POSTHARVEST CENTER
UNIVERSITY OF CALIFORNIA

MARCH 2018

What's Key in this Issue

Director's Note

There is still time to enroll in the 24th Annual Fruit Ripening and Ethylene Management Workshop (April 10–11, 2018) being held on the UC Davis campus. This course covers the fundamentals of fruit ripening physiology, the role of ethylene as a positive and negative quality management factor, practical aspects and facility design and management of commercial ripening programs for major fruit categories, and an overview of analytical and non-destructive maturity, ripeness, sensory, and defect exclusion instruments and sensors. In addition, discussion sessions of consumer trends and preferences in retail and foodservice sectors are organized for lively interactive participation.

First Adel Kader Review Article Published

In relation to optimizing fruit ripening and managing ethylene ripening and senescence or quality defects along the supply and marketing chain, I would like to bring to your attention a recent review article covering global food loss and food waste. Proper attention to the principles and practical arts covered in the workshop highlighted above is very germane to this important topic. This advanced online review is the first of a new format for Postharvest Biology and Technology. The article, *Postharvest losses of fruit and vegetables during retail and in consumers' homes: Quantifications, causes, and means of prevention* by Ron Porata, Amnon Lichter, Leon Terry, Roger Harker, and Jean Buzby. Postharvest Biology and Technology 139 (2018) 135–149, contains a wealth of current information on this topic. This review is a rich resource of data, statistics from global sources, and valuable insights for policy makers, thought-leaders, and researchers seeking to provide solid and academically insightful and scholarly treatment of the subject for supporting innovative technical and socially relevant grant proposals.

One of the interesting topics, which fits well with the broader theme of the Workshop, is the relationship between days to allow for post-purchase ripening in consumer homes and food waste. The review emphasizes, consumer behavior in relation to the effects of texture loss, decay, and other defects that unsurprisingly, strongly influence consumer re-purchase decisions. There are no true novel insights here but the authors give us a well-written and organized focal point for addressing the issue of reducing food waste as an extension of reducing food loss in postharvest phases.

The authors conclude with a challenge to the research community that Adel would have echoed:

"In the present review we highlight the lack of coordinated postharvest research that addresses the interconnected networks of food supply chains "from farm to fork". In fact, the majority of postharvest research is currently conducted in isolation, without a full appreciation of the complex interactions and interdependent connections among postharvest biology and the influences of logistics and food supply-chain management systems."

"Postharvest scientists must also focus more deeply on understanding the ripening and senescence processes that occur in consumers' home refrigerators, including evaluation of the effects of retail packaging options that influence consumers' interpretations of food safety and their resulting decision making that lead to in-home waste."

The article is a great honor to Professor Adel Kader and is well worth the read.

Postharvest Education at UC Davis

Fruit Ripening & Ethylene Management Workshop

Need to get current on optimal fruit quality management?

Delivering optimum quality to the end user is especially important when dealing with ripened product. Ripening protocols need to be reliable, predictable and provide the maximum amount of marketable product. Ethylene can be your friend or foe in achieving this…**Can you deliver?**

Join the Postharvest faculty and invited expert speakers from academia and industry on the UC Davis campus for the 24th Annual Fruit Ripening and Ethylene Management Workshop (April 10-11, 2018). See registration link immediately below.

Learn how to increase profits by reducing losses in short-term storage, in transit, at receiving, and during retail display or foodservice short-term storage. This workshop is open to all, but

40th Annual Postharvest Technology of Horticultural Crops Short Course

Enrollments have just opened for the June 18-29, 2018 Postharvest Technology of Horticultural Crops Short Course. This course is a one- or two-week intensive study of the biology and current technologies used for handling fruits, vegetables and ornamentals in California.

The first week (Monday through Friday) is spent on intensive lectures and discussions as well as hands-on laboratory sessions on the UC Davis campus.

The optional second week (Monday through Friday) is an extensive field tour covering a wide variety of postharvest operations. Facilities last year included selected packinghouses, cooling and storage facilities, produce distribution centers, field harvest operations, packing, and transportation facilities in various

intended as entry-level awareness and education or a refresher for shippers and fruit handlers (wholesale and retail) who are involved in postharvest handling and ripening of fruits and fruit-vegetables. Procurement managers and officers, vendor category managers, and purchasing agents would also benefit from the workshop content.

For more information on technical content, please contact: Mary Lu Arpaia Ph.D. CE Subtropical Horticulturist.

For more registration information, please contact: Penny Ann Stockdale UC Postharvest Center Program Representative.

Enroll now.

locations in central and coastal California. A prerequisite for attendance on the field tour is attendance at the first week of the short course. The tour's first stop is in Sacramento, then the bus travels as far south as Bakersfield, continues west towards the Salinas and Monterey area, and then the final stops are in the San Francisco/Oakland area. The bus then returns participants to the UC Davis campus.

The enrollment fee is $2350 for the 1-week session, and $3350 (plus additional required lodging fees) for the 2-week session.

Enroll now.

FDA to test herbs and guacamole for food safety risk

In a preliminary test by the FDA of basil, cilantro, parsley and fresh prepared guacamole, seven out of 246 total samples tested positive for pathogens including Salmonella, disease-causing Listeria and toxigenic *E. coli*. Food safety experts note this is unsurprising as the absence of a kill step in fresh produce carries an innate risk of harboring harmful bacteria. Although healthy people are able to withstand a small amount of contamination, the very young, very old, and immune-compromised populations are markedly at risk of developing a potentially lethal foodborne illness.

