

Title Postharvest control of insect pests on harvested fruit
Author Elizabeth J. Mitcham, William Biasi and Veronique Bikoba
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Abstract

The presence of live insect pests on or in harvested fruit continue to present a challenge for interstate or international shipment of fresh fruit. A variety of new treatments are under investigation or development for control of these pests and the effects on fruit quality have been investigated. The treatments have included high temperature controlled atmosphere treatments to control codling moth larvae and other pests in cherry, apples, stone fruit and pears. Treatments times range from 25 minutes to 3 hours, depending on fruit size, at temperatures of 46 to 47C and atmospheres of 1% O₂ + 15% CO₂. Washing fruit with silicone-based surfactants has been demonstrated to remove and/or kill surface pests, including various thrips and mites. There is a potential for damage to the epidermis of the fruit at higher concentrations. Fumigation treatments under investigation include VapormateTM (ethyl formate in CO₂), EcoFume (phosphine in CO₂) and sulfur dioxide. VapormateTM has been successfully demonstrated to control bean thrips in harvested navel orange fruit without phytotoxicity. Vapormate is under investigation for control of light brown apple moth, a pest newly introduced into California. Sulfur dioxide has been developed as a treatment to control black widow spiders on table grapes. Successes and challenges encountered with each of these treatments will be discussed.