



October 2013

News from the UC Davis Postharvest Technology Center

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Director's Update

Focus on "Postharvest Technology" Increases as a Key Tool in Feeding the World

As the world's population continues to grow, think tanks around the world are realizing that many more mouths could be fed with a minimal expenditure of additional resources by simply reducing postharvest losses, currently estimated in both first and third world settings to be 33%.

It is rewarding to see development experts and policy makers recognizing the importance of striving for improved postharvest practices. You will find many reports on our website that describe postharvest losses and recommend approaches to reduce this loss. The Postharvest Technology Center will play an active role in furthering this dialogue and expanding the knowledge base.

Measuring Fruit & Vegetable Color, Flavor & Texture

We are excited about the cutting-edge companies who will be providing interactive sessions at our January 22, 2014 [Methods for Measuring Fruit & Vegetable Color, Flavor & Texture](#) workshop.

The ability to measure these, often difficult to measure, attributes plays a vital role in making sure that consumers are delighted by ripe and flavorful produce. We hope you'll be able to join us for this 2014 workshop.



Donate to Support Free Postharvest Information

Order a Postharvest Publication

AndNowUKnow

With thanks to TransFresh and Rich Macleod, I had the opportunity to promote the Postharvest Technology Center and our new Produce Professional Certificate Program in a new AndNowUKnow [video segment](#). Take a moment to check it out.

--Beth Mitcham

Postharvest Workshops at UC Davis

Upcoming Educational Opportunities

Two spaces left for the November 5-7 "Produce Safety: A Science-based Framework" Workshop

There has been so much interest in this new workshop that we have moved it to a larger venue. The November 5-7, 2013 workshop organized by [Dr. Trevor Suslow](#), will be held on the UC Davis campus. The workshop 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. The two-and-a-half day interactive workshop is one of the core required components for the [Produce Professional Certificate](#) program.

The course delivery will be 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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Methods of Measuring Fruit & Vegetable Color, Flavor & Texture Workshop

This 1-day workshop is scheduled for January 22, 2014, and will include lectures on the principles and applications of measuring produce color, flavor, and texture, and will also include demonstrations of a variety of the latest equipment.

The discounted course enrollment fee of \$295 is made possible by a SCRI Grant awarded by the USDA. To learn more about the workshop or to enroll, please visit the [web page](#) or contact [Ms. Penny Stockdale](#).

Featured Postharvest Bookstore Item

25% Discount on "International Avocado Quality" Manuals and Booklets

Through the month of November, we are offering a 25% discount on our International Avocado Quality publications, available in both English and Spanish. The sale price for the manuals is \$33.75, and the sale price for the booklets is \$11.25!

Edited by Anne White, Allan Woolf, Peter Hofman, and Mary Lu Arpaia, these wonderful manuals and booklets include numerous photographs and provide information on avocado quality, ripening, cultivars (in the manual only), disorders, damage scenarios, and more. Link to [this page](#) for a complete table of contents and additional information about these beautiful publications.



We invite you to order a copy for your library today on our online bookstore using [this link](#) for shipments to U.S. addresses; for international shipping addresses, please use our [PDF Order Form](#), and note "20%Avo".

Gifts to the Postharvest Technology Center



We are Thankful

This month we would like to express our appreciation to *Gloria Lopez Galvez* and an anonymous donor for their generous gifts to the Postharvest Technology Center.

Gifts may now be designated to support student scholarships, endowment fund, or general center support at our [gifts webpage](#).

We appreciate each and every gift, and they are carefully utilized to provide useful information to improve postharvest handling and quality maintenance of horticultural crops in California and around the world!

Postharvest Specialists' Updates

Cantwell Instructor at 6th European Short Course on Fresh-cut Produce Processing

[Dr. Marita Cantwell](#) was an instructor at the 6th European Short Course on Fresh-cut Produce Processing held in Antalya, Turkey from October 23-25, 2013 (<http://freshcutcourse.akdeniz.edu.tr/tr>) and organized by Giancarlo Colelli (University of Foggia, Italy) and Mustafa Erken (Akdeniz University, Turkey). There were over 100 participants from 28 countries from academic and private institutions in the region. The European fresh-cut workshops were initiated in 2007 by Giancarlo Colelli (University of Foggia, Italy) and the late Adel Kader (UC Davis) based on the annual [Fresh-cut Workshops](#) conducted each year at UC Davis.

