



October 2007 News from UC Davis Postharvest Technology

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What's New on the Web this Month

French Produce Facts translation activity included the following eight commodities that were added to our Web site: [Melon Cantaloupe](#), [Le Kiwi](#), [Abricot](#), [Melon Honeydew](#), [Néfle du Japon](#), [Longani](#) (oeil du dragon), [Pêches et Nectarines](#), and [Litchi](#).

Spanish Produce Facts translation activity included four ornamentals: [Buardia](#), [Guisante de olor](#), [Ave del Paraíso](#), and [Clavel de Poeta](#).

We added fifteen new articles to our "[Postharvest Publications Organized by Topic](#)" data store:

- "[Packaging Bartlett Pears in Polyethylene Film Bags to Reduce Vibration Injury in Transit](#)," by D. C. Slaughter, J.F. Thompson, R.T. Hinsch. American Society of Agricultural Engineers 98:4101-4107 (1998)
- "[Role of Abscisic Acid in Perianth Senescence of Daffodil \(*Narcissus pseudonarcissus* 'Dutch Master'\)](#)" by Donald Alexander Hunter, Antonio Ferrante, Paolo Vernieri, and Michael Stuart Reid. Physiologia Plantarum 121:313-321 (2004)
- "[Role of Ethylene in Perianth Senescence of Daffodil \(*Narcissus pseudonarcissus* L. 'Dutch Master'\)](#)," by Donald A. Hunter, Mingfang Yi, Xinjia Xu, Michael S. Reid. Postharvest Biology and Technology 32:269-280 (2004)
- "[Identification of Genes Associated with Perianth Senescence in Daffodil \(*Narcissus pseudonarcissus* L. 'Dutch Master'\)](#)" by Donald Alexander Hunter, Brian Cameron Steele, Michael Stuart Reid. Plant Science 163:3-21 (2002)
- "[Molecular Changes Occurring during Acquisition of Abscission Competence following Auxin Depletion in *Mirabilis jalapa*](#)," by Shimon Meir, Donald A. Hunter, Jen-Chih Chen, Vita Halaly, and Michael S. Reid. Plant Physiology 141:1604-1616 (2006)
- "[Carbohydrate Traffic During Opening of Gladiolus Florets](#)," by Kimani Waithaka, Linda L. Dodge, and Michael S. Reid. Journal of Horticultural Science & Biotechnology. 76:120-124 (2001)
- "[1-Methylcyclopropene Treatment for Efficacy in Preventing Ethylene Perception in Banana Fruit and Grevillea and Waxflower Flowers](#)," by A. J. Macnish, D.C. Joyce, D.H. Simons, and M.S. Reid. Australian Journal of Experimental Agriculture. 40:471-481 (2000)
- "[Carbon Balance and Ethylene in the Postharvest Life of Flowering Hibiscus](#)," by Michael S. Reid, Bernd Wollenweber, Margrethe Serek. Postharvest Biology and Technology. 25:227-233 (2002)
- "[Ethylene and Postharvest Performance of Potted Kalanchoë](#)," by Margrethe Serek, Michael S. Reid. Postharvest Biology and Technology. 18:43-48 (2000)
- "[Efficacy of 1-MCP \(1-methylcyclopropene\) and Promalin for Extending the Post-Harvest Life of Oriental Lilies \(*Lilium* x 'Mona Lisa' and 'Stargazer'\)](#)," by Fisun G. Çelikel, Linda L. Dodge, Michael S. Reid. Scientia Horticulturae 93:149-155 (2002)
- "[Temporal Analysis of Alpha and Beta-Expansin Expression during Floral Opening and Senescence](#)," by Timothy E. Gookin, Donald A. Hunter, Michael S. Reid. Plant Science 164:769-781 (2003)

