

POSTHARVEST TECHNOLOGY CENTER

November 2010 News from UC Davis

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Director's Update

Despite your busy schedules, I encourage you to take a moment to visit our postharvest website (<http://postharvest.ucdavis.edu>) and peruse the extensive information available within, including courses and workshops, Produce Facts, PDFs of published studies, and links to other websites with valuable information. The goal of the Postharvest Technology Center website is to provide you with ready access to the most important information related to Postharvest Technology.



The strength of our website and of the courses and workshops we offer resides with the knowledgeable and experienced Extension Specialists who affiliate with the Center. You are likely familiar with many of these individuals through their individual research and extension publications, lectures they present around the world, and through collaborative activities. A listing of Extension Specialists affiliated with the Postharvest Technology Center can be found on our website at the "Find Experts" tab <http://postharvest.ucdavis.edu/About/faculty.shtml>.

--Elizabeth Mitcham

News from the Center

E-books Feedback

Thanks to the 1% of our readers who took the time to complete our e-books survey last month. We will leave the survey open until the middle of December. If you're still interested in giving us your thoughts about utilizing electronic books as a resource, link to the survey: <http://ucanr.org/ebook-survey>



Endowment Contributions Continue to Assist with Postharvest Web site Update

In preparation for our upcoming website update, scheduled for Summer 2011, we have spent many hours preparing for a bulk upload of our Produce Facts photos to a repository. This will permit us to upload larger-sized photos, which will permit broader use and application by the produce community. We're very thankful for the generous contributions from the following endowment contributors:

- **Devon Zagory & Associates LLC**
- **Gloria Lopez Galvez**

We continue to seek contributions to our 2010 Endowment Campaign, especially from those who frequently use and benefit from our web site. Please use our [handy form](#) to fax or mail in your contribution. Please take a moment to view the complete list of our generous contributors by linking to:

<http://postharvest.ucdavis.edu/about/contributors.shtml>

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Postharvest Center's Workshops at UC Davis

2010-2011 UC Davis Postharvest Learning Opportunities

- *February 1-2, 2011 (California)/May 4-5, 2011 (Florida): **Delivering More Flavorful Produce.** This workshop is a University of California/University of Florida project sponsored by a USDA Specialty Crops Research Initiative. A second session is also available in Florida on May 4-5, 2011. [Registration is now open.](#)*
- *March 1-3, 2011 (California)/April 27-29, 2011 (Florida): **Advanced Topics in Microbial Safety of Fresh Produce.** This workshop is a University of California/University of Florida project sponsored by a USDA Specialty Crops Research Initiative. A second session is also available in Florida on April 27-29, 2011. [Use the workshop brochure to submit your application for enrollment.](#)*
- *February 15-18, 2011: **Better Process Control School** – Activities & Recreation Center's Ballroom on the UC Davis campus. [For more information.](#)*
- *April 26-27, 2011: **Fruit Ripening & Ethylene Management Workshop** - 17th Annual will be held on the UC Davis campus. [Registration will open soon.](#)*
- *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.*

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Featured Postharvest Publications

Everything's on Sale

20% Off

Code: "NOV20"



Final Days - November Discount on Everything In Stock

Extended through December 10th, and for the very first time, we are offering a 20% Discount on all items in our stock. Whether you're interested in Produce Quality, Stone Fruit, Pears, Strawberries, Fruit Ripening or Fresh-cut Products – it's all on sale. For a complete listing of all our publications see: http://postharvest.ucdavis.edu/Pubs/pub_list.shtml. To order a copy of any of our titles for your library, please use our [Order Form](#) and be sure to note "NOV20" to receive your discount.

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What's New on Our Website this Month

New Brief Book Review

"Postharvest Biology and Technology for Preserving Fruit Quality", Valero, Daniel and Maria Serrano (2010), was reviewed by Dr. Adel Kader. [Link](#) to the review.

New Articles Added to Postharvest Publications Organized by Topic

Our [datastore](#) now contains over 1,300 postharvest documents, organized by topic, and is searchable by title or author. It is one of the premiere sources of comprehensive postharvest information.

[Evaluation of the Use of Sulfur Dioxide to Reduce Postharvest Losses on Dark and Green Figs](#), Celia M. Cantín, Lluís Palou, Vanessa Bremer, Themis J. Michailides, Carlos H. Crisosto. Postharvest Biology and Technology 59: 150-158 (2011)

[Sodium hypochlorite: A promising Agent for Reducing *Botrytis cinerea* infection on Rose Flowers](#), Andrew J. Macnish, Kristy L. Morris, Annemarie de Theije, Manon G.J. Mensink, Henry A.M. Boerrigter, Michael S. Reid, Cai-Zhong Jiang, Ernst J. Woltering. Postharvest Biology and Technology 58:262-267 (2010)

