Daintree Fresh: Understanding customer preferences and addressing supply chain issues to export consistent high-quality specialty melons to Japan

Case Study by John Agnew, Department of Agriculture and Fisheries

The opportunity

Lakeland specialty melon grower/packer Shaun Jackson is confident that the business (Daintree Fresh) will definitely grow its exports to Japan due to a better understanding of customer wants and an improved knowledge of supply chain issues impacting quality and shelf-life. Although Shaun produces robust melons due to his often-unique farming practices he was open to an opportunity to learn by becoming involved in a federally funded project aimed at increasing the volume of quality melons exported to Japan. The project, led by Melons Australia and run by DAF examined the growing, harvesting, handling, packing and transport of specialty melons to understand practices and identify areas for improvement. Shaun said that “work by DAF identified where temperature problems have been occurring in our supply chains which led to changes at packshed and domestic freight”. Other areas identified for attention and consequently were improved included the sanitising process and brix monitoring.

Image 1: Shaun Jackson, Daintree Fresh discussing melon quality with his importer in Japan.

The project enabled Shaun to meet his Japanese importers (Image 1) in country for the first time to view his product, discuss their needs, resolve misunderstandings and compare whole and fresh cut melon quality in wholesale and retail markets.

Shaun said that “the trip was of major benefit as it improved communication with one importer from strained to very positive, leading to a future of mutual understanding”. “Talks with another importer has offered us an opportunity to diversify our risk profile with new and different varieties”, Shaun said. Shaun also commented that “learnings from the project and Japan visit would definitely lead to more consistent melon quality and would definitely lead to increased volume of sales”.

Identifying and correcting cold chain issues

Real-time loggers were used to measure temperature/location of two varieties of specialty melons (Image 2) from the packshed through the supply chains in several domestic and export shipments to Japan.

Image 2: Real-time temperature/location logger in a consignment of Daintree Fresh melons (left) and phone tracking app screen shot showing the transport route from farm to Tokyo (right).

In a shipment of Emperors Gold melons from Lakeland to Japan in October 2022; temperature management from packshed to importers facility was good (Figure 1). Recommended transport and storage temperature range for these specialty melons is 7-10˚C. The average temperature and its standard deviation for the supply chain was 9.6˚C and 1.1˚C respectively. Average temperature from packshed to export agent in Brisbane, at exporter facility, at Port of Brisbane,

Port of Brisbane to Yokohama and Yokohama to Tokyo importer was 9.5, 10.5, 10.2, 9.2 and 9.0˚C respectively. DAF conducted quality assessments at packshed and at importer. Internal and external fruit quality started and ended (3 weeks post-harvest) well; meeting importers expectations. Brix at outturn varied from 9.9 to12.9. Variability can be addressed on farm with improved staff training and grading.

Image 3: Fruit heating up in the field at Lakeland (pulp temperature at 31.9˚C in November 2021)

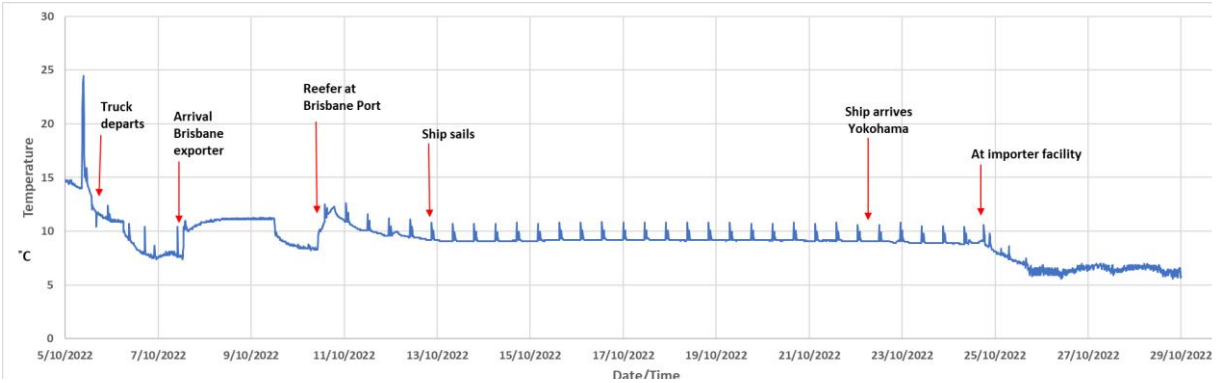

Figure 1: Temperature of Emperors Gold melon from Lakeland to Tokyo, October 2022

Some changes

Temperature management improved markedly following an initial assessment by DAF in 2021. Temperature monitoring within a November shipment of orange candy melon from packshed to Brisbane export agent demonstrated that cool chain management needed attention. Pulp temperature of melons in the field reached as high as 31.9˚C by mid-morning (Image 3). Melons left the packshed too warm (26˚C) and could not be cooled sufficiently in transit, averaging 20˚C for the journey to Brisbane. Temperature at the exporter's facility, during a week of storage, averaged 8.5˚C. Temperature in the shipping container averaged 11.5˚C. Prolonged storage temperatures for orange candy melons should not be greater than 10˚C.

As a result of these findings Shaun upgraded the cold rooms, checks pulp temperature before dispatch and got the road transport set temperature lowered to within recommended range.

More Information

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Acknowledgements

The project titled, "Increasing melon exports to Japan by consistently meeting importer and consumer expectations", received grant funding from the Australian Government through the "Package Assisting Small Exporters" program.