

## October 2009 News from UC Davis

# POSTHARVEST TECHNOLOGY

### Research & Information Center

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#### News from the Center

##### UC Davis will lead \$15 million global horticulture project

Intent on helping the world's poorest people break out of a persistent cycle of poverty by producing and marketing high-value crops, the U.S. Agency for International Development (USAID) has selected the University of California, Davis, to lead a new \$15 million, five-year global Horticulture Collaborative Research Support Program. The new program will select and support U.S. and international partners as they undertake research, training, curriculum-development and outreach activities in the neediest countries, most located in sub-Saharan Africa, southern Asia and Latin America. Activities of the Horticulture CRSP (<http://hortcrsp.ucdavis.edu>) will address priorities identified in the USAID-sponsored Global Horticultural Assessment that was conducted in 2005. The Horticulture CRSP will be directed by Dr. Ron Voss; Dr. Beth Mitcham will be associate director and Professor Michael Reid will be part of the management team.

HortCRSP



[Register On-Line](#)

##### 2010 Fruit Ripening & Ethylene Management Workshop to be held at the UC Kearney Agricultural Center

Under the administrative efforts of Dr. Carlos Crisosto, the 16<sup>th</sup> Annual Fruit Ripening & Ethylene Management Workshop will be held February 25-26, 2010 at the UC Kearney Agricultural Center located in Parlier, California. The workshop is intended for shippers and destination (wholesale and retail) handlers who are involved in ripening fruits and fruit-vegetables. The workshop focuses on how to increase profits by delivering ready-to-eat, delicious fruits and fruit-vegetables to the consumer. The registration price will be \$700 for this 2-day workshop, please see the [web page](#) for complete information.

##### Postharvest Presentations

Dr. Adel Kader made a presentation about "Capturing full value of the supply chain: reducing postharvest waste" at the Global Harvest Initiative Symposium, *Agriculture at a Crossroads*, held at the Newseum in Washington, D.C. on September 22, 2009 (<http://www.globalharvestinitiative.org/agriculture-at-a-crossroads.php>).

Dr. Kader was also an invited speaker at the National Food Science and Technology Congress held in Concordia, Argentina, 7-9 November, 2009. He spoke about recent advances in postharvest technology of fruits.

##### Visitors from the Philippines Welcomed

Last week Dr. Beth Mitcham, Specialist Jim Thompson, and Office Manager Mary Reed welcomed three

gentlemen visiting through the UC Davis International Programs Office. The visitors worked in the cold chain industry, and had some very specific questions about strawberry defects and temperature handling, and managing product temperature all along the cold chain.

### Year-end Postharvest Endowment contributions sought

With recent improvements seen in the stock market, it is once again a good time to contribute to the Postharvest Endowment Fund. We are significantly short of our 2009 goal of \$550,000. Can you help? Please see our [Endowment web page](#) for additional information, or use our [printable form](#) to mail or fax in your contribution.

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## What's New on our Website this Month

### FREE! English, Spanish and Arabic translations of "Small Scale Postharvest Practices"

Once again, thanks to the help of one of our excellent student assistants, "Small Scale Postharvest Practices: A Manual for Horticultural Crops" in English, Spanish, and Arabic have recently been converted into digital format (as PDF documents) and are now available in our electronic library.

- [Small Scale Postharvest Practices: A Manual for Horticultural Crops \(English\)](#)
- [Técnicas de Manejo Poscosecha a Pequeña Escala: Manual para los Productos Hortofrutícolas \(Spanish\)](#)
- [ممارسات التداول بعد الحصاد للامكانات المحدودة  
نشرة المحاصيل البستانية \(الطبعة الرابعة\)](#)

All three titles may be downloaded free of charge, or the printed versions may still be purchased using our [Order Form](#).

### New additions to our Postharvest Publications Organized by Topic data store

Serving as your personal postharvest library, our data store is searchable by author, topic, or title. This month we added fifteen articles from "[California Agriculture](#)", including:

- [New late-season naval orange varieties evaluated for quality characteristics](#), by Tracy L. Kahn, Ottilla J. Bier, and Robert J. Beaver. *California Agriculture* 61:3, pgs. 138-143 (2007)
- [2007 freeze: UV could cast new light on citrus damage](#), by Celeste Durant, and editors. *California Agriculture* 61:2, pgs. 54-55 (2007)
- ["Farm to palate" postharvest research ensures high-quality produce](#), by Jeannette Warnert. *California Agriculture* 59:2, pgs. 62-63 (2005)

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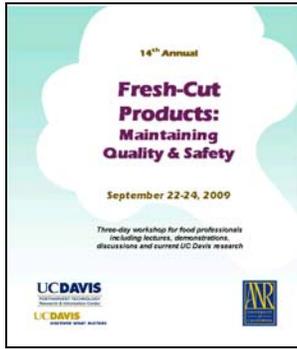
## Postharvest Workshops @ UC Davis

### 2010 UC Davis Postharvest Opportunities

- *February 25-26*: Fruit Ripening & Ethylene Management Workshop - 16<sup>th</sup> Annual, scheduled to be held at the University of California Kearny Agricultural Center in Parlier, California. *Registration is now open.*
- *June 14-25*: Postharvest Technology Short Course - 32<sup>nd</sup> Annual, scheduled to be held on the UC Davis campus.
- *September 14-16*: Fresh-cut Products: Maintaining Quality & Safety - 15<sup>th</sup> Annual, scheduled to be held on the UC Davis campus
- *Date Pending*: Fresh Produce Marketing Strategies Short Course - 2<sup>nd</sup> Annual, scheduled to be held on the UC Davis campus.