[Thermal, High Pressure, and Electric Field Processing Effect on Plant Cell Membrane Integrity and Relevance to Fruit and Vegetable Quality](#), Maria E. Gonzalez and Diane Barrett. Journal of Food Science 75:121-130 (2010)

[Microscopic Quantification of Cell Integrity in Raw and Processed Onion Parenchyma Cells](#), M.E. Gonzalez, J.A. Jernstedt, D.C. Slaughter, and D.M. Barrett. Journal of Food Science 75:402-408 (2010)

[Influence of Cell Integrity on Textural Properties of Raw, High Pressure, and Thermally Processed Onions](#), M.E. Gonzalez, J.A. Jernstedt, D.C. Slaughter, and D.M. Barrett. Journal of Food Science 75:409-414 (2010)

[¹H-NMR Study of the Impact of High Pressure and Thermal Processing on Cell Membrane Integrity of Onions](#), Maria E. Gonzalez, Diane M. Barrett, Michael J. McCarthy, Frank J. Vergeldt, Edo Gerkema, Ariette M. Matser, and Henk Van As. Journal of Food Science 75:417-425 (2010)

[Onion Cells after High Pressure and Thermal Processing: Comparison of Membrane Integrity Changes using Different Analytical Methods and Impact on Tissue Texture](#), Maria E. Gonzalez, Gordon E. Anthon, and Diane M. Barrett. Journal of Food Science 75:426-432 (2010)

[Critical Electric Field Strengths of Onion Tissues Treated by Pulsed Electric Fields](#), Suvaluk Asavasanti, Seda Ersus, William Ristenpart, Pieter Stroeve, and Diane M. Barrett. Journal of Food Science 75:433-443 (2010)

[Disintegration Efficiency of Pulsed Electric Field Induced Effects on Onion \(*Allium cepa* L.\) Tissues as a Function of Pulse Protocol and Determination of Cell Integrity by 1H-NMR Relaxometry](#), Seda Ersus, Mecit Halil Oztop, Michael J. McCarthy, and Diane M. Barrett. Journal of Food Science 75:444:452 (2010)

[Processing and Quality Characteristics of Apple Slices Processed under Simultaneous Infrared Dry-Blanching and Dehydration with Intermittent Heating](#), Yi Zhu, Zhongli Pan, Tara H. McHugh, Diane M. Barrett. Journal of Food Engineering 97:8-16 (2010)

[Changes in Tomato Paste During Storage and the Effects of Heating on Consistency of Reconstituted Tomato Paste](#), Gordon E. Anthon and Diane M. Barrett. Journal of Texture Studies 41:262-278 (2010)

[Determination of Membrane Integrity in Onion Tissues Treated by Pulsed Electric Fields: Use of Microscopic Images and Ion Leakage Measurements](#), Seda Ersus and Diane M. Barrett. Innovative Food Science and Emerging Technologies 11:598-603 (2010)

[Handling of Horticultural Perishables in Developing vs. Developed Countries](#), A.A. Kader. ISHS Acta Hort. 877:121-126 (2010)

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Postharvest Specialists' Activities

Hanoi and Bangladesh Postharvest Stops for Michael Reid

Dr. Michael Reid spent two weeks in Hanoi providing a postharvest biology and technology undergraduate level class to 40 undergraduates at the Hanoi University of Agriculture. He then traveled to the Peoples Republic of Bangladesh where he visited the postharvest lab at the Bangladesh Agricultural Research Institute as part of his work with the [Horticulture Collaborative Research Support Program](#), which is supported by USAID.

Michael Reid Celebrated Retirement with Friends and Family

With more than 80 people in attendance, Michael Reid celebrated his retirement with a dinner at the UC Davis Putah Creek Lodge on November 13th. Guests enjoyed the results of Michael's special marinade recipes for delicious BBQ'd Tri-Tip and chicken, and following the dinner Michael was gently roasted and then warmly praised for his many accomplishments throughout his career. Dr. Beth Mitcham said, "Michael is one of the most accomplished individuals I have ever worked with -- he is an excellent writer, an amazing scientist, and talented musician -- a 'renaissance man' personified."

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Postharvest Positions

Apio Inc. Seeks Technical Service Manager

The ideal candidate for this Technical Service Manager position located in Guadalupe, California, will possess a minimum of a B.S. Degree in Industrial Technology, Food Science, or related field. A background with packaging of perishable goods is required. Experience with a food manufacturing facility, packaging technologies, and/or postharvest work with fresh fruits and vegetables is highly desirable. This position requires some travel as well as work in a refrigerated manufacturing facility as necessary. Fluency in Spanish desirable. For more information, or send your cover letter and resume to Keri Morelli (kmorrell@apioinc.com)

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Postharvest Calendar: Upcoming Conferences, Courses and Workshops

