

**Title** Effect of temperature abuse during transport of modified atmosphere packaged asparagus  
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### **Abstract**

Horticulture is one of New Zealand's fastest growing export sectors but always requires sea or air transport to distant markets, increasing the risk of products' exposure to fluctuating temperatures through breaks in the cool chain. Green asparagus was stored under different scenarios to observe the influences of the extent, timing and duration of temperature abuse on the quality of asparagus stored in modified atmosphere. Produce was sealed in polyethylene film to establish a modified atmosphere, but this proved inappropriate for the storage of asparagus since an optimal atmosphere could not be established. No influence of temperature on toughening (as determined through breaking and cutting force) could be observed. Weight loss, decay and off-odour development increased with the extent of temperature abuse. Odour ratings showed temperature abuse up to 10°C for a longer time period was less detrimental than short term abuse up to 20°C. Additionally, the samples subjected to a period at 20°C developed off-flavours and were rated significantly more bitter by the consumer panel. The timing of the temperature abuse (and thus timing of transport) did not influence weight loss but did influence visual appearance and odour. Transport directly after harvest seemed preferable to transport after an extended storage period.