



July 2012

News from the UC Davis Postharvest Technology Center

Director's Update



UC Davis Reception at Fresh Summit in October

The Postharvest Technology Center is playing a lead role in organizing a UC Davis Reception at the PMA Fresh Summit International Convention and Exposition which will be held at the Anaheim Convention Center.

We are very excited about this opportunity to connect with UC Davis Alumni and Friends who will be in attendance at this important event. The reception will be held on Saturday, October 27, 2012 from 5-8 p.m. in the Platinum 8 room at the Anaheim Marriott. We hope you will join us! The evening will include appetizers, beer and wine, raffle prizes, and brief updates on what is new at UC Davis. The reception is currently sponsored by Association Management Services, Inc. and we invite other organizations to join as a sponsor of this event.

Support for Postharvest Engineering Requested

If you did not previously get a chance, the deadline to express your support for the Postharvest Systems Engineer Specialist Position with the University of California's Agriculture and Natural Resources Division closes on August 7th. Write your comments in support of this position at: http://ucanr.org/sites/anrstaff/Divisionwide_Planning/Program_Planning_and_Evaluation/2012_Call_for_Supplemental_Positions/?propnum=1569

Thanks for taking a few moments to support this critical position.

— *Beth Mitcham*

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Postharvest Workshops @ UC Davis



**Fresh-Cut
Products:
Maintaining
Quality & Safety**
September 18-20, 2012

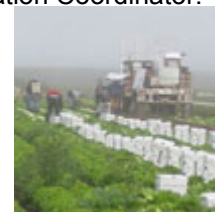
Strong Interest in September's Fresh-cut Products Workshop

Dr. Marita Cantwell is the course organizer for the September 18-20, 2012 "Fresh-cut Products: Maintaining Quality & Safety Workshop to be held on the UC Davis Campus. Participants will gain a working knowledge of established and new procedures for the fresh-cut product category through topic-related sessions and demonstrations.

The 2012 workshop will feature discussions on microbial food safety and the effects of temperature and modified atmospheres, and the sensory quality of fresh-cut fruit and vegetable products. The registration fee of \$1,150 for this 3-day workshops includes all instruction and instructional materials, lunches, and morning and afternoon breaks. For more information or to register online see the [web page](#), or contact [Ms. Penny Stockdale](#), Registration Coordinator.

November 5-6: Suslow Offers UCGAPs Practical Skill Building for On-Farm Risk Assessments Workshop

Dr. Trevor Suslow will be presenting a one-day workshop on November 5th that will provide entry-level information for those businesses beginning to respond to the need to have a food safety management plan that addresses key risks and controls that prevent contamination.



Postharvest Workshops @ UC Davis (cont.)

Growers, shippers, brokers, farm supervisors, and packinghouse managers will benefit from the development and improvement of skills in hazard identification and risk-based corrective actions that are essential to designing and implementing an on-farm safety plan.

There will also be a half-day optional “build your own on-farm food safety manual” session on November 6th. For more information or to register, visit the workshop’s [web page](#), or contact [Ms. Penny Stockdale](#), Registration Coordinator.

Specialists' Outreach Activities

Guidelines for Delivering Better Tasting Produce

Center Director and Specialist Beth Mitcham was invited to participate in a flavor session at PMAs Foodservice Conference on July 22 in Monterey. Her talk reviewed the supply chain factors that influence produce flavor, including variety selection, harvest maturity, temperature exposure, and time after harvest. She also highlighted some of the strategies for delivering better tasting produce developed as part of a USDA Specialty Crops Initiative project implemented by UC Davis and the University of Florida. For more information visit <http://info.ucanr.org/SCRI-Grant/index.html>.



Updated Information on current Phytosanitary Facility Guidelines

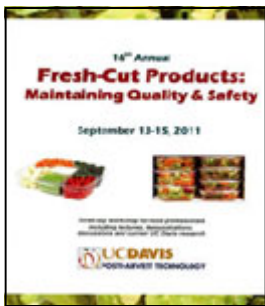
Dr. Christine Bruhn forwarded the following information from the USDA:

Criteria for New Pest Control Irradiation Treatment Facilities in the US Southern States - The USDA Animal and Plant Health Inspection Service (APHIS) has amended "... phytosanitary treatment regulations to provide generic criteria for new irradiation treatment facilities in the Southern States of the United States. This action will allow irradiation facilities to be located anywhere in these States, subject to approval, rather than only in the currently approved locations ..." APHIS is also amending the regulations to "... allow for the irradiation treatment of certain imported fruit from India and Thailand upon arrival in the United States. This action will facilitate the importation of fruit requiring irradiation treatment while continuing to provide protection against the introduction of pests of concern into the United States ..."

