



AUGUST 2017

## Director's Update

### A New Look and a New App...sort of

As we continue to pursue our roadmap for change in 2017, I am excited to introduce the new logo for the Postharvest Technology Center.



Our new icon and tagline above—aimed to declutter and refocus the Center's image—was borne of long hours driving around California over the past few months and deftly brought into reality by Heidi Meier, PTC communications and social media associate. Feel free to send Heidi a note ([hdmeier@ucdavis.edu](mailto:hdmeier@ucdavis.edu)) if you like it (or don't) as she is my firewall on this from critics. Nah, bring it on...I like the new logo.

Note: For various official printed materials, we are obliged to use a standardized logo format, which is in development at levels higher than my pay grade, associated with the UC Davis College of Agriculture and Environmental Sciences, Department of Plant Sciences, and UC Division of Agriculture and Natural Resources.

We are also happy, finally, to announce the availability of the very popular **Produce Facts App for Android**. The app, first released in January to iPhone users, is now available to Android carriers. An updated version of the iPhone Produce Facts App, which features improved navigation and user experience design, is available in the iTunes App Store and can be found by searching "Produce Facts."

**To download the app for Android devices**, search "UC Produce Facts" in the Google Play Store.

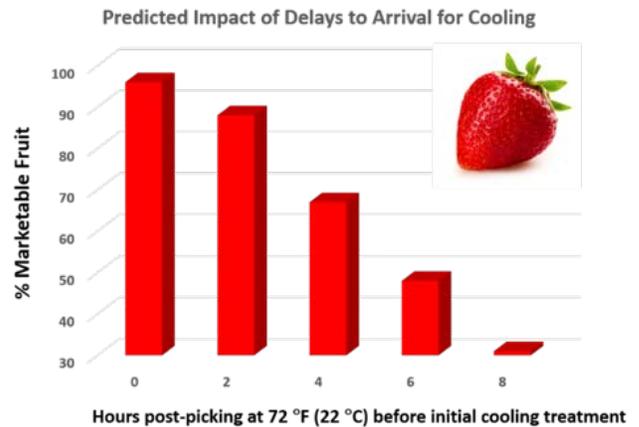
App content is free and includes optimum storage recommendations, maturity and quality indices, and physiological and physical disorder identification tools for 132 fruits, vegetables, and ornamentals. Users can choose to view content in English, Spanish, or French and do not need an internet connection to access the information.

---

On a more technical note... occasionally we are asked to help interpret quality and decay issues following a potentially problematic transit from shipping point to receiver. Unfortunately, data from load-distributed temperature recording devices are not always available to document the cumulative history of highway trailer temperatures during transit. In some cases, the development of decay is an adequate record of the intimate environmental temperature profile that product experiences across a load. The extent of incipient and advanced decay or superficial mold development, can provide compelling evidence to support or question reported Time:Temperature profiles. Although natural variability is certainly expected, controlled studies provide fairly predictable windows of decay progression for many postharvest pathogens. Arguably in clear cut cases, it may be stated with a high degree of confidence that "You can't experience this degree of advanced decay, in this short a time, and these measured arrival pulp temperatures in the absence of a predisposing issue pre-shipping."

In the absence of data to the contrary, this was undoubtedly the case with a fairly recent disagreement over the responsibility for extensive *Botrytis cinerea* decay of strawberries. In fact, there were other decay pathogens present but I will limit this note to the Grey Mold as evidence for decay development at varying holding temperatures. The bottom line is that the available research, though mostly from older published studies, would not support extensive decay lesion diameter and aerial sporulation in clamshells in three days, even with pulp temperatures averaging 44°F (6.7°C). A predisposing factor and pre-shipping initiation of decay development, possible with *B. cinerea* even at typical loading pulp temperatures of 37°F (3°C), would seem a likely root-cause.

In this situation, it isn't reasonable to consider a scenario for significant warming in transit to advance decay development followed by re-cooling in a highway trailer with a palletized load of clamshells. While not involved in any follow-up assessment, delays to cooling during periods of cool-night and rapidly rising day temperature may be involved in the unexpectedly rapid decay development observed. To the right is a reproduction of data reported many decades ago that remains the general industry experience with strawberries. You can find more information on postharvest handling of strawberries at our website under the Produce Facts tab or by using the Produce Facts App.



