



June 2013

News from the UC Davis Postharvest Technology Center

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Director's Update

What a Great Course!

I have just returned from the Postharvest Technology Short Course Field Tour, and what a phenomenal few weeks it has been! The optional tour was preceded by a week of lectures and demonstrations covering the full range of postharvest topics from Pre-Harvest issues, to Quality Factors, to Packaging, to Marketing and Consumer Issues for Fresh Produce. We had 75 participants from more than 20 countries! There was great interaction, and many interesting discussions arose following the various presentations that were offered.

The tour is always so interesting, providing the group with an opportunity to visit a wide range of postharvest operations. This year we visited distribution centers, tomato and citrus packing/handling operations, fresh-cut facilities, stone fruit harvesting and packing facilities, modified atmosphere and cooling/cold storage facilities, mushroom production and processing, cauliflower and lettuce harvest operations, and more. Starting off with unseasonable drizzling rain early on Monday morning provided a cool start, but the week ended with unseasonably hot weather on the coast in Monterey and San Francisco.

I would like to extend a huge thank you to our colleagues at the companies who hosted our tour at their facilities again this year, generously sharing their knowledge with our participants. Your support of UC Davis and the Postharvest Technology Center is greatly appreciated.



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Produce Professional Certificate Program

Interest in the Produce Professional Certificate Program was high among participants attending the Postharvest Technology Short Course. Participants were interested in the ability to demonstrate that they have developed an extensive knowledge base that will be of value to their current or future employer. Our team has recently been busy adding the supporting content of the 2013 courses to the Produce Professional Certificate Program's online learning site. Videos of the presentations, and various handouts provide great resources for the program's required quizzes.

Link to the web page to learn more about this exciting new program or to enroll:
http://postharvest.ucdavis.edu/Education/Produce_Professional_Certificate.

-- [Beth Mitcham](#)

Postharvest Workshops at UC Davis

Excellent Educational Opportunities



Enrollments Strong for Fresh-cut Products Workshop

The 18th annual Fresh-cut Products: Maintaining Quality & Safety workshop will be held September 24-26 at the UC Davis Alumni & Visitors Center. This 3-day workshop is organized by Dr. Marita Cantwell and a team of fifteen other experienced academic and industry instructors. The workshop provides an overview of many aspects of the production, processing, packaging, distribution and quality assurance of fresh-cut fruit and vegetable products. The workshop is relevant to all levels of fresh-cut produce industry professionals – from small, local and regional produce processors to large businesses with nationwide distribution.

The enrollment fee is \$1150 for this 3-day workshop, and includes all instruction, instructional materials, lunches, morning and afternoon breaks, and an evening networking reception. To learn more, or to enroll, we invite you to visit the [web page](#) or contact [Ms. Penny Stockdale](#).

We invite you to Attend our Produce Safety: A Science-based Framework Workshop

We are pleased to introduce this new workshop, organized by Dr. Trevor Suslow, which will feature an integrated approach to building a foundation of awareness and improved understanding of the current scientific basis for produce microbial safety systems and preventive controls. Held November 5-7, 2013 on the UC Davis campus, this two-and-a-half day interactive workshop is one of the core required components for the Produce Professional Certificate program.



The course delivery is largely interactive, with formal lectures, group assessment of case examples, and break-out group problem-solving challenges. The emphasis of the curriculum is the scientific-basis for audit standards, preparing for using audits, and targeted microbiological testing to improve performance. Key resources and tools for hazard awareness, risk identification, risk-based preventive controls, and verification of corrective actions will be provided. The enrollment fee for this workshop is \$950. To learn more about it or to enroll, please visit the [web page](#) or contact [Ms. Penny Stockdale](#).

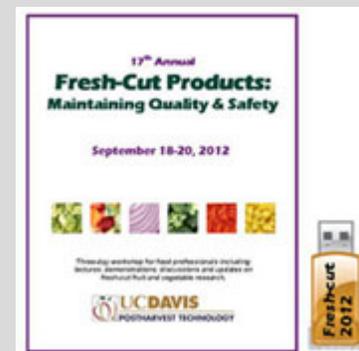
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Featured Postharvest Publication

Special 25% Discount on 2012 Fresh-cut Products: Maintaining Quality & Safety (including binder, portfolio, and flash drive)

Through the end of July, we're offering a 25% discount on this comprehensive fresh-cut publication. Edited and compiled by Dr. Marita Cantwell, this publication includes a 552 page binder, 4 separately-bound publications in a portfolio, and a flash drive containing PDF files of all binder documents. The regular price is \$175, now on sale through August 31, 2013 for \$131.25!