- “[Genes Associated with Opening and Senescence of *Mirabilis jalapa* Flowers](#),” by Xinjia Xu, Tim Gookin, Cai-Zhong Jiang, and Michael Reid. *Journal of Experimental Botany*. 58:2193-2201 (2007)
- “[Carbon Dioxide-induced Flesh Browning in Pink Lady Apples](#),” by Elana de Castro, Bill Biasi, and Elizabeth Mitcham. *J. Amer. Soc. Hort. Sci.* 132:713-719 (2007).
- “[Ten-Year Comparison of the Influence of Organic and Conventional Crop Management Practices on the Content of Flavonoids in Tomatoes](#),” by Alyson E. Mitchell, Yun-Jeong Hong, Eunmi Koh, Diane M. Barrett, D.E. Bryant, R. Ford Denison, and Stephen Kaffka. *Journal of Agricultural and Food Chemistry*. 55:6154-6159 (2007)
- “[Nonenzymatic Degradation of Citrus Pectin and Pectate during Prolonged Heating: Effects of pH, Temperature, and Degree of Methyl Esterification](#),” by Jerome V. Diaz, Gordon E. Anthon, and Diane M. Barrett. *Journal of Agricultural and Food Chemistry*. 55:5131-5136 (2007)

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Postharvest Workshops @ UC Davis

Though our 2007 Postharvest Workshops were well received, we are exceptionally excited about our 2008 Workshops. The UC Davis campus’s [Centennial](#) celebratory spirit will pervade all of our planned workshops, especially the 30th Annual Postharvest Technology Short Course and the planned 30th Anniversary Postharvest Celebration and Colloquia: Charting New Directions and Honoring 30 Years of Excellence. We plan to post registration information for all our 2008 Workshops by mid-December.

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Postharvest Specialists’ Activities

Carlos Crisosto’s October issue of the **Central Valley Postharvest E-newsletter** is available at: <http://www.uckac.edu/postharv/new-CVPN.htm>

The new **Center for Produce Safety** at the University of California, Davis, has named [Dr. Devon Zagory](#) as interim Executive Director. The center was established earlier this year to work with the agricultural and food industries, government regulatory agencies, trade associations, research institutions, and consumer groups to enhance the safety of fresh fruits and vegetables through research, education, and information exchange. Initial funding for the center came from a coalition of the Produce Marketing Association, Taylor Farms of California, the California Department of Food and Agriculture, and the University of California.

UCD PTRIC Members Play Key Role at the 1st International Lettuce & Leafy Greens Food Research Symposium. UCD PTRIC members Dr. Linda Harris, Dr. Trevor Suslow and Dr. Jim Gorny participated with more than 70 researchers from government, academia and industry at the 1st International Lettuce and Leafy Greens Food Safety Research Symposium in the Washington, D.C. on September 20 and 21st. The Symposium was cooperatively organized by the University of California-Davis Postharvest Technology Research and Information Center, United Fresh Produce Association Research and Education Foundation, U.S. Food and Drug Administration Center for Food Safety and Applied Nutrition, USDA Agricultural Research Services and University of Florida Institute of Food and Agricultural Sciences. Support for the research symposium was generously provided by Fresh Express and Dole Fresh Vegetables.

The two-day conference was focused on developing a common understanding of leafy greens food safety research priorities among all stakeholders and thus ensuring that limited research funds are devoted to the most critical needs. Dr. Steve Gendel of FDA CFSAN and Dr. Jim Gorny Executive Director of the UCD PTRIC provided keynote addresses, covering a review of the current scientific literature regarding lettuce and leafy green safety food safety research and current industry practices, contamination possibilities and preventative measures, respectively. After the keynote addresses participants worked in breakout groups and then met in a plenary session to develop a single prioritized list of lettuce and leafy greens food safety research priorities. An overarching theme of the participants was the need to focus current and future research on development of effective, practical and easy to implement that reduce risk and immediately enhance the safety of this produce category. In opening the conference, Dole Foods Company President and CEO David DeLorenzo said the value-added salad category has no greater challenge than eliminating the risk of contamination to this product category. He cited the public health benefit in recent years from increased leafy greens consumption with the

advent of convenient bagged products, but said those health gains were at risk due to consumer fears. [Click here](#) for a complete bibliography of research references on the safety of lettuce and leafy greens.

