

FRUIT AGE MANAGEMENT: THE KEY TO SUCCESSFUL LONG DISTANCE EXPORT OF NEW ZEALAND AVOCADOS

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Avocados are recognised as having a short storage life making it a challenge to maintain fruit quality when exporting avocados to distant markets where transit times exceed 14 days. In recent years the New Zealand avocado industry has been exporting fruit to the USA from August to November. A quality crisis in 1999 prompted the New Zealand Avocado industry to implement an annual quality assurance programme operated in conjunction with importers of New Zealand avocados. Fruit from each shipment were surveyed by sampling boxes of fruit at each importers facility on arrival in the USA. Assessments of quality disorders were made on green fruit and, after a standardised ripening protocol, when eating ripe. This information has been used to develop an understanding of the main factors that influence fruit quality in exported avocados. The factor with the most influence on fruit quality was fruit age, defined as the number of days from when the fruit were harvested until when the fruit quality was assessed. The relationship between the age of fruit when cut for ripe assessment and fruit quality was described by an exponential growth function with an appreciable deterioration in quality occurring after 32 days. The use of the quality assurance information for managing New Zealand avocado fruit quality exported to the USA will be discussed with reference to the pick, pack and consolidation times before fruit is loaded onto ships for transit to market.

The quality assurance information was collected by survey which imposes limitations on the extent to which other factors that may affect fruit quality can be determined. One important factor is the interaction between fruit maturity and fruit age. New Zealand avocados are exported at dry matters that range from about 24% in August-September to about 35% in February. Avocado fruit quality is known to deteriorate as the season progresses. A series of experiments were carried out to investigate the influence of fruit age and maturity on fruit quality by harvesting the fruit in September, November, January and March. Fruit were stored at 4-5°C for up to 6 weeks and removed at weekly intervals to be ripened at 20°C. Assessments of quality disorders were made on green fruit when removed from storage and when ripe. The results of these experiments will be discussed with respect to changes in the relationship of fruit quality to fruit age as fruit maturity increases during the export harvest season.