

Lychee

Kwai Mi

2025



AIM OF THE STUDY:

DOES THE USE OF HDCOLD® CONTAINER IMPROVE THE STORAGE QUALITY OF LYCHEES COMPARED TO STANDARD REFRIGERATED CONTAINER?

Current practice^{1,2}:

- Recommended storage temperature: 1.5-10°C depending on the variety, with 90-95% relative humidity
- Non-climacteric fruit which must be harvested when ripe, and deteriorates rapidly (browning, drying out, and shell bursting)
- Sensitive to ethylene
- Existing technologies for extending storage:
 - Sulfur fumigation treatment
 - Use of controlled atmosphere

HDCold® technology:

- Cold system which maintain natural relative humidity at high levels (>98 %)
 - No addition of liquid water
 - Decrease of water loss, and therefore weight loss of the products
- Low temperature difference between the set point and the refrigerant:
 - Less hydric stress on the products
 - Less to no frost formation

¹ University of California, « Litchi | Postharvest Research and Extension Center », 1998
<https://postharvest.ucdavis.edu/fr/produce-facts-sheets/litchi-0>

² FruiTrop, « Post-récolte et soufrage du Litchi », 2013
<https://www.fruittrop.com/Articles-par-theme/Emballage-et-conservation/2013/Post-recolte-et-soufrage-du-Litchi>



RESULTS

Harvest date (Reunion Island):

- Harvest A: January 12, 2025
- Harvest B: January 20, 2025

Packaging: plastic crate

Storage instructions: 7°C, 96% RH if regulated

Storage conditions

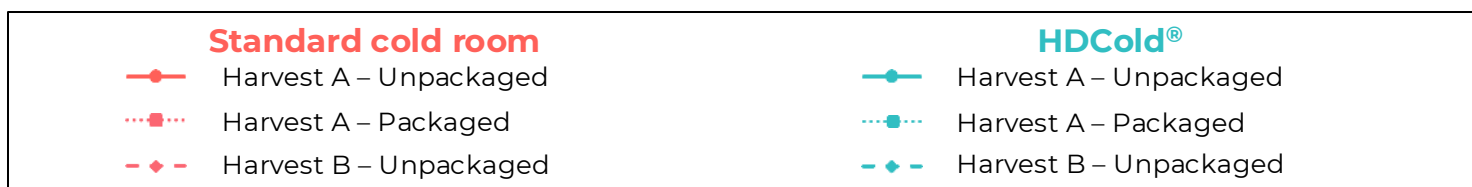


1: Study of unpackaged lychees
2: Study of packaged lychees
3: Distribution of 3 batches of 8 lychees in perforated fabric bags to monitor weight loss

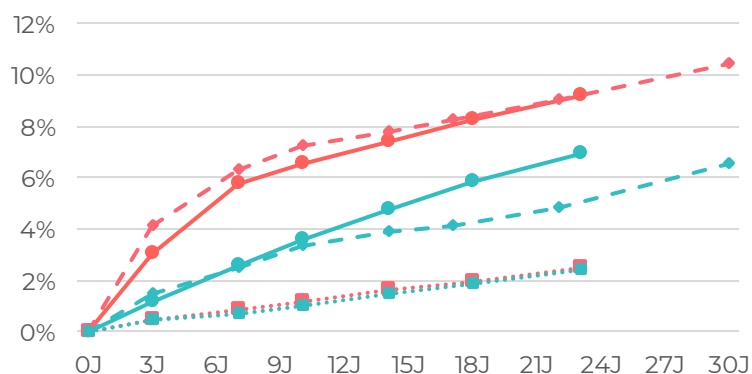
Browning index scale



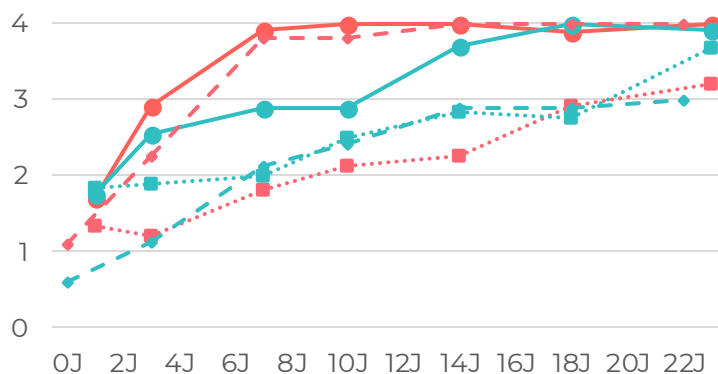
0 = 0%
1 = less than 25%
2 = 25 to 50%
3 = 50 to 75%
4 = more than 75%



Net weight loss (%)



Browning index



CONCLUSIONS

According to the results of this trial, HDCold® technology on Kwai Mi lychees:

- ✓ Reduces weight loss and dehydration in unpackaged lychees;
- ✓ Delays the onset of maximum browning in unpackaged fruit (18 to 34 days compared to 7 to 10 days for standard cold storage);
- ✓ Achieves physical and chemical characteristics similar to standard cold storage (sugar content, acidity, and pH);

- Lychees' packaging limits the effect of the type of cold storage on weight loss, dehydration, and browning of the pericarp;
- Mold develops in equivalent proportions across all storage after 20 days.