- February 1-2, 2011. **Delivering More Flavorful Produce Workshop**. (California Session on the UC Davis campus.)
- February 6-9, 2011. **WFLO Institute**. Atlanta, Georgia.
- February 9-11, 2011. **Fruit Logistica 2011**. Berlin, Germany.
- February 15-18, 2011. **Better Process Control School**. UC Davis campus.
- March 1-3, 2011. **Advanced Topics in Microbial Safety of Fresh Produce Workshop**. (California Session on the UC Davis campus.)
- 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 4-5, 2011. **Delivering More Flavorful Produce Workshop**. (Florida Session at the 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.
- July 17-21, 2011. **Second International Conference on Quality Management of Fresh Cut Produce: Convenience Food for a Tasteful Life**. Torino, Italy.
- September 13-15, 2011. **Fresh-cut Products: Maintaining Quality & Safety**. 16th Annual. UC Davis campus.
- 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 sirichai.kan@kmutt.ac.th

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Ask the Produce Docs

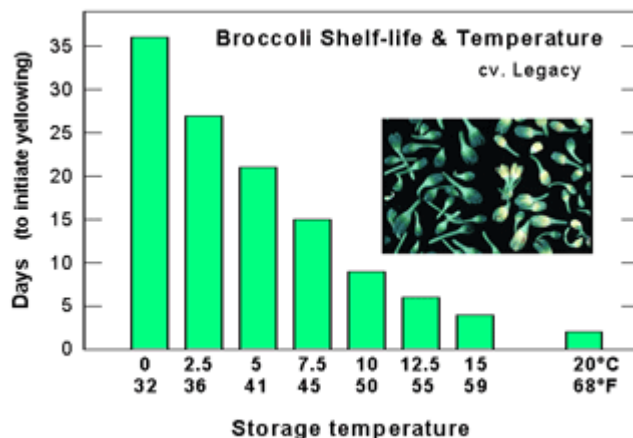
Q. I work in a factory where we process frozen broccoli, we receive the raw material from fields and it is in storage about 4 or 5 days before we process it. I need information about the consequences of presence CO₂ (around 800 ppm) and CO (around 100ppm). The temperature in the cold storage is around 10 C and the humidity around 85%. (A.A.)



A. The CO₂ and CO levels will not detrimentally affect the quality of the broccoli, however storage at 10C for 4-5 days will result in some loss of nutrients even if yellowing is not yet visible. Dropping the temperature to 5C or lower would be beneficial. See the graphs below to put temperature into perspective. The humidity is of importance only if you are getting dehydration of some of the product during that period. Often the top crates in a room will suffer dehydration and may need to be covered (with empty containers or carton covers). Slight dehydration is not an issue if the broccoli is frozen. I am mainly thinking about the quality of the product for fresh market.

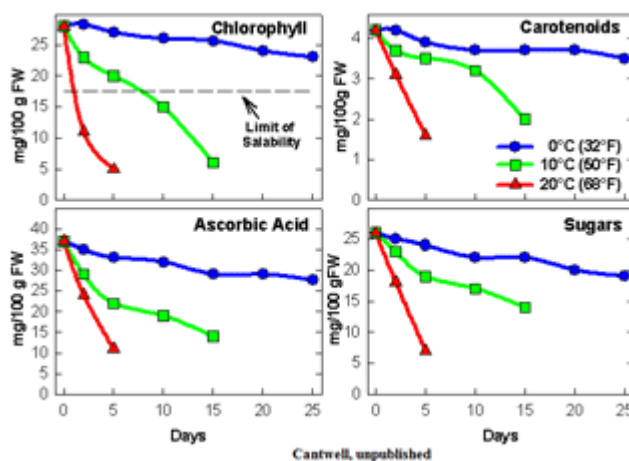
Also since CO is toxic to humans, there are guidelines about worker exposure in relation to concentration. Although you are no doubt aware of this, here is a link to an [OSHA fact sheet](#) about CO. I hope this is helpful.

–Marita Cantwell



(Cantwell, unpublished)

Broccoli Compositional Quality and Storage Temperature



Cantwell, unpublished



Q. I am a Bing cherry grower in California and am looking for some information. I would like to install evaporative misters in the barn where we store our cherries prior to shipping. They are stored in the northern wing of a pole barn, on a 40'X16' concrete slab. We are only a 20 acre grower and ship only one truckload per day. We begin picking at 5:30 am and stop by 1 pm. Our receiving temperatures at the shed range from 62 to 70 degrees F and average ± 67 F. We would like to conserve as much of the natural coolness as we can prior to shipping. We haul the fruit to a shed 26 miles away and a reefer van doesn't seem cost effective so I'm looking at other options. (J.S.)

A. I think misters would be a good idea. They will provide some cooling. I expect you might keep the fruit 5° to 10°F cooler than now. They will also add moisture to the air around the fruit and reduce the stem drying of fruit near the surface of the bin. Be sure to use potable water in the misters.

--Jim Thompson

*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.*

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