Fruit temperature affects physical injury sensitivity of sweet cherry during postharvest handling

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Acta Horticulturae 1020: 111-114. (2014)

Abstract

Sweet cherry fruit is considered very sensitive to physical injury produced during harvest and postharvest handling. Surface depression (pitting and bruising) appears on the injured fruit area after a week of storage at 0°C. Two trials were conducted on 'Van', 'Royal Dawn', or 'Sweetheart' sweet cherry to test the hypothesis that fruit becomes more sensitive to physical injury at lower temperatures. In the laboratory trial, the incidence of impact damage was evaluated by dropping a steel ball at ten cm height on fruits with 2, 7, 10 or 15°C pulp temperature. A significant reduction in pitting incidence was obtained when the fruit temperature was increased from 2°C to 7°C or 10°C for 'Van' and 'Royal Dawn'. In the packing line trial, 'Sweet¬heart' fruit were placed on a commercial packing line using cold water to achieve a 2.5-3.8°C or 5.3-6.3°C fruit temperature. The incidence of pitting and bruising from fruit handling at 5.3-6.3°C was 30.9% compared with 70.8% when the fruit tempera¬ture was in the range of 2.5-3.8°C. Evaluations comparing the different sectors of the packing line demonstrated that fruit at low temperature was more sensitive to develop small pit symptoms and these were mainly induced at the stem cutting sector. There¬fore, water temperature management along the cherry processing line is required to reduce surface pitting symptoms after storage.