

**Title** Quality of fresh-cut apple slices is modulated by short term post-controlled atmosphere air storage of whole fruit

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### **Abstract**

Experiments were conducted over three years to determine if the quality and shelf life of fresh-cut apple slices were influenced by the length of time apples were held in air storage after removal from commercial controlled atmosphere (CA) storage. ‘Spartan’, ‘Delicious’, Ambrosia<sup>TM</sup> and ‘Royal Gala’ apples were picked from research plots or commercial orchards and then placed into commercial controlled atmosphere storage for up to six months. Upon removal from storage, apples were divided into three lots. The first lot was immediately sliced, dipped, and stored for up to three weeks in modified atmosphere packages. The second lot was held for two weeks in air storage and then sliced, dipped and stored. The third lot was held in air storage for four weeks and then sliced, dipped, and stored. Quality and shelf life analysis showed that whole fruit respiration and ethylene evolution increased with time in post-CA air storage (PCAAS). Firmness was only slightly reduced with time in PCAAS and nutritional value was not affected. Despite the application of anti-browning dip after slicing, browning of slices was reduced by time in PCAAS. Secondary browning and slice breakdown were reduced with two weeks PCAAS, but they increased again when apples were held for four weeks in PCAAS. These results suggest that a two week PCAAS period is a potential management tool for optimizing the quality and shelf life of fresh-cut apple slices.