

# Extending storage of 'Hass' avocados using ultra-low temperature shipping and 1-MCP

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## Abstract

The South African avocado industry is largely export-orientated, necessitating new and effective technologies to improve fruit quality and shelf life. The ability to extend the storage period would be beneficial to the industry if delays in transportation occur at ports and fruit have to be held within cold storage anywhere along the cold chain. Extended storage of South African avocados, especially at the end of the season, would also allow for strategically holding back fruit from the export market in order to extend the supply period. This would not only benefit exporters, but could also be highly beneficial to local pre-packers, as it would reduce the need to import fruit from other countries during the South African off-season. This study set out to ascertain whether an extended storage period of 56 days would be a credible option commercially, especially when an ultra-low temperature of 1°C is used. 'Hass' avocado fruit harvested during the early (72% moisture content (MC)), mid (66% MC), and late (60% MC) season were subjected to treatments of temperature (1°C/5.5°C), 1-MCP (treated/untreated) and waxing (waxed/non-waxed). The 8 treatment combinations (10 fruit each) were subjected to simulated shipping for 56 days. The combination of 1°C with the use of 1-MCP resulted in the best shelf life as well as maintenance of internal quality and integrity. External chilling injury is of concern for early-season fruit, however, mid- and late-season fruit did not suffer extensive damage. It is, therefore, advised that fruit placed in extended storage are marketed through the 'ready ripe' program to mask any chilling injury on the 'Hass' fruit.