In particular, the prevalence of positives on culinary herbs, such as cilantro, is not surprising based on data from past surveys. High numbers of positives in market-basket surveys have been associated with several commodities that have, what is often termed, multiple touch-points. Thus far, the current testing outcomes are lower than historical surveys, perhaps a reflection of better prevention programs. Low prevalence of *Listeria monocytogenes* in processed avocado/guacamole is disappointing, but not entirely surprising given the known frequency of positives on fruit used in processing and challenges industry is dealing with in general process environment Listeria management.

All bacterial pathogens currently being tested for presence/absence, which could be very few numbers of cells in these sensitive protocols, have the potential for growth on the culinary herbs, on precut avocado, and in guacamole at conducive temperatures. Because the FDA enforces a zero-tolerance policy in pathogen detection on fresh produce, producers and processors on a global scale should consider these findings a cue to revisit current cleaning and sanitation practices to protect public health and business integrity.

More testing is needed to understand the true public health risk of herbs and fresh prepared foods. Click here for a link to the original NPR story.

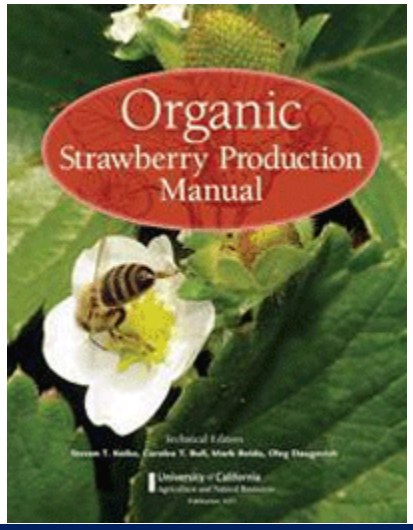
Heidi Meier

Featured Postharvest Bookstore Item

Sale! Receive 25% off Organic Strawberry Production Manual

Strawberries are one of the most important fruit crops in California. This helpful publication includes information on production, disease and pest management, postharvest handling, marketing, and the organic certification process.

Click here to go to the Strawberry Manual page in our bookstore. Use sale code 25Strawberry to apply your 25% 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

F. Tanamati, G. Hong and M.I. Cantwell 2016. Impact of storage temperatures and modified atmospheres on quality of fresh-peeled garlic cloves, ActaHortic. 1141. ISHS 2016. DOI 10.17660/ActaHortic.2016.1141.26 Proc. III Int. Conf. on Fresh-Cut Produce: Maintaining Quality and Safety

Seda Ersus, Diane M. Barrett 2010. Determination of membrane integrity in onion tissues treated by pulsed electric fields: Use of microscopic images and ion leakage measurements. Innovative Food Science and Emerging Technologies 11 (2010) 598–603

I.R. Donis-González, D.E. Guyer and R. Lu, 2016 Postharvest assessment of undesirable fibrous tissue(choking hazard) in fresh processing carrots using Vis/NIR hyperspectral images, ActaHortic. 1141. ISHS 2016. DOI 10.17660/ActaHortic.2016.1141.21 Proc. III Int. Conf. on Fresh-Cut Produce: Maintaining Quality and Safety

Postharvest Calendar

- April 10 & 11, 2018. **Fruit Ripening & Ethylene Management Workshop**. Davis, CA
- May 30 & 31, 2018. **Continuing Education for Produce Safety Educators Workshop**. Davis, CA
- June 18-29, 2018. **Postharvest Technology of Horticultural Crops Short Course.** Davis, CA, and Central CA
- September 18-20, 2018. **Fresh-cut Products Workshop.** Davis, CA

Ask the Produce Docs

Q. I've been trying to find an answer to a question about pesticides, and I'm wondering if you can help. A friend has the understanding that pesticides can be applied after harvest and still be called organic. Do you know if a product can legally be labeled as organic, if pesticides have been applied at any time--either before or after harvest? I'd greatly appreciate any knowledge you might be able to share! (K.M.)

A. A common misconception regarding both USDA Certified Organic production and other variant certifying programs of organic produce production and handling is that no pesticides are used. There are various Allowed, Restricted, and Prohibited materials defined by the National Organic Program that include various inorganic (such as copper, and sulfur) and natural organic (such as various plant extracts, essential oils, and other botanicals) pesticides but also allow various sanitizers and disinfectants with certain restrictions in dose and residue contact with non-food or food handling surfaces. Postharvest treatments of certain disinfectants or wash and cooling water treatments, such as chlorine, are allowed with restrictions for dose.

In general, pest control products for home garden in nursery retailers have clear labeling for their organic or Certified Organic status. The label below USDA Organic provides an easily recognized symbol. Other products that are made with natural pesticidal materials but have not sought USDA approvals may also be comparable in active and inert (carrier materials) ingredients. Always read the label.

Information Resources

National Organic Standards Board http://www.ams.usda.gov/AMSv1.0/nosb
Organic Materials Review Institute https://www.omri.org/
Organic Trade Association http://www.ota.com/standards/nosb/definition.html

Trevor Suslow

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.

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