. A BS or MS in Food Science, Food Safety or Postharvest Horticulture is preferred. Strong interpersonal, oral communication and technical writing skills are required. Knowledge of process improvement methodologies is essential, along with strong organizational and problem-solving skills. Spanish language skills helpful. The position involves up to 60% travel, primarily in the US involving trips of 1-3 days to visit customer sites. For more information contact [Jeff Leshuk](#).

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### Postharvest Calendar: Upcoming Conferences, Courses and Workshops

- 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](#). 33<sup>rd</sup> Annual, UC Davis campus/field tour.
- June 28, 2011. [2<sup>nd</sup> 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. [1 International Symposium on Mycotoxins in Nuts and Dried Fruits](#). Damghan, Iran.
- September 13-15, 2011. [Fresh-cut Products: Maintaining Quality & Safety](#). 16<sup>th</sup> Annual. UC Davis campus.
- September 18-22, 2011. [Australasian Postharvest Horticulture Conference](#). Lome, Victoria, Australia.
- 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 [qmsco@kmutt.ac.th](mailto:qmsco@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](mailto: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](mailto:sirichai.kan@kmutt.ac.th).

- June 18-29, 2012. **34<sup>th</sup> Annual Postharvest Technology Short Course**. UC Davis Campus, plus optional field tour.
- June 25-29, 2012. **7<sup>th</sup> International Postharvest Symposium**. Kuala Lumpur, Malaysia.
- September 18-20, 2012. **17<sup>th</sup> 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](mailto:ffinger@ufv.br).

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## Ask the Produce Docs

**Q.** One of our shippers is putting in new lighting over grade tables and is asking for some direction on specific lighting to facilitate grading of oranges. I understand you have done some pretty extensive studies in this area. Anything you may have on both in reference to energy efficiency and to effective grading of produce would be of value. (R.E.)



**A.** There are some fairly straight forward concepts to keep in mind when designing a lighting system:

- 1) Light levels at the belt should be 50 to 100 foot-candles (500 to 1000 lux)
- 2) Cool white fluorescent lamps provide good color rendition for sorting and are energy efficient. Lamps with a high color rendering index (CRI) are best. CRI numbers range from 0 to 100. In some cases special light sources can be selected to bring out difficult-to-see defects. This would need to be done in a lighting laboratory where the fruit could be evaluated under a range of light sources. Southern California Edison has a facility like this.
- 3) Sorters should not have surfaces in their field of view that vary in luminance (level of reflected light) by more than 3 to 1. For most fruit, conveyors should be a medium gray color and sorters should not wear white aprons.
- 4) Lights should be installed so that the sorters cannot easily see the lamps.
- 5) Food safety requirements dictate that the lamps be covered to prevent broken glass from contaminating the product.

--[Jim Thompson](#)



**Q.** I am wondering if someone from your group of specialists could give an opinion as to whether subjecting dry onions to two 6 hour periods of 36 degree temperatures on day one and day two of a 5-day trip (by motor carriage) would cause onions, which were stored at the instructed 60 degree temperature for the remainder of the trip, to show 24% black mold (17% serious) and 11% decay, for a checksum of 35%, including 28% serious. (D.N.)

**A.** Five days would not seem adequate to explain the extent of Black Mold development and advanced decay of dry onions even after allowing for the introduction of fluctuating cool and warm conditioned air without predisposing conditions prior to loading. Even under high humidity conditions at temperatures above 70F or following wounding and exposure to temperatures above 50F, it typically takes *Aspergillus niger* (Black Mold) a few days to develop significant superficial growth or decay. If the trailer "box temperature" was recorded as 36F on consecutive days with warmer temperatures between this cycle one may consider the potential for localized freezing to occur if supply air stream is below 32F and rapid soft rot to develop in a few days on warming.

–[Trevor Suslow](#)

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*If you have a postharvest question that you'd like answered, please send it to [postharvest@ucdavis.edu](mailto: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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