Title Aminoethoxyvinylglycine and 1-methylcyclopropene effects on ´Mcintosh´ preharvest drop, fruit maturation and fruit quality after storage

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Citation ISHS Acta Horticulturae 727:473-780. 2006.

Keywords Malus × domestica; Retain; Smartfresh; preharvest drop; flesh firmness; internal ethylene concentration; flesh browning

Abstract

The effects of aminoethoxyvinylglycine (AVG) on the response of 'McIntosh' apple fruits to postharvest treatment with 1 $\mu l \cdot l^{-1}$ 1-methylcyclopropene (1-MCP) was studied in western and northern New York State (WNY and NNY) in 2004. At 4 and 2 weeks before normal harvest, AVG (Retain formulation) was sprayed on mature 'McIntosh'/M.26 apple trees. At normal harvest time, and for a further two weeks, fruit were harvested and either untreated or treated with 1-MCP and stored in air (1°C) for 1.5 months. Further samples of untreated or 1-MCP-treated fruit, were stored in commercial controlled atmosphere (CA) storage facilities (2°C) for 8 months. Although climatic conditions resulted in less preharvest drop with 'McIntosh' in 2004 than in the average year, AVG treatments delayed the onset of the ethylene climacteric and decreased fruit drop. The effect was greatest at the last harvest date. AVG applied at 4 weeks before normal harvest was less effective in reducing drop than AVG applied 2 weeks before normal harvest. 1-MCP treatment reduced internal ethylene concentrations (IEC) and maintained firmness of fruit during storage compared with the untreated controls. AVG treatment did not reduce IEC of fruit after storage, but the combination of AVG and 1-MCP resulted in the firmest fruit. After 8 months of CA storage, fruits treated with AVG had more internal browning disorders than untreated controls. Fruits treated with 1-MCP had more internal browning in NNY, but not in WNY. The combination of AVG and 1-MCP had less internal browning and was similar to the untreated controls, but with better firmness retention.