This amazing resource includes all the information you'll need to improve the quality and safety of your organization's Fresh-cut Products. We invite you to order a copy for your library today. For a complete table of contents, with quick links to order a copy, please visit the [Fresh-cut Workshop Binder and Portfolio](#) webpage. If you order using the printed [order form](#), be sure to write "FC25" on it.



Postharvest Endowment Fund Update



This month we extend our thanks to the [International House Davis](#), who made a generous contribution to the Postharvest Program Endowment Fund in memory of Dr. Adel Kader.

To make a contribution to the Postharvest Program Endowment fund or to assist with providing scholarship funds for worthy students attending the annual Postharvest Technology Short Course, please visit our [Make a Gift](#) web page, or contact the Center Manager, Mary Reed at postharvest@ucdavis.edu.

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Postharvest Article Reviews

Lia, Changying, Jiawei Luob and Dan MacLean. 2011. A novel instrument to delineate varietal and harvest effects on blueberry fruit texture during storage. *Journal Science Food Agriculture* 91:1653-1658.

This study investigates testing blueberry firmness using a laser air-puff method, a new non-contact way for testing the fruit's firmness, texture, and "elasticity or springiness." This method functions by delivering a brief puff of pressurized air at the fruit's surface, creating a crater like deformation, which is then measured using a laser displacement sensor. Less laser deformation indicates a firmer fruit, which is a gauge for fruit quality, potential consumer acceptability, and storability. Tests were conducted on five different blueberry cultivars using both the laser air-puff and a Firmtech Firmness Tester, a method involving slight compression with a load cell. The fruit, which included both hand- and machine-harvested samples, were tested at harvest, 24 hours after, and every week for 21 days while in refrigeration (4°C/39.2°F). Tests showed strong similarity between trends of firmness recorded by both methods, validating the efficacy of the laser air-puff method. However the springiness or elasticity, a new texture index that measures the ratio between residual displacement and maximum displacement of the fruit during an air-puff, was found to be independent of firmness, and strongly related to varietal differences in elasticity. The significance of this new testing method is its ability to effectively determine firmness without contact, while also providing a new index of "springiness or elasticity," which can potentially be used to explain the dehydration and shrivel effect on firm fruit.

*Summarized by Edward J. Silva
June 25, 2013*

Postharvest Specialists' Section

Bruhn Attends Opportunities in Phytosanitary Irradiation for Fresh Produce Workshop

Dr. Christine Bruhn attended the Opportunities in Phytosanitary Irradiation for Fresh Produce Workshop, May 22-23, 2013. The workshop was offered by USDA – APHIS and Chapman University. The goal of the program was to increase awareness of irradiation as a phytosanitary treatment in order to facilitate the use of the technology in the US fruit and vegetable export program. On-going evaluation of the use of irradiation on several US fruits was quite positive.



The USDA is accepting proposals from the US industry to evaluate their produce for potential export as a part of a reciprocal agreement with several countries currently importing irradiated fruit into the US. Contact [Christine Bruhn](#) for more information.

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What's New on Our Website

New this month in the "Postharvest Publications Organized by Topic" Library

This extensive [free library](#) currently offers more than 1,900 articles on a wide variety of postharvest topics.

Food Safety

McEgan, R., C.A.P. Rodrigues, A. Sbodio, T.V. Suslow, L.D. Goodridge, M.D. Danyluk, [Detection of *Salmonella* spp.](#)

[from large volumes of water by modified Moore swabs and tangential flow filtration](#). Letters in Applied Microbiology 56 (2012) 88-94

Danyluk, M.D., M. Nozawa-Inoue, K.R. Hristova, K.M. Scow, B. Lampinen, L.J. Harris, [Survival and growth of Salmonella Enteritidis PT 30 in almond orchard soils](#). Journal of Applied Microbiology 104 (2008) 1391-1399

Postharvest Losses

Lipinski, B., C. Hanson, J. Lomax, L. Kitinoja, R. Waite, T. Searchinger, [Reducing food loss and waste](#). World Resources Institute. Working Paper. June 2013. 40 pp.