Document Title: The title of the July 20, 2012 USDA APHIS Federal Register Final Rule and September 29, 2011 Proposed Rule is "Irradiation Treatment; Location of Facilities in the Southern United States"

Organization: The July 20, 2012 Federal Register Final Rule was issued on July 16, 2012 by Kevin Shea who is the Acting Administrator of the USDA Animal and Plant Health Inspection Service

Featured Postharvest Publication



Extended through August 31, a 25% Discount on Fresh-cut Products: Maintaining Quality & Safety

We have extended a special 25% discount on our 2011 Fresh-cut Products: Maintaining Quality & Safety publication. This comprehensive resource consists of a binder, a portfolio with three separately-bound publications, and a flash drive containing hundreds of documents with all the latest information about fresh-cut produce. The regular price is \$175, but this month we're offering it for the discounted price of \$131.25! U.S. and Canada shipping addresses may order using our [online shopping site](#). Other addresses please use our [printable order form](#), and note "25%FC".

What's New on Our Website

New Additions to Postharvest Publications Organized by Topic Library

This library currently contains more than 1,400 postharvest documents, organized by topic. It is searchable by title or author, and is one of the premiere sources of postharvest information.

Apple

Wang, Chien Yi, William S. Conway, Judith A. Abbott, and George F. Kramer. [Postharvest infiltration of polyamines and calcium influences ethylene production and texture changes in 'Golden Delicious' apples](#). J. Amer. Soc. Hort. Sci. 118 (1993) 801-806.

Conway, William S., Carl E. Sams, Chien Yi Wang, and Judith A. Abbott. [Additive effects of postharvest calcium and heat treatment on reducing decay and maintaining quality in apples](#). J. Amer. Soc. Hort. Sci. 119 (1994) 49-53.

Chilling Injury

Wang, C.Y., and P.C. Wang. [Differences in nuclear magnetic resonance images between chilled and non-chilled zucchini squash](#). Environmental and Experimental Botany 32 (1992) 213-219

Buta, J. George, and Chien Y. Wang. [Early Detection of Chilling Injury with Fourier Transform Infrared Spectroscopy](#). HortScience 28 (1993) 1043-1044.

Wang, Chien Yi. [Chilling injury of tropical horticultural commodities](#). HortScience 29 (1994) 986-988

Marketing

Cook, Roberta. [Eye on Economics—Three Part Series: Fundamental forces affecting growers and marketers. Part 1: Size, proximity and category management for fresh produce](#). Blueprints Jan/Feb/Mar 2012, pgs. 65-68

Cook, Roberta. [Eye on Economics—Three Part Series: Fundamental forces affecting growers and marketers. Part 2: The dynamic U.S. berry sector](#). Blueprints Apr/May/Jun 2012, pgs. 70-72

Postharvest Horticulture

Gross, Kenneth C., Chien Yi Wang. Introduction, [Fresh fruits and vegetables: quality and food safety. Beltsville Symposium XXIII](#). Postharvest Biology and Technology 15 (1999) 195-196

Squash

Wang, C.Y. [Relation of chilling stress to polyamines in zucchini squash](#). Acta Horticulturae 343 (1993) 288-289

Wang, Chien Yi. [Combined treatment of heat shock and low temperature conditioning reduces chilling injury in zucchini squash](#). Postharvest Biology and Technology 4 (1994) 65-73

Wang, C. Yi. [Reduction of chilling injury by Methyl Jasmonate](#). Acta Horticulturae 368 (1994) 901-907

Postharvest Positions

Postharvest Research Professor Position in México

The Faculty of Chemistry of the Autonomous University of Querétaro, México is looking for a researcher to work as research professor (full time) in post-harvest Physiology and technology of fruit and vegetables with the following requirements:

Nationality: Mexican or in process to get it

Language: Spanish and English

Degree: PhD in Postharvest Physiology and Technology

Postdoctoral studies in the area: not required

Responsibilities: Train human resources in the postharvest area, to publish research results and directing research projects with external financing.

Recent publications to obtain the SNI I level according to the National System of Researchers from CONACyT Mexico.

People with postdoctoral studies and sufficient publications (last two years) could be candidates to obtain the position through postdoctoral scholarship from CONACyT

Please send your CV to: Dr. Edmundo Mercado Silva (mercasilva20@yahoo.com.mx)

Postharvest Positions (cont.)

CNFA Requests Volunteers for Postharvest Assignments in Georgia

CNFA is a Washington DC-based international development organization dedicated to empowering the private sector in order to stimulate economic growth and improve rural livelihoods in the developing world. As part of USAID's John Ogonowski and Doug Bereuter Farmer-to-Farmer Program, CNFA provides volunteer opportunities for U.S. farmers, researchers, and other agribusiness professionals to share their expertise with aspiring entrepreneurs across the globe. If you are interested in volunteering, please visit the CNFA website at <http://www.cnfa.org/farmertofarmer/volunteer-opportunities> to view upcoming opportunities!

CNFA is currently recruiting for the following opportunity:

Fruit and vegetable cold storage plant operation specialist in the Republic of Georgia for August or September. The volunteer should have several years of direct experience in cold storage setup and operation. Contact Alicia Feuillet at afeuillet@cnfa.org for more information.

