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Director's Note

Welcome to a new year and new leadership in the Postharvest Technology Center! Trevor Suslow graciously introduced me as the new Director of the Postharvest Technology Center in the December E-news, and I am delighted and excited to take on this new role. While I do not have a formal extension appointment, I have been involved with the Center since joining the faculty of the Department of Plant Sciences in 2006, and I truly believe in the “cross-fertilization” between industry and academia. My research interest lies in molecular biology and biochemistry of plant volatile metabolism, with a specific focus on fruit aroma development and regulation. I am also interested in investigating the chemical determinants of flavor and developing methods for the rapid and objective assessment of fruit flavor quality. For these reasons, I am co-coordinator, along with my UC Riverside colleague, Dr. Mary Lu Arpaia, of our annual [Fruit Ripening & Ethylene Management Workshop](#), this year offered on April 2-3. I would be happy to see you there! We will cover topics on the importance of ripening programs, facilities and equipment, maturity and quality, sensory qualities, temperature management, retail, disorders and much more. We will also have demonstrations on sensory attributes, quality measurements and environmental equipment.

I would also like to take this opportunity to introduce our Associate Director, Angelos Deltsidis who graduated with his Ph.D. from the department of Horticulture Sciences of the University of Florida. His studies focused on the postharvest life of tomato fruit and how low temperature storage and



modified atmosphere packaging affect fruit quality. While a student at UF, Angelos also completed the Master of Agribusiness program of the Department of Food and Resource Economics. Currently, Angelos is an International Postharvest Specialist, a position split between the Horticulture Innovation Lab and the Postharvest Technology Center. He provides technical support on postharvest technology and physiology for international development projects and conducts lab research.

Recently, Angelos and I attended a mini symposium on The Food Value Chain in the Digital Age. **David Slaughter**, a Professor in Biological and Agricultural Engineering, and one of our Postharvest Technology Center Affiliate members, contributed a talk on Smart Farm: Creating the Farm and Farm Workers of the future. He discussed the advent of new technologies and how these have changed current agriculture practices. He presented technologies that took off during the past couple of decades (driverless pesticide sprayers, robots used for harvesting or as harvesting aid). He emphasized that the push for those innovations are unmet needs that are incentivizing the scientists and the industry to create solutions to these issues. This is an important topic that we will be following closely as more technologies become available. You can read more about it at this [link](#).

The last thing I want to announce is that our annual UC Davis Postharvest Technology of Horticultural Crops Short Course Scholarship application is now open. For 2019, we have one scholarship for the June 17-28 short course available for the recipient to learn first-hand about postharvest fundamentals, optimal handling and specific practices for key horticultural crops. This scholarship is intended to further the education of an individual pursuing a career in horticultural science who otherwise would not have the opportunity to participate in postharvest horticultural training in a developed country. We expect this individual to take the knowledge gained back to their home country to benefit others in the region. At least some level of matching funding is required from the applicant's government, institution, or other benefactor and should be described in the application.

Interested individuals who meet the criteria described above should apply through the Postharvest Technology Center website at [this link](#) no later than 11:59 p.m. (PST) on February 8, 2019.

The scholarship package (valued at least to a level of \$6,150) includes the following:

- Class registration for the two-week classroom and field-based course
- Course materials
- Hotel accommodations (single lodging)
- Meals
- Ground transportation from the Sacramento International Airport (SMF) or San Francisco International Airport (SFO)

The selected recipient shall be responsible for air travel to SMF or SFO, personal expenses, passport, travel visa, and other related costs not described above.

A panel of UC Davis Postharvest Specialists will review the applications. The selected recipient will be notified no later than February 28, 2019.

Postharvest Education at UC Davis

Registration is Open for April Fruit Ripening & Ethylene Management Workshop!



This popular workshop focuses on how to increase profits by reducing losses at the receiving end, and delivering ready-to-eat, delicious fruits and fruit-vegetables to the consumer. Topics will include ripening facilities and equipment, maturity and quality relationships, biology of ethylene production, sensory quality, temperature management, retail, psychological disorders and other losses and much more including sensory, quality and environmental demonstrations. Please visit the [website](#) for more information and to enroll.

[Enroll Here!](#)

Registration is Open for June Postharvest Technology Short Course!

This course is a two-week intensive study of the biology and current technologies used for handling fruits and vegetables in California. It is designed for research and extension workers, quality control personnel in the produce industry, and business,

government or academic professionals interested in current advances in the postharvest technology of horticultural crops..The website has more information and the opportunity to enroll.

