

**Title** 1-MCP delays post-harvest softening on cantaloupe and honeydew melons  
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### **Abstract**

Cantaloupe and honeydew melon (*Cucumis melo*, *L. reticulatus* and *inodorus*) ripening behavior during storage affects several quality parameters, such as firmness, color and flavor. One potential tool for fresh produce post-harvest shelf-life extension is the use of 1-MCP. The compound has been applied to different plant parts showing a delay in ethylene-induced events. However, its use has not been characterized in melon post-harvest shelf-life. Our objective was to evaluate the effects of 1-MCP on post-harvest quality parameters of Texas grown melons for its use on shelf-life extension. Two cantaloupe and one honeydew melon varieties were harvested and treated with 1-MCP (500 and 1000 ppb) at 10 °C for 12 h. After treatments, melons were stored at two different temperatures, 7.5 °C and 24 °C. Quality characteristics, including color, firmness, soluble solids, aroma, external appearance and macroscopic decay were evaluated through time. Additionally, internal ethylene (IEC) and internal carbon dioxide (ICC) concentrations were evaluated as well. Results indicated that firmness was the only quality attribute affected by 1-MCP treatments, delaying softening at both storage temperatures. At 14 and 21 days of storage at 7.5 °C, control honeydew fruits were 50% and 38% less firm, respectively, than 1-MCP treated fruit. Similarly, 1-MCP treated cantaloupes stored at 24 °C showed a more firm texture compared to control fruits. IEC and ICC were similar between control and treated fruit indicating that 1-MCP did not affect ethylene production in melons nor affected respiration rate. These results would indicate that firmness is selectively affected in melons by 1-MCP post-harvest treatment while not affecting other quality attributes. 1-MCP can be used as a tool for delaying softening in melon fruits.