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## Featured Postharvest Publication



## Now Available

The course instructional materials from our 2009 Fresh-cut Products: Maintaining Quality & Safety is now available. Includes a 376 page binder, 4 separately-bound publications in a portfolio, and a 2-GB Memory Stick containing PDF documents of all instructional handouts and reference articles. If you're interested in Fresh-cut, but didn't have a chance to attend September's Workshop, then this is the resource for you. Despite the addition of numerous pages to this publication, we're pleased to offer it at \$175, the same price as our 2007 and 2008 versions. Please use our [order form](#) to order a copy for your library.

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## Postharvest Calendar: Upcoming Conferences, Courses and Workshops

- November 15-19, 2009. Australasian Postharvest and Managing Quality in Chains Conference: "[Postharvest Pacifica-Pathways to Quality](#)" Napier War Memorial Conference Centre, Napier, New Zealand.
- February 3-5, 2010. [Fruit Logistica](#). Berlin, Germany.
- February 25-26, 2010. [Fruit Ripening & Ethylene Management Workshop](#). 16<sup>th</sup> Annual. UC Kearney Agricultural Center.
- June 14-25, 2010. [Postharvest Technology Short Course](#). 32<sup>nd</sup> Annual. UC Davis campus.
- June 27 to July 2, 2010. [Gordon Research Conference on Postharvest Physiology](#), Tilton, New Hampshire, USA
- August 22-27, 2010. [28<sup>th</sup> International Horticultural Congress](#). Lisbon, Portugal.
- September 14-16, 2010. [Fresh-cut Products: Maintaining Quality and Safety Workshop](#). 15<sup>th</sup> Annual. UC Davis campus.

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## Ask the Produce Docs

**Q.** How would you explain the fact that certain fruits, apples being the best example, can be kept for a year or more under controlled atmosphere storage, while tomatoes can not? Are other fruits kept in controlled atmosphere storage in the way that apples are? (A.W.A.)

**A.** The storage potential of apple cultivars is the longest among all fresh fruits because they are usually harvested mature, but not ripe (preclimacteric stage) ; most cultivars have relatively low respiration rates; some cultivars, such as Fuji and Granny Smith, have relatively low ethylene production rates; they have a high starch content that is converted to sugars during storage, and decline in firmness (crispness) slowly if kept at 0C (32 F) and especially when kept in low-oxygen atmospheres (1-2% oxygen) and/or treated with the anti-ethylene action chemical, 1-methylcyclopropene. Controlled atmosphere storage is commonly used for apples ( up to one year, depending on cultivar) and to a lesser extent ( up to 6 months) for European pears, Asian pears, kiwifruits, and pomegranates.

Mature-green tomatoes can be kept in controlled atmosphere storage ( 3-5% oxygen, balance nitrogen) at 12 C (54 F) for up to 8 weeks, then ripened in air at 20-25C (68-77 F), but their eating quality will be inferior to tomatoes harvested at the partially- or fully-ripe stage or those picked mature-green and ripened soon after harvest.

Tomatoes are chilling-sensitive (should not be kept below 12C = 54 F), do not have a starch reserve, and their rates of respiration and softening are higher than those of apples. That is why their storage potential is much lower than that of apples. --Adel Kader

**Q.** I have some questions concerning bitter pit in apple:

1. May late harvest increase the post-harvest incidence of bitter pit in apple (specifically Bramley)?

2. Aside from the harvest time, may ethylene exposure during cold storage enhance bitter pit?
3. May we expect higher ethylene production by apples affected by bitter pit? (M.S.)

- A.**
1. Usually if there is a pattern with harvest, it is earlier harvested fruit that are more susceptible.
  2. No ethylene will not enhance bitter pit.
  3. Yes, when fruit are affected by a disorder like bitter pit, they will generally have a higher ethylene production. -- [Beth Mitcham](#)

#### Further Advice from the Produce Docs

*In response to the September 2009 question about a batch of canned mango turning grey-green, Dr. Linda Harris from the UC Davis Dept. of Food Science and Technology added her comments to those of Dr. Diane Barrett whose response was included in the [September issue](#):*

When preparing home preserved fruits and vegetables at home it is critical to follow published guidelines. There are a number of excellent resources on-line including our own site:

[http://www.ucfoodsafety.ucdavis.edu/Consumer\\_Advice/](http://www.ucfoodsafety.ucdavis.edu/Consumer_Advice/). The National Center for Home Preservation: <http://www.uga.edu/nchfp/> has a brochure on preserving mangos:

[http://www.uga.edu/nchfp/publications/nchfp/factsheets/the\\_mango.html](http://www.uga.edu/nchfp/publications/nchfp/factsheets/the_mango.html). A recipe for canning green mangos is also provided [http://www.uga.edu/nchfp/how/can\\_02/green\\_mangoes.html](http://www.uga.edu/nchfp/how/can_02/green_mangoes.html).

The pH of mango can vary considerably from about 3.9 to 4.7. The pH increases at the fruit ripens. At the high end of that range there are concerns with safety which is why the canning recipe is for green mangoes only.

--[Linda Harris](#)

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This publication is produced monthly by the UC Davis Postharvest Technology Research & Information Center. For more information visit our [website](#) or [e-mail](#) us. If you, or a colleague, wish to receive this free monthly E-Newsletter, click [here](#) to subscribe. If you do not wish to receive this publication, please click on "reply" to this e-mail and type "unsubscribe" in the subject line.

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