



"Dedicated to advancing horticultural research,  
education and application for over 100 years."

[Home](#) | [Search](#) | [Browse by Day](#) | [Author Index](#)

## Monitoring and Evaluation of the Mango Supply Chain to Improve Mango Quality

---

Sunday, July 26, 2009: 10:15 AM

Jefferson A (Millennium Hotel St. Louis)

**Jeffrey K. Brecht**, University of Florida, Gainesville, FL  
**Steven A. Sargent**, Horticultural Sciences, University of Florida, Gainesville, FL  
**Elizabeth J. Mitcham**, Dept Plant Sciences, University of California, Davis, CA  
**Adel A. Kader**, Dept Plant Sciences, University of California, Davis, CA  
**Mary Lu Arpaia**, Univeristy of California, Parlier, CA  
**Elhadi M. Yahia**, Postharvest Technology and Human Nutrition Programs, Faculty of Natural Sciences, Autonomous University of Queretaro, Queretaro, Mexico  
**Fernando Maul**, Food Science Department, Universidad Del Valle, Guatemala, Guatemala  
**Maria Auxiliadora C. de Lima**, Embrapa Tropical Semi-Arid, Petrolina, Brazil  
**Patrick E. Brecht**, PEB Commodities, LLC, Petaluma, CA  
**Octavio A. Menocal**, University of Florida, Gainesville, FL  
**Malkeet Padda**, Dept Plant Sciences, University of California, Davis, CA

Mango fruit quality may be influenced by production practices, maturity at harvest, postharvest technologies, and various handling practices. Therefore, in order to identify areas in which market losses can be reduced and fruit quality can be improved for the ultimate consumers, an evaluation of the entire mango supply chain from farms to packer/shippers to receivers and retail handlers in the U.S.A. was conducted with sponsorship by the National Mango Board (NMB). Members of the 'Mango Quality' team worked in the five major mango exporting countries (Ecuador, Peru, Guatemala, Mexico and Brazil) throughout a full year to evaluate mango export handling operations and to conduct mango shipping trials. Team members evaluated those same shipments upon arrival in the U.S.A. and monitored retail mango displays in Florida and California throughout the year to understand and document the quality of mangos being offered to consumers at retail. Key observations relating to mango quality centered on four areas: harvest maturity; precooling and general temperature management; grading at the packinghouses; and management of mango displays at retail stores. Harvesting and shipping mature (i.e., ripening initiated) mango fruit reduces heat injury and chilling injury, and ensures full flavor development and best overall quality at retail. Hydrocooling after hot water treatment, conducted according to APHIS protocol, reduces hot water injury; proper forced-air cooling to 12°C prior to loading transport vehicles obviates the perceived need to use lower shipping temperatures that can cause chilling injury (temperatures as low as 7°C were observed for some shipments). Effective grading at the packinghouses has several important benefits: it reduces exposure of shippers to adjustments and claims, relieves importers in the U.S.A. from re-working shipments to satisfy retailer specifications, and portrays a more appealing image of mangoes in the market place; removing defective fruit at the source also avoids unnecessary costs and wasted energy. Temperatures to which mangos were exposed in distribution centers and retail stores varied from 4 to 21°C. Retail Produce Department personnel need better training to remove poor quality fruit and fruit that are ripening abnormally or developing disorders when rotating displays. The results of this project were reported to the NMB in quarterly reports and developed into a Mango Postharvest Best Management Practices (BMP) Manual. Subsequently, the NMB has funded follow-up research to determine the chilling sensitivity of major mango varieties under commercial conditions, and initiated an outreach program of webinars to communicate mango BMPs to stakeholders.

See more of: [Horticultural Crops Culture and Management: Fruit and Nut Crops 2](#)  
See more of: [Oral and Poster Abstracts](#)