Title Combined effects of 1-MCP treatment and MA packaging on quality of stored apples

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Abstract

The effects of 1-methylcyclopropene (1-MCP) on Bramley's Seedling apples stored in modified atmosphere (MA) packaging were examined. Fruit was harvested on 21/09/03 and 13/09/04. Half of the apples were treated with 626 ppb 1-MCP for 24 hours at 20°C immediately after harvest. Apples treated with 1-MCP and untreated fruits were packed in five MA films with different permeabilities or left unpackaged and held in cold, or CA stores. Every 14 days for 28 weeks, fruit were examined for colour, weight loss, flesh firmness, titratable acidity, soluble solids, tannins, internal C_2H_4, CO_2 and O_2. Treated fruits in the best MA packaging held in a cold room remained firm and crisp, retaining their characteristic acid flavour, with non-greasy green skin over the cold storage life of 28 weeks. After storage 1-MCP treated fruit were significantly firmer (8.0 kg) than untreated fruits (6.9kg) in packaging, while unpackaged treated (4.3kg) and control fruits (3.5kg) were less firm. Titratable acidity was significantly higher in 1-MCP treated fruits for all treatments, however, there were no significant effects on soluble solids, or tannins. Weight loss and ethylene concentrations were consistently higher in control fruit. 1-MCP had positive effects on quality and storage life of Bramley's Seedling apples in MA packaging, resulting in treated packaged fruit from the cold room being superior to CA stored fruits.