Title Predicting storage potential of 'Hayward' kiwifruit

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Abstract

The ability to predict the susceptibility of fruit lines to storage disorders could assist postharvest managers to improve returns to growers by minimizing fruit losses in storage. Prediction of pitting, soft fruit and Botrytis stem end rots, primary storage disorders of kiwifruit (Actinidia deliciosa cv. Hayward) was investigated. Fruits were sourced from 72 growers from 10 kiwifruit-growing areas in New Zealand. Postharvest disorders and fruit composition were assessed at the beginning and end of 24 weeks of storage at 0 deg C. The relationship between postharvest disorders and harvest composition was explored using logistic regression. After cool-storage and a week of shelf life, incidence of pitting ranged from 0-2.3%. The incidence of pit was higher in orchards that had a lower maturity represented by the ratio of soluble solids (Brix) and dry matter (DM). These lines also had higher fruit pH at harvest. Pitting was also associated with lines that had higher nitrogen concentration in fruittissue. The incidence of soft fruit (proportion of fruit not meeting export grade for firmness) after storage ranged from 0 to 60%. Fruit lines that had lower DM tended to have a higher incidence of soft fruit. Softer lines of fruit were associated with low calcium and phosphorus and higher nitrogen concentration. Stem end rots were observed in 0-1.6% of fruits after storage. Susceptibility to rots was enhanced in lines that had a very high ratio of Brix and DM. These lines also had higher potassium and nitrogen and lower magnesium concentration. In general, an increased supply of higher dry matter fruit will improve quality of fruit after storage. Optimization of fruit maturity and mineral levels is essential to maximize storage potential of fruit lines.