

### AIM OF THE STUDY:

DOES USING AN HDCOLD® CONTAINER IMPROVE THE QUALITY OF MANGOES UPON ARRIVAL COMPARED TO A CONVENTIONAL REFRIGERATED CONTAINER?

#### Current practice<sup>1,2</sup> :

- Early Harvest
- Storage:
  - 10 to 13°C depending on maturity
  - 90–95% relative humidity (RH)
  - Up to 2 to 4 weeks
- Controlled Atmosphere:
  - 3–5% O<sub>2</sub> / 5–8% CO<sub>2</sub>
  - Up to 6 weeks
- Transfer to ripening room for more uniform quality of the batch:
  - 20–22°C and 90–95% RH
  - Ethylene treatment (100 ppm) for 5–9 days

#### 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



<sup>1</sup> Kader A. A, 1997. Produce Fact Sheets: Mangoe

<https://postharvest.ucdavis.edu/produce-facts-sheets/mango> (accès le 01/12/2025)

<sup>2</sup> Lerda E. et Lechaudel M., 2025. Rapport d'étude sur les mangues Kent. 27 pp.

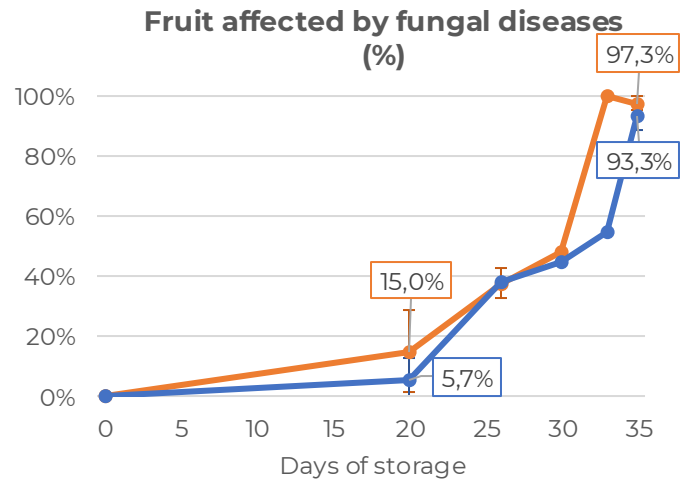
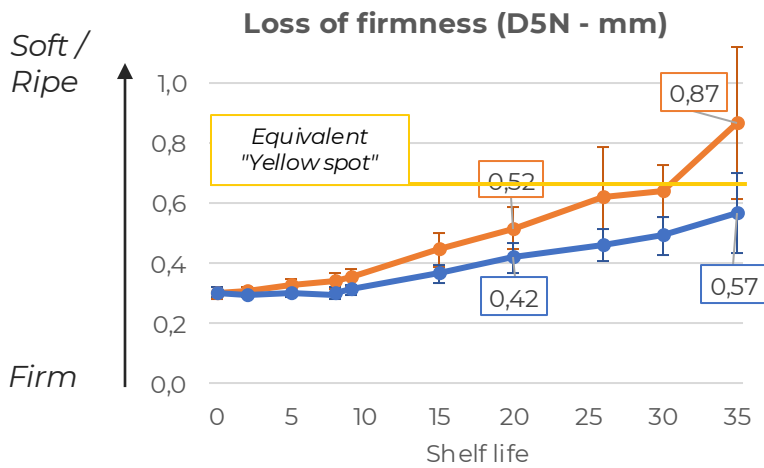
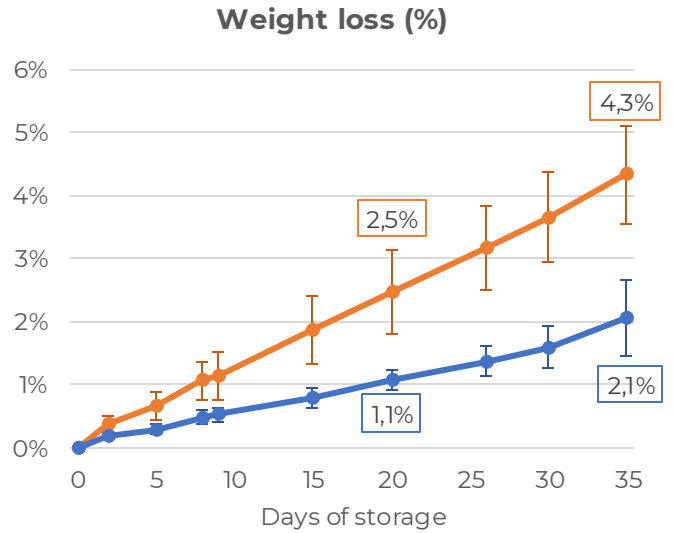
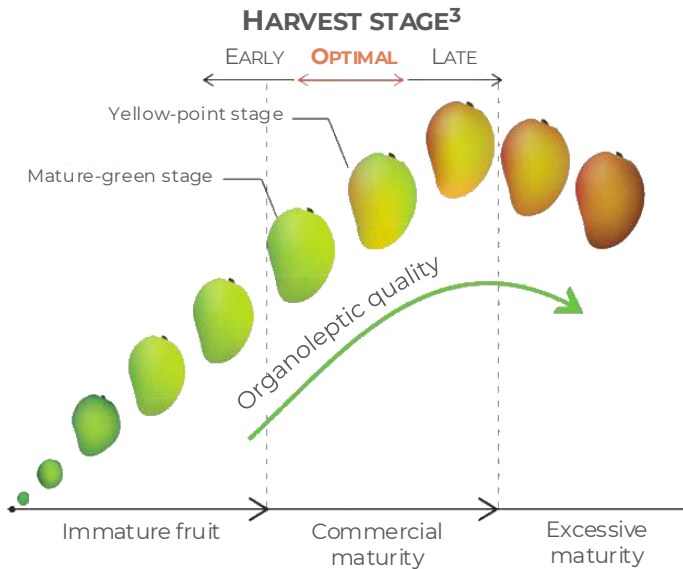
<sup>3</sup> Adapted from: Joas, J., & Lechaudel, M. (2009). *La récolte et la conservation*. In : *Guide de production intégrée de mangues à la Réunion*. <https://agritrop.cirad.fr/552232/1/D552232.pdf>

# RESULTS

**Harvest:** mature green stage, February 12–26, 2025 (Reunion Island)

Study conducted over 3 trials (without post-harvest treatment), with overall averages presented below

**Standard Container (10°C / unregulated RH)**    **HDCold® Container (10°C / 96% RH)**



## CONCLUSIONS

Compared to a standard refrigerated container, the **HDCold® technology**, adapted for container use, yielded the following results:

- ✓ **Weight loss reduced by half**
- ✓ **Better firmness** retention
- ✓ **Reduced contamination** rate
- ✓ **Less pronounced chlorophyll degradation** after 26 days (Fv/Fm fluorescence ratio)
- No difference in titratable acidity, pH (which decrease during storage), nor in sugar content (which increases)

## RECOMMENDATIONS

**10°C**

**95 % RH**

**20 days**