UCD PTRIC Engaged in Industry Discussions to Enhance Produce Food Safety. Jim Gorny, Ph.D. Executive Director of PTRIC was an invited speaker at a joint meeting the United Fresh Produce Association Food Safety & Technology Council and the Food Marketing Institute Food Protection Committee in Monterey California to discuss key food safety issues facing the fresh produce industry. Dr. Gorny briefed the group of more than 70 technical experts from the retail and produce industries on 'Leafy Greens Practices, Possibilities and Controls.' The group also discussed the workings of the California Leafy Greens Marketing Agreement and the role of microbiological testing in assuring the safety of fresh produce. Dr. Gorny also participated in meeting of the California Leafy Greens Marketing Agreement Technical Committee, of which he is a member, in Salinas, CA after the joint produce industry and retail technical committee meeting.

UCD PTRIC Members Provide Educational Outreach at PMA Fresh Summit. UCD PTRIC members Dr. Christine Bruhn and Dr. Jim Gorny were both invited speakers at the Produce Marketing Association Fresh Summit October 12-15, 2007 in Houston, Texas. Drs. Bruhn and Gorny participated in a session entitled "Putting New Food Safety Technologies to Work for You". Dr. Bruhn addressed the potential role that irradiation may play in assuring produce food safety and consumer perceptions of this technology, while Dr. Gorny discussed the role of microbiological testing in assuring produce safety. Dr. Roberta Cook led four UCD students to the PMA Convention: Anika Singla (Food Science); Jacob Cutler (Ag and Resource Economics); Brittany Hazard (Plant Sciences); and Phillip Huppe (Ag and Resource Economics). These students were winners of The Pack Family/PMA Career Pathways Scholarship. The all expense-paid scholarship is designed to expose and attract top student talent to career opportunities in the fresh produce industry. This is the fourth year that Dr. Cook has led UCD students to the convention.

UCD PTRIC Provides Postharvest Handling Education Outreach in Mexico. Dr. Marita Cantwell of the UCD PTRIC was an invited speaker and coordinator for a workshop on postharvest handling entitled "Mejores Prácticas de Manejo de Vegetales: De la Producción en el Campo a su Venta en el Supermercado" sponsored by Western Growers and the California Agricultural Export Council in Monterrey, Mexico October 10-11, 2007. Dr. Cantwell led workshop participants in discussing means to enhance the quality and marketability of fresh produce, focusing on products from California imported by Mexico. A follow-up workshop will be conducted on Nov 22-23, 2007. These workshops are part of an annual educational effort for supermarket chains and distribution centers in Mexico conducted since 2001.

UCD PTRIC and WIFSS Sponsor Treefruit/Treenut National Food Safety Research Symposium. PTRIC affiliates Drs. Linda Harris, Trevor Suslow and Jim Gorny organized, participated in and lead a two day national food safety research symposium for the treefruit and treenut industries October 17 & 18, 2007, at the California Farm Bureau Federation in Sacramento, CA. Professionals from the treefruit and treenut industries, agricultural extension, government and academic research institutions were invited to discuss current production practices, potential contamination risks and controls as well as existing food safety research efforts. The purpose of the meeting was to identify food safety data gaps and prioritize commodity and regionally-specific research that could potentially assist in development of science based pre-and post-harvest food safety best practices. The organization of the conference was a collaborative effort among the UC Davis Western Institute for Food Safety and Security, the UC Davis Postharvest Technology Research and Information Center, treefruit and treenut industry representatives and various academic research institutions.

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Featured Postharvest Publications

This month we are offering a 20% discount on our popular "Small Scale Postharvest Practices: A Manual for Horticultural Crops" available in [English](#) (\$24.00), [Spanish](#) (\$24.00), [Arabic](#) (\$24.00), and [French](#) (\$18.00). This comprehensive publication covers all aspects of small-scale postharvest practices from harvest and preparation to market, to transportation and processing and also includes a chapter on food safety. To order copies of this publication in any of the four languages in which it is available please use our [Order Form](#). Be sure to note "20% Small Scale Discount" on the form.

