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Director's Note

Welcome to 2021! With the start of the new year, we look forward to 2021 with optimism for a brighter future. At the Postharvest Technology Center, we are planning for our 2021 workshops. This spring, we will be offering our Fruit Ripening and Ethylene Management Workshop virtually. Stay tuned for dates and the opening of registration. We have not made a final decision about our signature Postharvest Technology of Horticultural Crops Short Course, usually offered at UC Davis at the end of June. We are still hopeful we can offer this course in person, but it is likely to be offered virtually once more.

Looking to the fall, we are planning our 2021 Fresh Cut Products: Maintaining Quality and Safety Workshop in September and a new workshop, Produce Safety Program Implementation Tools, in November.

We hope to see you at one of our events this year!

Beth



*Interim Director,
Beth Mitcham*

Postharvest Education at UC Davis

Fruit Ripening and Ethylene Management Workshop

Spring, 2021 Virtual Workshop (Details to follow)



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, physiological disorders and other losses, and demonstrations on measuring sensory quality, instrumental quality, and environmental parameters. Please visit our [website](#) for more information.

[**Click Here for More Information!**](#)

Postharvest Technology of Horticultural Crops Short Course

2021 Course details to follow



This course is an intensive study of the biology and current technologies used for handling fruits, nuts, vegetables and ornamentals 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. Following the lecture and demonstration portion of the course is an optional video tour of postharvest operations in California. Please visit the [website](#) for more information.

[Click Here for More Information!](#)

Our Website & Social Media

Postharvest Highlights New Publications on our Website

Highlights of the two newest journal articles available on our website are provided below:

Marta Balsells-Llauradó, Christian J. Silva, Josep Usall, Núria Vall-Ilaura, Sandra Serrano-Prieto, Neus Teixidó, Saskia D. Mesquida-Pesci, Antonieta de Cal, Barbara Blanco-Ulate and Rosario Torres. 2020. [Depicting the battle between nectarine and Monilinia laxa: the fruit developmental stage dictates the effectiveness of the host defenses and the pathogen's infection strategies](https://doi.org/10.1038/s41438-020-00387-w). *Horticulture Research* (2020) 7:167 <https://doi.org/10.1038/s41438-020-00387-w>.

This is an excellent article describing a study into the responses of an important fungal pest, Monilinia laxa, and the nectarine fruit it attacks. Monilinia laxa is the primary cause of brown rot decay of stone fruit in Europe, while in the United States the primary organism is Monilinia fructicola. The detailed study shows how the response of the fungus and the fruit changes depending on the ripeness stage of the fruit, and identifies fungal genes that were highly induced in quiescent and active infections that may be good targets for control of brown rot decay in the future.

Ahmed M. Rady, Daniel E. Guyer², Irwin R. Donis-González, William Kirk, Nicholas James Watson. 2020. [A comparison of different optical instruments and machine learning techniques to identify sprouting activity in potatoes during storage](https://doi.org/10.1007/s11694-020-00590-2). *Journal of Food Measurement and Characterization* (2020) 14:3565–3579 <https://doi.org/10.1007/s11694-020-00590-2>.

Sprouting of potatoes during storage reduces shelf life and increasing sugar content which can lead to browning in fried potato products. Sprouting originates from the meristematic regions of the tuber, the “eyes”. This study compared the capabilities of three different optical systems (1: visible/ near-infrared (Vis/NIR) interactance spectroscopy, 2: Vis/NIR hyperspectral imaging, 3: NIR transmittance) and machine learning methods to detect sprouting activity in potatoes. The highest classification accuracy values obtained by the hyperspectral imaging system and was 87.5% and 90% for sliced and whole samples, respectively. This study provides a first step toward developing a handheld optical device for early detection of sprouting activity, enabling advanced potato storage management.

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Postharvest Opportunities



ORGANIC FARMING RESEARCH FOUNDATION

Fostering the improvement and widespread adoption of organic farming.

The OFRF Education and Research Program Manager is a full-time, benefitted, exempt position. While the organization is based in Santa Cruz, CA, this position has the ability to work remotely. The Education and Research Program Manager supervises the Education and Research Program contractors and reports to the Executive Director. Responsibilities include:

- Manage and implement OFRF research and education projects and programs
- Provide scientific oversight of OFRF research grant program

Please [click here](#) for more information and to apply.

Postharvest Calendar

- Spring, 2021. **Fruit Ripening & Ethylene Management Workshop**. UC Postharvest Technology Center. A virtual offering is expected. Details to follow.
- May 5-6, 2021. Western Food Safety Summit. Hartnell College. Offered virtually. westernfoodsafetysummit.com
- Summer, 2021. **Postharvest Technology of Horticultural Crops Short Course**. UC Postharvest Technology Center. Details to follow.
- September 28-30, 2021. **Fresh Cut Products: Maintaining Quality and Safety Workshop**. UC Postharvest Technology Center, Davis, CA
- November 2021. **Produce Safety Program Implementation Tools**. UC Postharvest Technology Center, Davis, CA. Details to follow.
- January 18-20, 2022. **Aligning the Food System - Emerging technologies to address grand challenges in the produce industry**. UC Postharvest Technology Center. Davis, CA

Ask the Produce Docs



Q. We want to improve our logistics and packaging material; do you know where we can gather knowledge / research / data on packaging strength (cardboard material) that is required for packaging fruit and vegetables. Necessary strength of packaging material in relation to:

- Product Weight
- Transportation Distances
- Humidity

(A.B.)

A. Strength of a package is related to the strength of the packaging material and also the design of the package. In many situations a weaker material will produce acceptable strength in a package if the design incorporates more material in crucial weight bearing areas of the package. As you mention, humidity, product weight and time in the refrigerated handling chain are also factors affecting the strength of corrugated fiberboard. Because of all these interrelated factors it is not possible to specify a specific minimum material strength for produce packages. Packaging manufacturers often have experience with the performance of their packages in the cold chain and can develop an acceptable design for most situations. The best way to determine if a package design is adequate is to test it in a packaging laboratory. There are a number of accepted standard protocols for this type of testing.

--Jim Thompson

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

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Editorial Review. Beth Mitcham

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