

Title Effects of preharvest and postharvest 1-methylcyclopropene treatment on external CO₂ injury in apples during storage

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Abstract

The objective of this study was to investigate the effects of preharvest and postharvest 1-methylcyclopropene (1-MCP) treatment on the incidence of external CO₂ injury in apples during storage. During a period of 4 years, 'McIntosh' or 'Empire' trees were either untreated or sprayed 7 to 11 days before harvest with 1-MCP (HarvistaTM). Following harvest, apples were cooled overnight and then treated within 7 days with or without 1-MCP (SmartFreshSM) for 24 hours at 3°C. Apples were subsequently held in controlled atmosphere (CA) at 3°C for 6 or 9-9½ months. Apples from trees sprayed with Harvista and/or treated with SmartFresh developed more external CO₂ injury, compared to those not treated. The incidence was greatest in SmartFresh-treated fruit that had been sprayed with Harvista containing the highest 1-MCP concentration, while less CO₂ injury developed when SmartFresh was applied closer to harvest. The usual 1-MCP effect of improved firmness retention was observed throughout.