

**Title** Comprehensive approach to evaluate the freshness of strawberries and carrots  
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### **Abstract**

Freshness is a quality criterion of great importance to the consumer for the acceptance of fruit and vegetables. However, what the consumer perceives as fresh is not clear. The objective of the present investigation was to uncover sensory attributes influencing consumer perception of the freshness of strawberries and carrots that varied in cultivar, as well as with time and conditions of storage. Product characteristics measured by descriptive sensory and physico-chemical analyses were related to consumer and expert panel (individual and consensus) ratings of freshness. Results showed that a large number of attributes contributed to the freshness of strawberries and carrots and that those were also indicators of the physiological ageing of these products. Our results suggest that consumer evaluation of fruit and vegetable freshness corresponds to an evaluation of this ageing process through the observation of sensory properties. In addition, the freshness of long shelf life fruit and vegetables seemed to be better predicted by sensory characteristics than the freshness of short shelf life products. Finally, consensus ratings of freshness by the expert panel were shown to be the most reliable approach of measuring freshness.