Barrett Research on Fresh-cut Mango Texture

The August issues of Fresh-cut Magazine featured an article about National Mango Board's commissioned research to compare qualitative differences in color, texture and composition in different positions within a single mango fruit. [Dr. Diane Barrett](#) and her team studied Tommy Atkins mangos utilizing three different means of evaluation. [Read the full article...](#)

Mitcham attends 40th Anniversary Celebration of World Vegetable Center

Beth Mitcham attended the 40th Anniversary Celebration and Workshop at AVRDC, The World Vegetable Center's headquarters in Taiwan. She participated on a panel discussing the future of horticulture.

What's New on Our Website



New Produce Safety Section

We have begun assembling a [Food Safety Resources](#) page in our Postharvest Library. Resources added to date include links to:

- Center for Produce Safety including their Global Research Database
- Food Safety articles in our Postharvest Publications Organized by Topic datastore.
- A link to our Produce Safety: A Science-based Framework Workshop information page.
- Food Safety, Traceability, and Defense section of our Most Useful Postharvest Websites webpage.

If you have suggestions for additional food safety resources, kindly email them to us at postharvest@ucdavis.edu.

Updated "Selected Postharvest Resources"

More than 600 hours were spent updating the resource, "[Postharvest Handling and Physiology of Horticultural Crops: A List of Selected References](#)", originally assembled by Adel A. Kader, Leonard L. Morris, and Marita I. Cantwell as an aid to research and extension workers, teachers, and students interested in the general area of postharvest horticulture. The update effort included updating content, integrating numerous pages from eight different documents, updating URLs for each reference, and loading the content onto webpages. The references are classified into 16 subject matter sections, and the pages offer improved search functionality. This reference was first published in 1974, and has been revised every few years since then. We appreciate input concerning errors or omissions, please send your feedback to postharvest@ucdavis.edu.

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

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

Food Safety

Blessington, T., S.G. Theofel, E.J. Mitcham, L.J. Harris, [Survival of foodborn pathogens on inshell walnuts](#). International Journal of Food Microbiology. 166 (2013) 341-348

Processed Fruits & Vegetables

Barrett, D.M., B. Lloyd, [Advanced preservation methods and nutrient retention in fruits and vegetables](#). Journal of Science Food Agriculture 92 (2012) 7-22

Small Scale Postharvest Technology

Kitinoja, L., and A.A. Kader, [Mwongozo wa teknolojia za utunzaji wa mazan ya bustani baada ya kuvuna](#). Julai 2002, Ukarekeshwa Novemba 2003. 255 pp. (Swahili translation of Small Scale Postharvest Practices: A Manual for Horticultural Crops, now available in [11 languages](#).)

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Postharvest Calendar

- November 5-7, 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.
- December 5, 2013. [The Honeycrisp Experience. Production, Harvest and Storage](#). Wenatchee, Washington
- January 22, 2014. [Methods of Measuring Fruit & Vegetable Color, Flavor and Texture](#). UC Davis campus
- 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 17-22, 2014. [XXIX International Horticultural Congress](#). Brisbane, Australia
- August 25-29, 2014. [Small-Scale Postharvest Horticultural Technologies Short Course & Study Tour](#). Bali, Indonesia
- 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. Hello, I am a 10th grader who has recently won my county's Science Fair, and will be competing at the State Level with my project entitled, "Does ripening affect the amount of DNA in fruit?" I was wondering if you could answer a few questions.

1. Is there a correlation between the ethylene hormone and the enzymes associated with ripening?
2. Does ethylene cause a fruit such as a banana to spoil?
3. Does ethylene trigger protein synthesis? In other words does the ethylene hormone have a direct correlation to DNA in the fruit.

Thank you for your time! (U.D.)

A. Here are my answers to your questions:

1. *Is there a correlation between the ethylene hormone and the enzymes associated with ripening?* It depends on whether ethylene is key to the ripening process. There are fruits that ripen with ethylene involvement and those that ripen without ethylene involvement. For something like banana, the answer would be yes. For a fruit such as strawberry, the answer would be no.

2. *Does ethylene cause a fruit such as a banana to spoil?* Spoilage is the last stage before death. Since ethylene will trigger the ripening process in banana then the fruit will rot faster than a banana not treated with ethylene. However, the untreated banana is not edible since it has not gone through the ripening process.

3. *Does ethylene trigger protein synthesis? Yes, especially in fruits which require ethylene for the ripening process. In other words does the ethylene hormone have a direct correlation to DNA in the fruit?* The correlation is not to



DNA, but to RNA levels which will then lead to protein synthesis.

--[Marita Cantwell](#)

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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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