

POSTHARVEST TECHNOLOGY CENTER

September 2010 News from UC Davis

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News from the Center



Full House for the Fresh-cut Products Workshop

Every seat was taken as the 15th Annual Fresh-cut Workshop got underway in mid-September. Dr. Marita Cantwell, course organizer, pulled together an all-star cast of instructors, and the participants offered comments such as, "This course covers a lot of material precisely and clearly. Excellent!" and "I've been involved in food quality for 30 years, 20 in fresh cut. I decided to attend with a new QA manager basically so he could gain some experience and network with others in the industry. I wasn't expecting to gain much personally since I've been 'around the block' a few times, but I found the program provided a good blend of academic and industry knowledge. We sure packed a lot into these days. Thank you." If Fresh-cut Products are of interest to you, we hope you'll start planning now to join us for the 16th annual workshop, scheduled for September 13-15, 2011.

Endowment Contributions Boost Postharvest Web site Update Efforts

We are just beginning the gargantuan task of updating our 1,150+ page web site (counting our .html documents only), and would like to express our grateful appreciation to the following contributors:

- [NewStar Fresh Foods](#)
- [General Produce](#)
- [Sunkist Growers, Inc.](#)
- [Catalytic Generators, LLC](#)
- Eduardo Kerbel



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>

Yuba City Rice Quality Workshop Well Attended

Postharvest Engineering Specialist Jim Thompson, and Cass Mutters from the UC Cooperative Extension, reported that the late-August Rice Quality Workshop was very well attended. Some of the larger operations sent as many as five representatives to the workshop, which was held at the Bonanza Inn & Conference Center located in Yuba City.

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What's New on Our Website this Month

Brief Book Review

Dr. Adel Kader has reviewed *Microbial Safety of Fresh Produce* edited by X. Fan, B.A. Niemira, C.J. Doona, F. G. Feeherry, and R.B. Gravani. Link to the complete review:

<http://ucce.ucdavis.edu/datastore/detailreport.cfm?usernumber=19&surveynumber=277>

New Articles Added to Postharvest Publications Organized by Topic

Our [datastore](#) now contains over 1,200 postharvest documents, organized by topic, and is searchable by title or author.

[Effect of maturity and cold storage on ethylene biosynthesis and ripening in 'Bartlett' pears treated after harvest with 1-MCP](#), Max G. Villalobos-Acuña, William V. Biasi, Sylvia Flores, Cai-Zhong Jiang, Michael S. Reid, Neil H. Willits, Elizabeth J. Mitcham. *Postharvest Biology and Technology* 8 pgs. (2010)

[Ultrasound enhanced sanitizer efficacy in reduction of *Escherichia coli* O157:H7 population on spinach leaves](#), Bin Zhou, Hao Feng, Yaguang Luo. *Journal of Food Science* 75:308-313 (2009)

[Elucidation of the mechanism of enzymatic browning inhibition by sodium chloride](#), Qiang He, Yaguang Luo, Pei Chen. *Food Chemistry* 110:847-851 (2009)

[Hot water treatment in combination with rachis removal and modified atmosphere packaging maintains quality of table grapes](#), Liping Kou, Yaguang Luo, Wu Ding, Xinghua Liu, William Conway. *HortScience* 44:1947-1952 (2009)

[3D Surface reconstruction and analysis in automated apple stem-end/calyx identification](#), L. Jiang, B. Zhu, X. Cheng, Y. Luo, Y. Tao. *American Society of Agricultural and Biological Engineers* 52:1775-1784 (2009)

[Efficacy of the biofumigant fungus *Muscodor albus* \(Ascomycota: Xylariales\) for control of Codling Moth \(Lepidoptera: Tortricidae\) in simulated storage conditions](#), L.A. Lacey, D.R. Horton, D.C. Jones, H.L. Headrick, L.G. Neven. *J. Econ. Entomol* 102:43-49 (2009)

[Antimicrobial effect of acidified sodium chlorite, sodium chlorite, sodium hypochlorite, and citric acid on *Escherichia coli* O157:H7 and natural microflora of fresh-cut cilantro](#), Ana Allende, James McEvoy, Yang Tao, Yaguang Luo. *Food Control* 20:230-234 (2009)

[Effect of surface roughness on retention and removal of *Escherichia coli* O157:H7 on surfaces of selected fruits](#), H. Wang, H. Feng, W. Liang, V. Malyarchuk. *Journal of Food Science* 74:8-15 (2009)

An additional 60 articles on a variety of topics, including [apple](#), [fresh-cut fruits](#), [fresh-cut vegetables](#), [mango](#), [melons](#), [citrus fruit](#), [quality evaluation](#), [insect control](#), and more, were added this month.