Postharvest Calendar: Upcoming Conferences, Courses and Workshops

- September 18-20, 2012. [17th Annual Fresh-cut Products: Maintaining Quality & Safety Workshop](#). UC Davis campus.
- September 18-20, 2012. [II Asia Pacific Symposium on Postharvest Research Education and Extension: APS2012](#). Bogor, Indonesia
- October 15-19, 2012. [9th International Conference on Controlled Atmosphere and Fumigation in Stored Products](#). (CAF 2012). Antalya, Turkey.
- 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.
- October 26-29, 2012. [PMA Fresh Summit International Conference and Exposition](#). Anaheim, California.
- October 27, 2012. [UC Davis Reception at the Anaheim Marriott](#), PMA Fresh Summit International Conference and Exposition. 5-7 p.m. Anaheim Marriott Platinum 8 Room.
- November 5-6, 2012. [UC GAPs Practical Skill-Building for On-Farm Risk Assessments](#). UC Davis campus.
- November 18-23, 2012. [2012 International Citrus Congress](#). Valencia, Spain.
- November 25-28, 2012. [Postharvest Africa 2012](#): The 7th Technical Symposium of CIGR Section VI and 2nd International Conference on Postharvest Technology & Innovation. Stellenbosch, South Africa.
- April 23-24, 2013. [35th Annual Citrus Postharvest Pest Control meeting](#). Santa Barbara, California
- May 4, 2013. [IARW-WFLO Annual Convention and Expo](#). Hollywood, Florida
- June 3-7, 2013. [XI International Controlled and Modified Atmosphere Research Conference](#). Bari, Italy
- June 17-28, 2013. [35th Annual Postharvest Technology Short Course](#). UC Davis
- June 23-27, 2013. [VII International Cherry Symposium](#). Plasencia, Spain
- August 5-8, 2013. [International Symposium on Quality Management of Fruit and Vegetables for Human Health](#). Pattaya, Thailand
- August 19-21, 2013. [I International Symposium on Marketing and Consumer Research in Horticulture](#). Portland, Oregon
- September 2-5, 2013. [VI International Conference on Managing Quality in Chains MQIC 2013](#). Cranfield, United Kingdom
- September 17-19, 2013. [18th Annual Fresh-cut Products: Maintaining Quality & Safety 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. [Fresh-cut Products: Maintaining Quality & Safety](#). UC Davis

Ask the Produce Docs



Q. I have quite a few questions about citrus I hope you can help me with:

What are the primary factors that lead to citrus creasing? Do you have any suggestions on how to reduce alternate bearing in citrus? How about general practices targeted to reduce waste decay? General practice to reduce rind breakdown? Do you have any suggestions for information of effective use of drip irrigation for drought and post drought conditions? Is there a good citrus resource or paper I should look at? (R.L.)

Ask the Produce Docs (cont.)

A. Creasing in citrus is one of the million dollar questions.... The most recent research that was done on it definitely pinpointed the mineral nutrition of the developing fruit about 6 to 10 weeks after fruit set. Research from 2 different groups came up with different elements as the lead factors. Citrus fruit develops in a biphasic manner. The first burst of fruit growth actually involves cell division in the peel tissue more than anything else. This occurs roughly in the first 10 -12 weeks after fruit set. It is during this time, it is believed, that transient nutrient deficiencies may lead to weaker cell walls that will be manifested as crease in mature fruit. Following this time of cell division in the peel, then the juice vesicles begin to develop, and then the increase in peel as the fruit expands is largely due to cell enlargement.

Alternate bearing.... Another million dollar question. We know that hanging the fruit late in the season will increase alternate bearing especially in citrus varieties that are prone to AB. Maintaining overall tree health helps to minimize AB whereas sudden catastrophic natural events (freezes come immediately to mind) will worsen AB even when everything else is done correctly. It is often difficult to snap a tree out of AB once it gets to cycling.

Waste decay; the main sources of decay in citrus is due to Penicillium decays. These decays are WOUND pathogens so careful handling at all steps from harvest to the consumer will reduce the amount of decay. Judicious use of post-harvest fungicides that inhibit growth of the fungus or reduce sporulation will decrease decay as well later in the handling chain. CAREFUL handling is of paramount importance and proper application of control measures. If you are dealing with organic fruit then extreme care is your best defense plus judicious use of various fruit sanitizers in the packinghouse.

Rind breakdown can be caused by many factors... old fruit, rough handling, methyl bromide fumigation, prolonged cold storage. Bottom line is to know your fruit and handle it carefully.

As for irrigation I would consult an irrigation specialist from whatever area you are sourcing your citrus since local conditions very much influence how you need to approach irrigation.

A good review for citrus postharvest handling are :

FRESH CITRUS FRUITS, available on Florida Science Source book distributors. This is a great reference book. Another good book is the APS manual on citrus production. There is a very good postharvest chapter in this book.

—[Mary Lu Arpaia](#)

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- If you have a perplexing 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.

This publication is produced monthly by the UC Davis Postharvest Technology Center. For more information visit our [website](#) or [email](#) us. If you, or a colleague, wish to receive a copy of this free monthly E-Newsletter, [click here](#) to subscribe. If you no longer wish to receive this publication, please click on "reply" to this e-mail and type "unsubscribe" on the subject line.

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