



Loggers fly home

During the main harvest season of 2005 navel oranges in retail outlets from both the eastern states and WA showed signs of incorrect storage with wax breakdown problems and the development of off smells and flavours. The WA Department of Agriculture and Food and Western Australian Fruit Growers Association Citrus Council decided to investigate.

Through the WA Retail Development Project temperature data loggers were placed in fruit boxes at six WA packing sheds to monitor storage temperatures between the packing shed and retail outlet. Four loggers were also placed in consignments from the eastern states. This was done during the main harvest period.

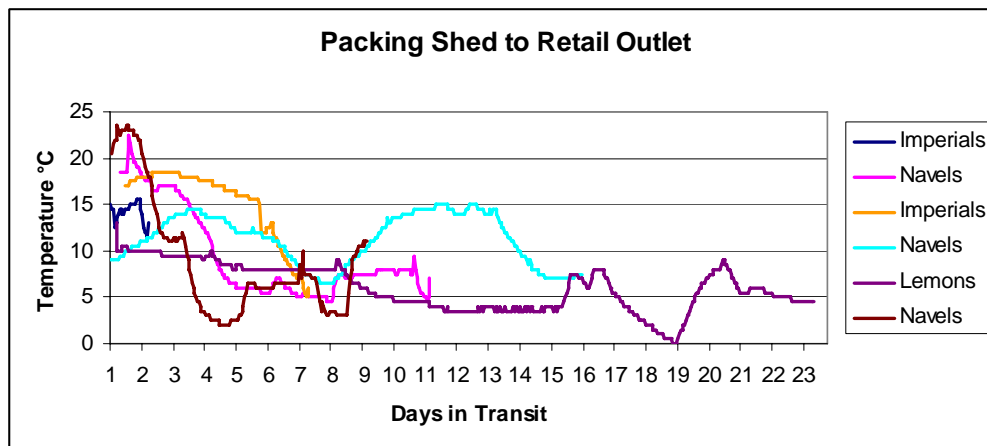
The Results

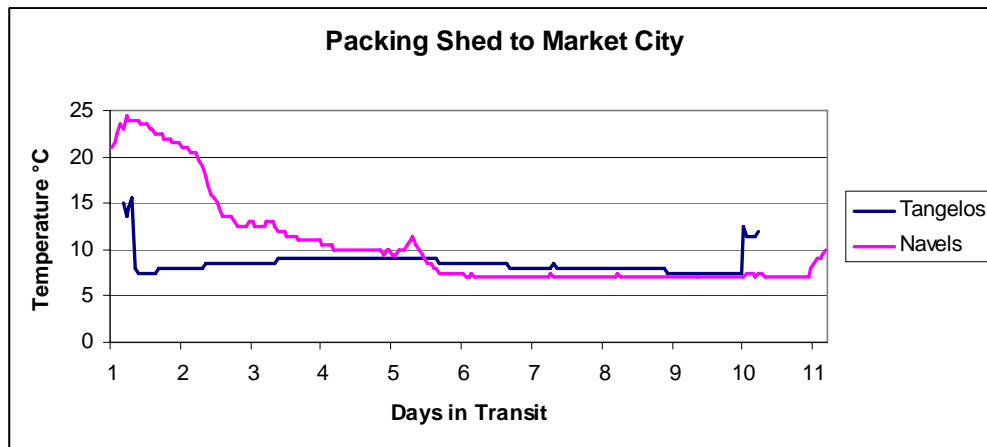
Transit times

All loggers placed by WA participants were received by retail outlets within the Perth metropolitan area. Transit times between the packing shed and retail outlet ranged from 1 day to 16 days. Loggers in two consignments from South Australia also reached retail outlets, one in Broome, the other in Kalgoorlie. Transit time to Kalgoorlie was 9 days and to Broome 23 days. Loggers from two SA consignments were discovered at Market City in Canning Vale.

Room for Improvement

Temperatures recorded by loggers varied considerably and showed that there is some room for improvement. The time taken for fruit to cool to its optimum storage temperature ranged from two to seven days. Once reaching this temperature it was often not maintained, sometimes dipping to temperatures that may cause rind blemish. In one consignment of navels the temperature was reduced to 7° C after 8 days but then rose again to a maximum of 15° C by day 11 where it stayed for 3 days before again being reduced to 7° C. Such fluctuations in storage temperature may cause premature aging of the fruit.





Recommended Storage Temperatures

Recommended storage temperatures for citrus are a compromise between minimising rind blemish and minimising loss of quality.

Table 1: Recommended storage temperatures ¹

Commodity	Optimum Temperature	Maximum storage life
Navel	7 – 10°C	8 weeks
Valencia	7 – 10°C	12 weeks
Oranges (fully coloured)	3 – 5°C	6 weeks
Mandarins	5°C	4 - 8 weeks*
Grapefruit	12°C	12 weeks
Lemons	12°C	12 weeks
Tangelo	3 – 5°C	6 weeks

* depending on variety

What happens with this information?

Feedback was provided to all retailers that returned the data loggers. Information will also be passed onto the major retail chains as a whole. A similar improved exercise is planned for next navel season.

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¹ Trigwell, B. (1999) Citrus Handling Guide, South Australian Research and Development Institute, South Australia