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Postharvest Specialists' Activities

Linda Harris Receives Food Science Research Award

The International Association for Food Protection awarded Postharvest Specialist Linda Harris their inaugural "Frozen Food Foundation Freezing Research Award". Harris was recognized for her 30-year career in food science research, including a study focused on the effects of the freezing process on salmonella in frozen poultry. Link to the UC Davis College of Agricultural and Environmental Sciences' *Currents* [article](#).

Belgium hosted Beth Mitcham

Beth Mitcham traveled to Belgium to present an invited presentation at the International Strawberry Congress in Antwerp, Belgium. While in Belgium, she also visited the laboratory group of Bart Nicolai, Division Head, Flanders Centre of Postharvest Technology at Katholieke Universiteit Leuven.

Diane Barrett to Coordinate Processing Technologies Short Course

A unique new short course "How to Deliver Fresh Food Quality via Advanced Processing Technologies" is the first of its kind to focus on the ability to deliver fresh-like food quality and potential health benefits through advanced processing technologies such as Ohmic, High Pressure, Continuous and Batch Microwave Processing. The course will be offered on October 26, 2010 at the UC Davis Buehler Alumni Center, from 8:00 – 5:00, and will feature presentations and demonstrations by graduate students from four leading universities working on advanced processing technologies. Instructors are from UC Davis, Ohio State University, US Natick Army Soldier Center, Washington State University, and North Carolina State University.

HACCP Programs Offered at UC Davis

Postharvest Specialist Linda Harris will be an instructor in two upcoming programs held at the UC Davis campus: "Basic HACCP: A Food Safety Program" (November 15-17, 2010); and "Advanced HACCP: Verification, Implementation and Other Challenges" (November 18-19, 2010). Both programs are accredited by the International HACCP Alliance. For more information link to: <http://www.extension.ucdavis.edu/ag>

Central Valley Postharvest News

The September 2010 issue of Carlos Crisosto's Central Valley Postharvest News can be accessed with the following link: http://www2.uckac.edu/postharv/CVPN_Sept2010.pdf.

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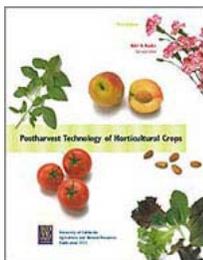
Postharvest Center's Workshops @ UC Davis

2010-2011 UC Davis Postharvest Learning Opportunities

- **October 26: How to Deliver Fresh Food Quality via Advanced Processing Technologies**– at the UC Davis Buehler Alumni Center's AGR Room. *For more information.*
- **November 30-December 2: Advanced Topics in Microbial Safety of Fresh Produce Workshop** – at the UC Davis Buehler Alumni Center's AGR Room. *More details coming soon.*
- **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, at the UC Davis Buehler Alumni Center's AGR Room. *Registration will open in November.*
- **June 13-24, 2011: Postharvest Technology Short Course** – 33rd Annual, on the UC Davis campus, with the optional field tour covering the San Joaquin Valley and Coastal California. *For more information. Registration will open in November.*
- **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 Publication



FALL Discount for “Postharvest Technology of Horticultural Crops”

Through October 31st, a special 30% Discount is being offered on our cornerstone publication, the “[Postharvest Technology of Horticultural Crops](#), 3rd Edition.” This amazing book offers readers the A-Z of Postharvest Technology, and at a great discount, too! To order a copy for your library, please use our [Order Form](#) and be sure to note “30% Fall Special” to receive your discount.