## Postharvest Education at UC Davis

### Fresh-cut Products: The Science and Art of Quality and Safety Tuesday-Thursday September 26-28, 2017



Enroll today!

This workshop, held on the UC Davis campus, provides an intensive and substantive overview of fresh-cut product physiology, production, hygienic facility and equipment design, basic and commodity-specific processing, wash water management, film and packaging design principles and practical selection, sensory evaluation, and distribution. Participants will **gain working knowledge of established and new procedures** through topic-related and interactive sessions and demonstrations. Our practical demonstration on the impact of temperature on packaged product quality reinforces all of the temperature-related discussions.

New for 2017 will be a **dynamic panel session** with industry leaders discussing operational challenges and keys to success.

For those new to the industry, taking on more operational responsibilities, or buyers looking to better understand and manage suppliers, between lectures, demonstrations and discussions, you will be **well-prepared to tackle today's fresh cut challenges**.

Please visit the Postharvest Technology Center [website](#), for more information, and to [enroll online](#). If you have any questions about enrollment, please contact the registration coordinator, Penny Stockdale at [pstockdale@ucdavis.edu](mailto:pstockdale@ucdavis.edu) or 530-752-6941.

Visit our YouTube channel to see a short compilation of video clips from past years.



#### Produce Safety Alliance Grower Training November 7, 2017

This course presents an integrated approach to understanding Food Safety Modernization Act specifications by blending fundamental, applied, and practical food safety knowledge. Completing this course satisfies the FSMA Produce Safety Rule training requirement outlined in § 112.22(c).

Registration is now open!

[Read More](#)



#### Advanced Produce Safety Workshop November 8-9, 2017

An interactive two-day workshop with a focus on microbial produce safety systems from preharvest to postharvest. This workshop aims to build a foundation of awareness and improved understanding of the current scientific basis for produce microbial safety systems.

Registration is now open!

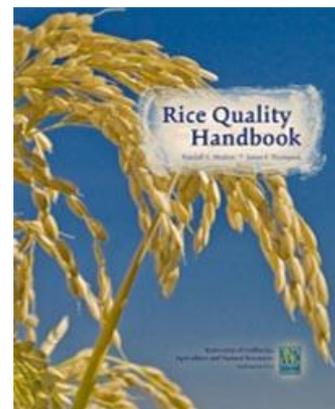
[Read More](#)

## Featured Postharvest Bookstore Item

### Sale! Receive 20% off the Rice Quality Handbook

This new 141 page handbook provides detailed information on how to produce high-quality rice from planting to postharvest. It was written primarily for the Sacramento Valley rice industry, but worldwide rice operations, including growers, buyers, operators of dryers, warehouses, and processing operations, will benefit from this handbook. It is illustrated with 39 color photographs, 58 graphs, and 35 line drawings.

Click [here](#) to go to the grain page in our bookstore. Use sale code 20RICE to apply your discount. For a complete listing of all our publications see our [bookstore](#).



## Postharvest Specialists' Updates & Other News



### TVS Travels

The Final Release of the [REPORT ON AGRICULTURAL WATER TESTING METHODS COLLOQUIUM](#) April 6 & 7, 2017 was presented and discussed at the Western Growers Food Safety, Science, and Technology Committee in Newport Beach, CA by Bonnie Fernandez-Fenaroli, Executive Director of the Center for Produce Safety; Trevor and Hank Giclas, WG Senior Vice President Science, Technology & Strategic Planning. Susan Leaman, Vice President of iDecisionSciences, LLC, was engaged by WG as the Colloquium "scribe" during the panel meeting and assembled the primary draft of the report on behalf of the group.

Trevor also participated in the YUM! Taco Bell Produce Industry and Fresh Processor Round-Table in Monterey, CA, which featured a Keynote talk by Bill Marler, and review of the FDA Listeria Guidance and produce industry comments submitted during the public comment period. The meeting included extended discussions of impacts of Whole Genome Sequencing (WGS) by FDA and state public health agencies and applications of WGS and associated industry technologies.

