

Title Factors affecting severity of bruises and degree of apparent bruise recovery in a yellow-skinned apple

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Abstract

Malus × domestica, Borkh., cv. '8S6923' (Aurora Golden Gala™) is a newly released yellow-skinned apple which is susceptible to bruising. The bruise susceptibility made Aurora Golden Gala an ideal model to determine if simulated harvest and packing line forces led to permanent bruising or if there was potential for recovery during subsequent cold storage. Compression forces of 22.2, 44.5 or 66.7 N were applied via a 2.54 cm diameter wooden ball to simulate light, moderate and heavy harvesting force, respectively. If the simulated harvesting forces were low and if fruit was cooled to 1 °C immediately after harvest, most bruises apparently disappeared over several weeks. If moderate or slight bruising forces were applied, maximum apparent bruise recovery was achieved within 3–5 weeks of storage at 1 °C. However, if bruising forces were too great or there were delays in cooling, apparent recovery from bruising was reduced. Warm (13 °C) fruit incurred fewer bruises and less severe bruises than cold (1 °C) fruit impacted with a similar force. Severity of bruising was much less when the impact simulated a collision with a rubber belt in the line, as compared with a simulated apple-to-apple collision. It was concluded that harvest bruises and impact bruises with packing line belts can be managed relatively easily, ensuring almost complete apparent recovery, whereas packing line apple-to-apple impact bruises are more damaging and less likely to recover fully.