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Postharvest Positions

Career Opportunity with the FDA, Center for Food Safety and Applied Nutrition (CFSAN), Office of Food Safety, Produce Safety Staff

The US FDA has an opening for a Policy Analyst, GS-301-14. Applicants must possess one year of specialized experience equivalent to at least the GS-13 level or higher in the Federal service performing duties such as: Serve as a focal point between office components on issues related to food safety enforcement policies and procedures; responsible for developing, recommending, coordinating and implementing policies and procedures which are designed to insure consistency and balance; serve as a staff coordinator for interpretation and guidance on the full range of regulatory policies, program and procedures; serve as a consultant within the Center on issues relative to current initiatives and strategies to prevent food borne safety problems and enhanced nutritional status; and provide expert policy, scientific and technical advice to key officials on agricultural product safety issues. Position closes 10/5/10. For complete information: <http://jobview.usajobs.gov/GetJob.aspx?JobID=90086669&JobTitle=Policy+Analyst&q=policy+analyst&where=college+park%2c+md&brd=3876&vw=b&FedEmp=Y&FedPub=Y&x=109&y=21&AVSDM=2010-09-07+00%3a03%3a00>

Valent BioSciences Corporation Seeks Marketing Manager

The Global Marketing Group has a Marketing Manager opportunity in Libertyville, Illinois. The position will be responsible for the overall business management of the PGR product portfolio for the assigned geographic region, and provide long term strategic direction for the brands. Principal responsibilities include: developing annual sales SRP, MRP and an annual business plan for the product line; work with SCC companies to define pricing strategies, product offering, product mix; continuously analyze financial information data to be able to react to sales variances; serve as a technical and business resource to SCC companies in the region; and support the supply chain to ensure consistent product quality and timely delivery. Candidate should have a BS/MS in agriculture/biological science, with a BA/MBA in business management and marketing preferred. Ten or more years experience in the agricultural industry, and a minimum of 5 years experience in sales or marketing of agricultural chemicals. A good understanding of plant physiology, crop protection and the use of plant growth regulators is needed. For more information: <http://www.valentbiosciences.com>.

Vineland Research and Innovation Centre Recruiting for a Postharvest Research Scientist

Vineland, a not-for-profit international research organization located in Ontario, Canada, is seeking a knowledgeable and experienced individual with a background in post harvest science establish and operate an industry-driven research program in postharvest science which will investigate effective postharvest solutions. The successful candidate will be expected to develop new or improved packaging solutions that will extend product shelf-life of fresh products while maintaining their sensory quality and microbiological safety. A PhD in Postharvest Science, Food Science or related disciplines, and two years of postdoctoral experience are required. Additional requirements include experience in experimental design, project management, technical staff supervision, using instrumental techniques to measure food quality, utilizing sensory evaluation for shelf-life determination, and a knowledge of the horticulture industry. Submit your cover letter and CV by **10/1/10** to careers@vinelandresearch.com.

Fresh Express/Chiquita Looking for a Senior Food Safety Specialist at their Texas Location

Their Raw Product Food Safety department is looking for an individual to implement, manage, monitor and verify raw product food safety in accordance with the company's good agricultural practices, standardized requirements, policies, procedures and standards. The Food Safety Specialist position works directly with individual growers, vendors/suppliers, harvesters, transporters, and cooling and storages operators to provide technical support, resolve issues, and verify compliance with good agricultural practices. A bachelor's degree, bi-lingual (English/Spanish) and 2-5 years of experience in the produce industry is required. For more information see: <http://www.chiquitabrands.com>

Fresh Express/Chiquita Looking for a Food Safety Specialist at their Salinas Location

This position will administer and maintain food safety management programs that ensure the production of high quality and specification-compliant foods, and will evaluate new and existing co-manufacturers and suppliers for compliance to company quality and food safety standards. Oversight of development, revision and implementation of HACCP programs, and provide guidance for FGSI system implementation, compliance and continuous improvement. Track food safety metrics to drive improvement and business growth. A M.S. or Ph.D. in Microbiology or Food Science is preferred, along with knowledge of Molecular Biology. Two-and-a-half years' food processing experience in Quality Assurance or Food Safety experience, as well as experience in food manufacturing and distribution is required. Bilingual (English/Spanish) is a plus. For more information see: <http://www.chiquitabrands.com>.