[Enroll Here!](#)

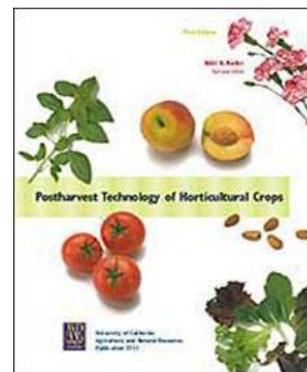
Featured Postharvest Bookstore Item

Postharvest Technology of Horticultural Crops

The third edition of our definitive manual on postharvest technology covers consumer issues in quality and safety, preharvest factors affecting fruit and vegetable quality, waste management and cull utilization, safety factors, and processing methods. The appendix presents a summary of optimal conditions and the potential storage life of 200 fruits and vegetables.

Edited by Adel Kader and written by 22 authors, including UC researchers, specialists, and faculty along with leading industry experts. This is an invaluable resource for research professionals, quality control personnel, and postharvest biology students – anyone involved in the technology for handling and storing fresh fruits, vegetables, and ornamentals, applicable worldwide. Contains 154 color photos, 184 black-and-white photos, and 111 graphs and illustrations. Use sale code PTHC20 to apply your 20% discount.

For a complete listing of all our publications, see our bookstore.



On Our Website

Stay up-to-date with the Postharvest Technology Center by joining our [LinkedIn Group](#).



New Publications on our Website

Debanjana Roy, Maeli Melotto 2019. [Stomatal response and human pathogen persistence in leafy greens under preharvest and postharvest environmental conditions](#). Postharvest Biology and Technology 148 (2019) 76-82

Ngoc T. Nham¹, Andrew J. Macnish¹, Florence Zakharov, Elizabeth J. Mitcham. 2016. ['Bartlett' pear fruit \(Pyrus communis L.\) ripening regulation by low temperatures involves genes associated with jasmonic acid, cold response, and transcription factors](#). Plant Science 260 (2017) 8–18

Irwin R. Donis-Gonzalez, C. Medina-Mora, S. Stadt, M. Mandujano and D.W. Fulbright, 2009. [The Presence of Mycotoxins after Ninety Days of Storage in Fresh Chestnuts](#). Proc. IVth Int'l Chestnut Symp. Acta Hort. 844, ISHS 2009

Seda Ersus, Mecit Halil Oztop, Michael J. McCarthy, and Diane M. Barrett, 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](#). Journal of Food Science Vol. 75, Nr. 7, 2010

Postharvest Opportunities



The [National Mango Board](#) has just announced a [Research Manager](#) position open through 1/31/19.

Summary: Under administrative direction from the Director of Research, manages, and engages in research related to mango product development, production, capacity, and customer demand by market segment and location; applies econometric modeling to test and apply theories; collaborates with other industry experts, representatives, and management team regarding developments and programs; and performs other related work as needed.

Postharvest Calendar

- April 2-3, 2019. Fruit Ripening & Ethylene Management. Davis, CA
- April 24-25, 2019. 40th Annual Citrus Postharvest Pest Control Conference & Citrus Food Safety Forum. Santa Barbara, CA
- June 17-28, 2019. Postharvest Technology of Horticultural Crops Short Course. Davis, CA
- September 17-19, 2019. Fresh-cut Products. Davis, CA
- November 9-13, 2020. 9th ISHS International Postharvest Symposium. Rotorua, New Zealand

Ask the Produce Docs



Q. Our team has been utilizing UC Davis' expertise in the cold storage of perishables and other commodities for the past several years and we have been very successful in implementing what we have learned in our own 50,000 SF (and growing) cold storage facility. We import fresh fruit and vegetables via the regional port and we pride ourselves on keeping the cold-chain of the product intact throughout the inbound / outbound process.

With the wide range of commodities that we are handling, ethylene outputs from the product have become an area of concern for us. We have recently purchased two high quality ethylene scrubbers, and have implemented them in the facility. However, we do not currently have a method of identifying the PPM of ethylene in the cold storage air.

Given your expertise, would you have any idea of a monitor or mobile monitoring device that exists to check ethylene levels? I have been searching for over a week now to no avail. Thanks for the assistance, and I truly appreciate the work you all do for the community. (C.G.)

A. Measuring ethylene contamination in storage areas remains a difficult task because the active levels of ethylene are so low (50 parts of ethylene in a billion parts of air, or even less). Several promising new developments for ultra-sensitive measurement using nano-technology have been reported in recent years, but none has yet come to the market place. Measurement at these low levels still requires expensive instrumentation, usually a gas chromatograph (\$20,000). Photoacoustic ethylene detection is extremely sensitive and reliable, but the equipment is even more expensive (\$40,000). Our recommendations for preventing the effects of ethylene in mixed storage are:

1. Maintain tight control of storage temperatures
2. Store ethylene-producing and ethylene sensitive products in different areas if at all possible
3. Ventilate each storage area with fresh air, drawn in from above the building, with a minimum flow of 1 air exchange per hour.

Michael Reid

Postharvest Questions. If you have a 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.

Frequency of Distribution. This publication is produced quarterly, or as special issues by the UC Postharvest Technology Center. For more information, we invite you to [visit our website](#) or [email us](#).

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