

## **Abstract**

Although total titratable acidity levels in 'Hayward' kiwifruit appear quite stable during storage at 0 °C under New Zealand conditions it is known that citric acid levels decline but malic acid levels are maintained. By contrast, malic acid levels tend to increase with storage at 4 °C. These observations formed the basis of a sensory comparison of fruit stored at 0, 4, and 10 °C which were also analysed for acidity, sweetness, and the individual acid concentrations during 6 weeks of storage. The fruit were ripened to equivalent firmness, and presented to sensory panellists. Acid perception increased at 4 °C, which correlated with an increase in malic acid concentration, but also with a decline in sweetness perception, soluble solids content, and dry matter in fruit stored at 4 and 10 °C compared to fruit stored at 0 °C. Although fruit were presented to panellists at equivalent fruit firmness (4.4–7.3N), the results were further confounded by changes in perceived texture in fruit held at the warmer temperatures. Ratings for core firmness, flesh firmness, and fibrous flesh texture increased in the fruit at 4 and 10 °C compared to fruit at 0 °C. Storage at 4 and 10 °C also led to an increase in starchy, woody flavours compared to storage at 0 °C. Findings for an increase in the perception of acidity from fruit stored at 4 °C could not be unequivocally attributed to the changes in acidity occurring during storage. However, they were consistent with findings from pulp experiments, where malic and citric acid had been added to 'Hayward' kiwifruit pulp.

The results had implications for the storage of 'Hayward' kiwifruit at less than optimum fruit temperatures and raised interesting questions about the changes in metabolism occurring in fruit at the three temperatures studied.