

## **Abstract**

Production of volatile aroma compounds, and quality parameters, were monitored in relation to the activity of lipoxygenase, pyruvate decarboxylase, alcohol dehydrogenase and alcohol *o*-acyltransferase during maturation of 'Fuji' apples. Acetate esters increased during maturation and were quantitatively the most significant compounds contributing to 'Fuji' aroma. Increase in acetate ester production was associated with the availability of the necessary alcohol precursors. Principal component analysis revealed a clear separation according to sampling date, which accounted for up to 67% of total variance, and allowed 'Fuji' apples used in this study to be classified into three ripeness stages. Overall the results suggest that precursor availability for the related enzymes is a more significant factor than enzyme activity for the development of aroma during on-tree maturation of 'Fuji' apples.