## On Our Website

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



### New Publications on our Website

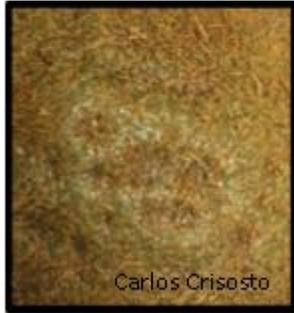
David Obenland, Marita Cantwell, Ramiro Lobo, Sue Collin, Jim Sievert, Mary Lu Arpaia 2016. [Impact of storage conditions and variety on quality attributes and aroma volatiles of pitahaya \(Hylocereus spp.\)](#), Scientia Horticulturae 199 (2016) 15-22.

A.I. Deltsidis, E.D. Pliakoni, E.A. Baldwin, J. Bai, A. Plotto and J.K. Brecht, 2015. [Tomato Flavor Changes at Chilling and Non-Chilling Temperatures as Influenced by Controlled Atmospheres](#), Proc. XIth Int. Controlled and Modified Atmosphere Research Conf. Eds.: M.L. Amodio and G. Colelli, Acta Hort. 1071, ISHS 2015, 703-710.

## Postharvest Calendar

- September 26-28, 2017. [Fresh-cut Products: The Science and Art of Quality and Safety](#). UC Davis Campus
- October 17-20, 2017. [International Postharvest Unlimited Conference \(ISHS\)](#). Madrid, Spain
- November 7, 2017. [Produce Safety Alliance Training](#). Davis area
- November 8-9, 2017. [Advanced Produce Safety Workshop](#). Davis area
- November 29-December 1, 2017. [IX Congreso Iberoamericano de Tecnología Postcosecha y Agroexportaciones](#). Santiago, Chile

## Ask the Produce Docs



Q. I'm a fruit inspector in South America. This week I inspected a load of kiwifruit from another South American country and noted small dimples on much of the fruit. What might have caused this? (H.)

A. I have observed kiwifruit skin pitting related to different kiwifruit crop management and handling procedures:

- Foliar calcium formulation applied during fruit development.
- Skin freezing damage during precooling using low temperature during forced air cooling on low maturity fruit.
- Skin dehydration during precooling on fruit cooled for long periods of time and/or using high air speed in relation to fruit weight. Usually, this happens when forced air tunnels are being used below their full pallet loading capacity. For example, your tunnel can have 10 pallets per lane on each side, which is operating about 2CFM/lb—at full capacity (20 pallets). If you load only 10 pallets (5X5), you are running at 4 CFM/lb and air velocity across your product increases. I have observed a lot of damage in green grapes, nectarines and kiwifruit under these conditions. In some operations with variable fan speed management, they adjust the fan delivery to prevent product injury. However, this is not a common practice in many countries.
- After brushing of fruit immediately cooled down to near 34-36° F, then immediately packed. Kiwifruit is less prone to skin pitting damage as a consequence of brushing when it is packed warm or brushed after some time in cold storage. This skin pitting can become a problem when freshly harvested fruit is precooled down to low temperatures immediately before brushing and packed using modified atmosphere packaging (MAP).
- Low fruit temperature exposure for long periods during storage and/or shipment. This becomes more pronounced in low maturity fruit.

Additionally, the fungal organism *Cadophora luteo-olivacea* also influences skin pitting of kiwifruit ('Hayward') under certain conditions.

Carlos Crisosto [chcrisosto@ucdavis.edu](mailto:chcrisosto@ucdavis.edu)  
Director, UC Fruit & Nut Research & Information Center

## End Notes and Disclaimers

**Postharvest Questions.** If you have a postharvest question you'd like answered, please send it to [postharvest@ucdavis.edu](mailto: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](#).

**Subscribe/Unsubscribe.** If you or a colleague wish to receive this free monthly e-newsletter, [click here](#) to subscribe. If you no longer wish to receive this publication, please click on "reply" to this email and type "unsubscribe" in the subject line.

**Copyright/Legal Notices.** Kindly observe all [copyright and legal notices](#).

**Editorial Review.** Heidi Meier, Trevor Suslow

**Coordinating Publisher.** Pam Devine

*The University of California does not discriminate in any of its policies, procedures, or practices. The University is an affirmative action/equal opportunity employer.*