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Postharvest Calendar: Upcoming Conferences, Courses and Workshops

- October 25-28, 2010. **International Workshop on Biological Control of Postharvest Diseases: Challenges and Opportunities.** Leesburg, Virginia.
- October 26, 2010. **How to Deliver Fresh Food Quality via Advanced Processing Technologies.** UC Davis Campus.
- October 26-30, 2010. **Second International Fruticultura 2010.** La Habana, Cuba.
- November 4-7, 2010. **IACSC Conference and Expo.** San Antonio, Texas.
- November 30-December 2, 2010. **Advanced Topics in Microbial Safety of Fresh Produce Workshop.** 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.
- April 26-27, 2011. **Fruit Ripening & Ethylene Management Workshop.** 17th Annual. UC Davis campus.
- April 30-May 4, 2011. **IARW-WFLO Annual Convention & Expo.** New Orleans, Louisiana.
- 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'm a sweetpotato grower and exporter based on the East Coast in the U.S. Some of our sweets were rejected during international shipment due to *Rhizopus* soft rot which was confirmed by lab analyses. I would like to ask for some help on controlling mold growing in our sweet potatoes. (J.C.)



A. This is, unfortunately, a recurring problem in sweetpotatoes and the solution revolves around sanitation of the dump tank. The sweetpotatoes are usually dumped from bins into a water dump tank which is changed once a day and contains no chlorine disinfectant. The microbial load builds up during the day and serves as a source of contamination. The reason for not using chlorine is that with all the soil in the dump tank it is ineffective. The dump tank is often followed by a high pressure wash of clean water. Because of the physical handling on the packing line, the sweetpotatoes are being damaged and this damage is visible. The key to this situation is improved sanitation at the dump tank. A pre-dump wash will remove the sand adhering to the sweetpotatoes and allow less contamination in the dump tank. Then the dump tank needs some disinfectant to minimize contamination, and two summaries about chlorine use [[Basic Chlorination](#), and [Water Disinfection](#), both by Trevor Suslow] provide practical guidelines. In addition to this, the sweetpotato operation could also

follow recommendations to cure the sweetpotatoes after packing. This would be a good addition to the handling practices for export in particular. Curing is the process to heal surface wounds caused by handling and is a key operation after harvest and before storage of sweetpotatoes. It can also be beneficial to heal damage from the packingline. The recommendations are 85/85 or 85°F (29°C) and 85% or higher relative humidity for a few days. This step would also allow an additional quality check before the sweetpotatoes are loaded into containers for export. For marine container shipment at 58°F (14-15°C), container loading [see our [Marine Container Transportation](#) publication] is key to ensure proper airflow through the boxes. If open floor areas in the rear of the container are not blocked, cool air will not flow up through the boxes and will allow buildup of humidity which also favors mold growth.

The focus on washing bins to remove sand before dumping, improving the dump tank sanitation, and holding the sweetpotatoes to recure them should all contribute to better arrival condition for your international shipments. – [Marita Cantwell](#)



Q. Is there a lower limit in temperature when there is no response in green bananas to ethylene? Many years ago I heard that bananas do not respond to ethylene below 16 deg C since the stomata are closed. Is this correct? (R.M.)

A. Mature-green bananas respond to ethylene (ripen as indicated by color changes from green to yellow, pulp softening, skin thinning and ease of peeling, higher respiration and ethylene production rates, starch to sugar conversion, loss of acidity, and increased aroma intensity) at temperatures between 12C(54F)and 30C(86F). Within this temperature range, the higher the temperature the faster the ripening rate. At temperatures below 12C (54F), chilling injury prevents ripening and at temperatures above 30C (86F), responses to ethylene and associated ripening changes are inhibited. Between 20C (68F) and 30C (86F) excessive pulp softening occurs and that is why 14 to 18C (58 to 65F) is the recommended range for ripening mature-green bananas to assure a longer yellow-life of ripe bananas. It is important to note that all temperatures above refer to fruit temperature and not air temperature. --Adel Kader

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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