



OCTOBER/NOVEMBER 2019

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### Director's Note

Our Fresh-cut Products: Maintaining Quality & Safety Workshop was a great success! We had about 50 people attend and they enjoyed both the lectures and hands-on demonstrations. Fresh-cut processing of fruits and vegetables increases their perishability and shortens their shelf life. This is mostly because of higher respiration rates, indicating a more active metabolism. Low temperature in storage, transportation and display is therefore critical to reduce respiration rates, slow down microbial growth, and in order to maintain the quality of fresh-cut products. This ultimately means there is less time for these products to reach the consumer after production, typically 10-14 days, compared to whole fruits and vegetables, which can typically be stored for longer time. During the hands-on demonstrations at our Fresh-cut Workshop, participants were able to experience the effects of temperature abuse on a variety of both commercially available and custom-made packages of fresh-cut fruits and vegetables. The products were packed using different packaging technologies and had been stored at different temperatures (0, 5, and 10°C; 32, 41 or 50°F) for 7 or 11 days. Participants were able to perform direct comparisons for all the temperature treatments and assessed their quality using a quality scale table.



*Center Director  
Florence Zakharov*

Please enjoy this short video recap of this year's Fresh-cut Workshop:



On another note--some exciting news—our very own Beth Mitcham was a featured guest on Good Morning America earlier last month! She discussed food waste with GMA's Becky Worley "Can 'ugly' food save you a pretty penny?" [Visit GMA.](#)

### Updated Publication News

We know you saw this in the last newsletter, but we could really use your input here. And now we have incentive! **We are giving away a \$50 Postharvest Technology Center bookstore credit to one lucky respondent.**

The 4th edition of Postharvest technology of Horticultural Crops will be available within the next 12 months. The entire book has been updated with the latest postharvest handling technology and practices. In addition four other UC ANR extension publications have been incorporated into the next edition. Commercial Cooling of Fruits, Vegetables, and Flowers and leaflets on highway, marine and air transport all have been revised and incorporated into two expanded chapters. The updates and added material have made the text significantly longer and the 4<sup>th</sup> Edition will be offered as a series of ten books.

1. Preharvest and Postharvest Operations
2. Cooling and Storage
3. Atmospheric Environment
4. Quality Evaluation
5. Disease and Insect control
6. Transportation and Destination Handling
7. Vegetable Crops, Herbs and Flowers
8. Fruit Crops and Tree Nuts
9. Fresh Cut Products and Processing
10. Extension Methods and Capacity Building

**We still need your help!**

We are soliciting input from you on how the forthcoming 4<sup>th</sup> Edition of Postharvest Technology of Horticultural Crops publication is organized and priced. Please take less than **5 minutes** to complete this survey – we appreciate your assistance, and you could be chosen to win \$50 to spend in the Postharvest Technology Center bookstore!

### Postharvest Education at UC Davis

We have our three signature workshops on the books for 2020. The Fruit Ripening & Ethylene Management workshop is scheduled for March 31-April 1, the Postharvest Technology of Horticultural Crops Short Course is scheduled for June 16-27 and the Fresh-cut Products: Maintaining Quality & Safety is scheduled for September 22-24. We hope you will consider joining us for one or more of these great workshops. Look for registrations to open later this year or early 2020.

### On Our Website

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



### New Publications on our Website

Crisosto, C.H., L. Ferguson, J.E. Preece, T.J. Michailides, M.T. Haug, M. López Corrales and G.M. Crisosto. 2017. [Developing the California fresh fig industry](#). 2017. Acta Hortic. 1173. ISHS 2017. DOI 10.17660/ActaHortic.2017.1173.49.

## Postharvest Employment Opportunities



Plenty is an indoor vertical farm on a mission to give people in local communities everywhere access to the freshest, most amazing tasting produce possible—and to do so in a way that's better for the planet. We are currently hiring for a Director, Post-Harvest Physiology to build a world-class postharvest lab in our Laramie, Wyoming facility. Please learn more [here](#) and apply [here](#).



Cambridge Crops is a fast-moving, venture backed, B2B start-up focused on innovations in the food, agriculture, and packaging industries.

We are looking at hiring for a Scientist Position. Post-harvest physiology would be ideal but are pretty flexible, we really need help with experimental design and execution on the more "bio" side of things.

If interested in applying to the Cambridge Crops team, please see the job description [here](#) and submit your CV/resume and a brief cover letter to Adam Behrens at [adam@cambridgecrops.com](mailto:adam@cambridgecrops.com).

## Postharvest Calendar

- March 9-10, 2020. [GFIA Abu Dabi](#), Abu Dabi, UAE
- March 31-April 1, 2020. [Fruit Ripening & Ethylene Management](#). Davis, CA
- June 15-26, 2020. [Postharvest Technology of Horticultural Crops Short Course](#). Davis, CA
- September 22-24, 2020. [Fresh-cut Products: Maintaining Safety and Quality](#). Davis, CA
- November 9-13, 2020. [9th ISHS International Postharvest Symposium](#). Rotorua, New Zealand

## Ask the Produce Docs



Q. Are modified/controlled atmospheres useful for pumpkins and winter squash? We want to store pumpkins longer than we can achieve currently with just ambient temperature storage.

A. First, there are many factors that affect the postharvest storage potential of pumpkins and winter squash. Production conditions, variety, careful harvest to avoid injury to the stem end and fruit surface, and adequate curing all contribute to obtaining good storage life. For short periods (1-2 months), pumpkins and winter squash can be stored in the range of 10-25C (50-77F), but after this initial period, chilling symptoms may appear on those stored as low as 10C and excessive water loss and surface drying will appear on those stored at 20-25C. The recommended storage temperature is 15C (59F) as noted in the updated [Produce Facts on Pumpkins and Winter Squash on our website](#).

Long before exploring the use of a more costly technology such as controlled atmospheres, you should work on optimizing the storage temperature of the pumpkins—15C is a good target storage temperature. After doing that, the focus should be on managing relative humidity. Generally about 70% RH will provide a good balance between minimizing weight loss and favoring decay organisms. To my knowledge, controlled or modified atmospheres are not used on winter squash and

pumpkins. There is limited research in this area. A recent study at the University of Georgia compared CA (3%O<sub>2</sub> + 5%CO<sub>2</sub>) stored fruit with ambient conditions (air) and found the former to yield more marketable fruit after 2-3 months. However, the CA was conducted at 10C, so the positive effect was a combination of temperature and CA. In other tests on winter squash, atmospheres with about 7% CO<sub>2</sub> helped reduced degreening, but this would be of little benefit to pumpkins harvested at full color.

Marita Cantwell

**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 regularly, or as special issues by the UC Postharvest Technology Center.

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