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Postharvest Endowment

We gratefully acknowledge the recent generous contributions to the **Postharvest Endowment** from:

- Gloria Lopez Galvez
- [Fresh Fruit Baskets](#)
- Awad M. Hussein
- Adel and Aileen Kader

We welcome all contributors' year-end tax-deductible (U.S.) donations to our Postharvest Program Endowment fund. The interest from this endowment is used to support work on the Web site that is now almost 3,100 pages of useful Postharvest information. To contribute, please link to our [Postharvest Program Endowment](#) page.

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Postharvest Positions

Driscoll's is recruiting for their Florida Plant Breeder & Production Researcher position. Responsibilities would include the establishment, maintenance, and evaluation of proprietary strawberry, blueberry and blackberry test plots. A M.S. in Horticulture or Agricultural Sciences is preferred. Contact [Margie Way](#) for more information.

Driscoll's is looking for a Post Harvest Analyst at their Watsonville, Calif. facility to conduct research on post harvest handling and impact of cultural practices on product quality, including the application of scientific and engineering principles in research, development, production technology, quality control, packaging, eating quality and cold chain optimization of raspberries, blackberries and blueberries. Contact [Margie Way](#) for more information.

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Postharvest Calendar: Upcoming Conferences, Courses and Workshops

- October 12-15, 2007. [Produce Marketing Association Fresh Summit](#). Houston, Texas.
- October 21-26, 2007. [14th International Symposium on Botrytis](#). Cape Town, South Africa.
- October 23-24, 2007. [Principles of Freezing & Frozen Foods Processing Course](#). UC Davis campus.
- November 13, 2007. Launch Event. Center for Excellence in Fruit & Vegetable Quality. UC Davis campus.
- December 3-6, 2007. [International Conference on Quality Management in Supply Chains of Ornamentals \(QMSCO 2007\)](#). Bangkok, Thailand.
- January 6-9, 2008. [International Symposium on the Application of Precision Agriculture for Fruits & Vegetables](#). Orlando, Florida.
- February 24-26, 2008. [California Small Farm Conference](#). Visalia, California.
- May 5-7, 2008. [Fresh Marketplace](#). Las Vegas, Nevada.
- May 13, 2008. 14th Annual Management of Fruit Ripening Workshop. UC Davis campus.
- May 14-15, 2008. 3rd Annual Methods of Measuring Fruit & Vegetable Quality: Color & Texture Workshop. UC Davis campus.
- June 16-27, 2008. 30th Annual Postharvest Technology Short Course. UC Davis campus.
- June 21, 2008. Postharvest Technology Short Course 30th Reunion Celebration and Update Colloquium. UC Davis campus.
- August 11-14, 2008. [9th International Symposium on Postharvest of Ornamentals](#). Odense Conference Center.

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Ask the Produce Doc

Q: We are a large supplier of Salads and Veg to supermarkets overseas. We do work with companies in the US. We are concerned about the ferocity of our vaccooling on our baby leaves, these include Baby leaf Spinach, Baby lettuce leaves, Mizuna and Rocket (Rucola). Have you got expertise in programming of vacuum (and

other) cooling to optimize shelf life of these products? Are there reports or consultancy advice that we can hook into – we don't seem to have developed this expertise. (S.P.)

A: I am not aware of any specific data on the effects of different types of cooling on the shelf life of these types of salad greens. However we did work with a local bagged salad processor on a problem they had with spinach leaves. They had been using a vacuum cooler for initial cooling but switched to hydro cooling because they wanted to eliminate the moisture loss caused by vacuum cooling. But when they did they had problems with dark colored lines on the leaves after processing. They found the moisture loss in vacuum cooling was reducing turgor and allowing the leaves to better withstand folding and pressing caused by centrifuging. They switched back to vacuum cooling. Overall produce industry experience has been that rapid cooling does not damage product. – [Jim Thompson](#)

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