Kader, A. A., [Postharvest technology of horticultural crops – An overview from farm to fork](#). Ethiop. J. Appl. Sci. Technol. 1 (2013) 1-8

Kitinoja, L., [Innovative small-scale postharvest technologies for reducing losses in horticultural crops](#). Ethiop. J. Appl. Sci. Technol. 1 (2013) 9-15

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Postharvest Calendar

- June-December 2013. [Costs and Benefits of Small Scale Postharvest Technology](#). E-Learning Opportunity
- July 1-5, 2013. [III International Conference on Quality Management of Horticultural Products of Interest in the Tropics](#). Port of Spain, Trinidad
- July 25, 2013. **Webinar:** [Market News: New Custom Average Tool Explained](#). (2:00-3:00 Eastern Time)
- August 5-8, 2013. [International Symposium on Quality Management of Fruit and Vegetables for Human Health](#). Bangkok and Pattaya, Thailand
- August 5-8, 2013. [International Symposium on Agri-Foods for Health and Wealth](#). Bangkok and Pattaya, Thailand
- August 5-8, 2013. [International Symposium on Tropical and Subtropical Ornamentals](#). Bangkok and Pattaya, Thailand
- August 19-21, 2013. [I International Symposium on Marketing and Consumer Research in Horticulture](#). Portland, Oregon
- August 22, 2013. **Webinar:** [The PACA Complaint Process – An Interactive Discussion](#) (2:00-3:00 Eastern Time)
- September 2-5, 2013. [VI International Conference on Managing Quality in Chains MQUIC 2013](#). Cranfield, United Kingdom
- September 17-19, 2013. [18th Annual Fresh-cut Products: Maintaining Quality & Safety Workshop](#). UC Davis campus
- October 22-24, 2013. [EAPR Post-Harvest Section Meeting](#). Warsaw, Poland
- November 6-8, 2013. [Produce Safety: A Science-based Framework Workshop](#). UC Davis campus.
- December 4-6, 2013. [Southeast Asia Symposium on Quality Management in Postharvest Systems](#). Vientian, Lao, P.D.R.
- March 25-26, 2014. [20th Annual Fruit Ripening & Retail Handling Workshop](#). UC Davis campus
- June 10-13, 2014. [V International Conference Postharvest Unlimited](#). Lemesos, Cyprus
- June 16-27, 2014. [36th Postharvest Technology Short Course](#). UC Davis
- August 27-22, 2014. [XXIX International Horticultural Congress](#). Brisbane, Australia
- September 16-18, 2014. [19th Fresh-cut Products: Maintaining Quality & Safety](#). UC Davis campus
- November 4-6, 2014. [Produce Safety Workshop](#). UC Davis campus

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Ask the Produce Docs

Q. I am a grower of fresh gerbera flowers. I read many articles on your site, and I would like to request your help. In my country, the fresh flower market is very seasonal. To get a good rate we have to store gerbera flowers in a box at cold storage, but they do not store well without water. Could you suggest any chemical or product for pre-treatment to keep the gerbera stems fresh? (N.N.)



A. In most studies, and for most flowers, we find that dry storage is superior to wet storage. If you are storing the gerberas in a cool room, it is vital that the temperature be low enough. We recommend close to the freezing point of water for storage of most flowers (except tropical species). Once you have the temperature correct (1 °C would be a good target), pack the flowers in a box lined with polyethylene film. Allow the flowers to cool to the room temperature, then fold the polyethylene film over the cooled flowers. If your room can't provide temperatures this cool, you may store gerberas for short periods (no more than 1 week) in water containing 50 ppm hypochlorite (about 1 ml/liter).

--[Michael Reid](#)

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End Notes and Disclaimers

Postharvest Questions. If you have a perplexing postharvest question you'd like answered, please send it to postharvest@ucdavis.edu, and we'll see if one of our specialists can help.

Archived Items. Link to a data store of all our previous "Ask the Produce Docs" questions, or link to archived copies of our monthly e-newsletter as PDF documents.

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