

**Title** A comparison of various systems for long term storage of 'Hass' avocado fruit  
**Author** J.R. Marques, P.J. Hofman, B.A. Stubbings, J.A. Campbell and L.R. Barker  
**Citation** ISHS Acta Horticulturae 880:317-324. 2010.  
**Keyword** *Persea americana* Mill.; CA; 1-MCP; fruit quality

### **Abstract**

Australian avocado production has increased 73% in the last 7 years, which has raised interest in increasing domestic consumption and expanding export markets (currently less than 3% of Australian avocado production is exported). Export opportunities in the European Union have been identified, but the current seafreight duration of 39-42 d is one of the major constraints. Quality of fruit at the start of storage, storage system, and storage duration are key factors in outturn fruit quality. To test the ability of Australian 'Hass' avocados to withstand a long seafreight journey, fruit from six growers in south-east Queensland were ripened (no ethylene) at 18°C without storage or after being held for 42 d in either: air at 5°C; or air at 1°C after low temperature conditioning for three days at 6°C; or air at 5°C after treatment with 1-MCP ( $0.3 \mu\text{l L}^{-1}$ ) for 18 h at 5°C; or a standard 20 foot controlled atmosphere (CA; 2% O<sub>2</sub>/5% CO<sub>2</sub>) container at 5°C. To simulate further coolstorage after arrival in the export market, additional fruit from the CA container were also held in air at 5°C for a further 3-7 d before ripening without or with ethylene. External fruit quality was assessed during storage (except for CA fruit) and on removal, and external and internal quality assessed at an eating ripe stage. CA storage resulted in excellent outturn quality, both at removal and at eating ripe. Following CA storage, fruit could be stored for an additional seven days under air at 5°C with no further loss of ripe quality. 1-MCP treated fruit had also good outturn quality, but ripening was variable. Air storage at 5°C or low temperature conditioning then holding at 1°C resulted in significant quality loss due to mainly flesh diseases, diffuse discolouration, and vascular leaching.