

Abstract:

Ethylene scrubbing of Cox stores reduces fruit softening when used in combination with treatments that reduce ethylene production such as orchard sprays of daminozide or pre-storage treatment with high CO₂. However, such treatments are injurious to the fruit when stored for long periods. Experiments were carried out to determine the effects of sprays containing AVG (aminoethoxyvinylglycine) on the ethylene production and quality of Cox apples in low-ethylene CA storage. ReTain R (Valent BioSciences Corp.) sprays (123.5g AVG ha⁻¹) were applied to Queen Cox trees 4 weeks before anticipated harvest. Fruit was harvested on 3 occasions and stored in 1.2 kPa O₂ (<1 kPa CO₂) at 3.5°C, with and without ethylene removal. Unsprayed fruit were treated with 5 kPa CO₂ prior to low-ethylene storage. After storage until late March / early April (ethylene not removed) ReTain R - treated fruits were 5.4 N firmer than the unsprayed (averaged for picks). Ethylene removal improved the firmness of unsprayed fruit by 2.9N and of ReTain R - treated fruits by 8.0 N. The additive effect on firmness of ReTain R - treatment and ethylene removal (13.4 N) was negated by the development of core flush. After a simulated marketing period 57% of fruits were affected. Parallels with adverse responses to other methods of suppressing ethylene production are discussed.