

Rapisarda Enterprises: Understanding and addressing supply chain issues to export consistent high-quality melons

Case Study by John Agnew, Department of Agriculture and Fisheries

The opportunity

Brian Newton is Post-Harvest Manager of Rapisarda Enterprises in Clare, North Queensland. The company grows and packs rockmelons, honeydew and orange candy melons for domestic and export markets (including Japan). Although Brian is “horti-experienced” he has an IT background and was very open-minded about becoming involved in a project aimed at increasing the volume of quality melons exported to Japan. The federally funded project, led by Melons Australia and run by DAF examined the growing, harvesting, handling, packing and transport of melons to understand practices and identify areas for improvement.

Brian said that “DAF introduced me to the value of SIM-based temperature loggers, which showed where temperature problems had been occurring in “real-time” in our supply chains. Having this information has led to some changes in our freight logistics”.



Image 1: Harvesting rockmelons on Rapisardas farm in the Burdekin.

Identifying and correcting cold chain issues

A July 2021 visit to the packshed encouraged the inclusion of loggers in a shipment of rockmelons dispatched to Singapore (via ship from the port of Brisbane). Produce left packshed too warm and

serious supply chain delays meant quality at importer was poor. Road transport to Brisbane saw fruit averaging 16°C (Figure 1). During storage in Brisbane, the fruit averaged 6°C. Average fruit temperature during the sea voyage was 2.5°C. Storage and transport temperature for rockmelon should be 2-5°C. While the shipment was in Australia, real-time temperature reporting was provided to Brian. Once the logger gained mobile signal strength in Singapore, data from the sea leg was uploaded and supplied. As a result, the business has adopted strategic use of SIM temperature loggers and was seriously examining different freight options for the future.

A follow-up visit to the farm in October 2021 was an opportunity to collect field and packshed data as well as temperature monitor a domestic shipment of rockmelon.

At harvest, average mid-morning air temperature was 35.3°C and rockmelon pulp was 27.1°C (Image 2).



Image 2: Measuring rockmelon pulp temperature in the field at harvest.

Surface temperature of rockmelon was also monitored from the field at harvest through packhouse into the carton. This was achieved by strapping a USB-temperature logger to a piece of fruit (Image 3). Temperature started at 35°C and ended at 29°C. The period from field to carton took approximately 30 minutes.



Image 3: Rockmelon with USB temperature logger attached (identified with surveyors' tape) entering the packshed

Temperature monitoring from packshed to Brisbane demonstrated that cold chain management had been improved since the July consignment. Temperature averaged 8.8°C for the 26-hour journey.

Brian is now familiar with SIM-based temperature logger deployment and has the convenience of monitoring shipments in “real-time” using the phone app (Image 4).

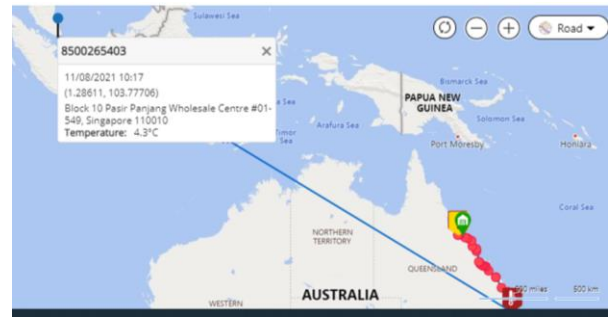


Image 4: Real-time temperature/location logger phone app screen showing rockmelon shipment tracks from Clare to Brisbane to Singapore

More Information

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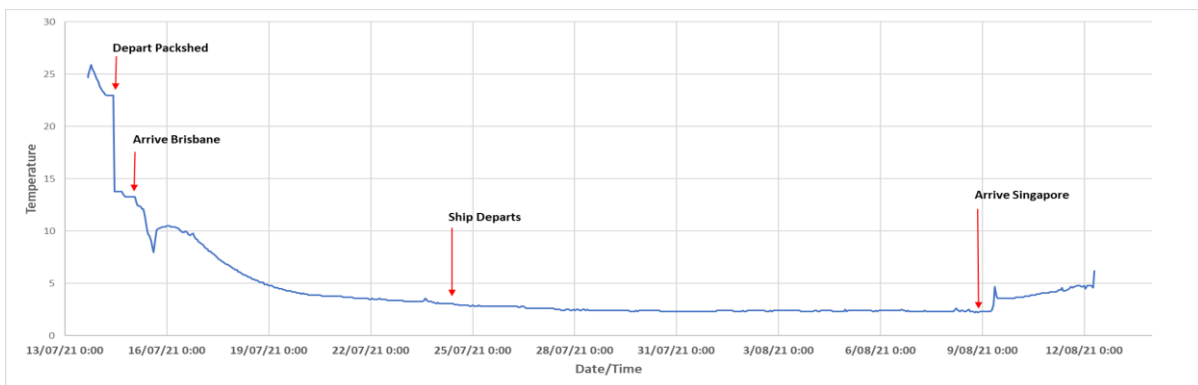


Figure 1: Rockmelon temperature (°C) from the Burdekin to Singapore (July 2021)

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