

Avocado

4 varieties

2025



AIM OF THE STUDY:

WHAT IS THE IMPACT OF HDCOLD® CONTAINER ON THE STORAGE QUALITY OF AVOCADOS COMPARED TO A STANDARD REFRIGERATED CONTAINER?

Current practice^{1,2,3}:

- Recommended storage at 5-12°C for ripe green avocados, with 85-95% relative humidity
- Climacteric fruit that can be stored for up to 4 weeks in cold storage
- Sensitive to ethylene
- Existing technologies for extending storage:
 - Controlled atmosphere
 - 1-MCP post-harvest treatment
 - Stepwise cooling

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 FruiTrop, *L'avocat en post-récolte*, n° 271, 2020

² Hass Avocado Board, *Avocado Quality Manual*, s. d.

³ University of California, « Avocat | Postharvest Research and Extension Center »

<https://postharvest.ucdavis.edu/fr/produce-facts-sheets/avocat-0>



RESULTS

Harvest date (Réunion):

- Harvest A : 27/05/2025 (varieties 1 and 2)
- Harvest B : 02/06/2025 (variety 3)
- Harvest C : 11/06/2025 (variety 4)

Packaging: plastic crate

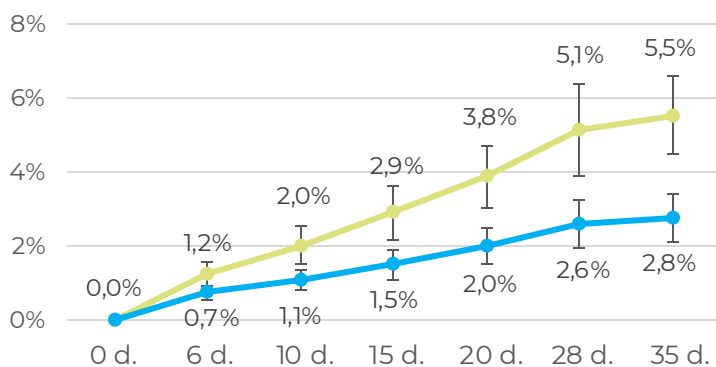
Setpoints: 5°C, 96% RH if regulated

Study conducted on four harvests, with overall averages presented below.

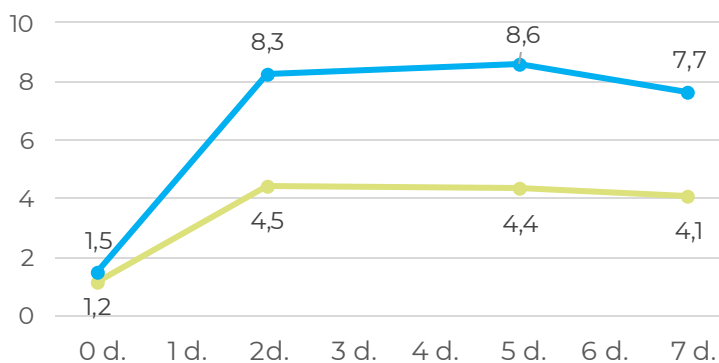
■ Classical container

■ HDCold® container

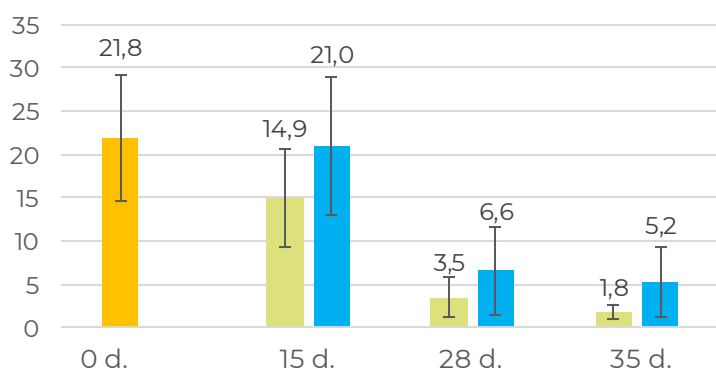
Weight loss (%)



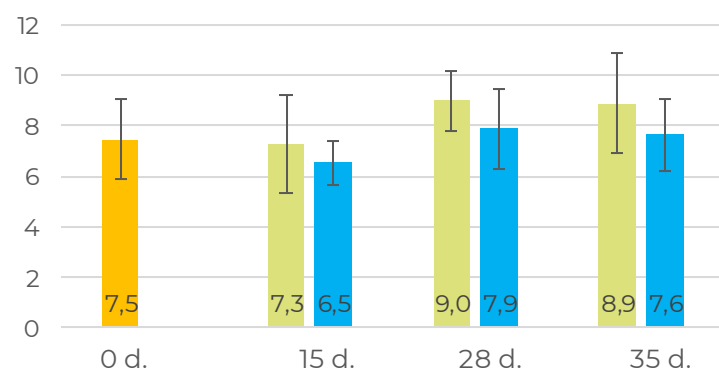
Respiratory rate after 15 days of cold storage (CO₂ in mmol/kg/h)



Flesh firmness (N)



Sugar content (°Bx)



CONCLUSIONS

Based on the results of this trial, HDCold® technology on avocados:

- ✓ Reduces by half the weight loss across the four varieties studied;
- ✓ Enables a more pronounced climacteric crisis with a significantly higher respiratory peak. This indicates that avocados stored with the HDCold® system retain a good ability to continue ripening after the refrigerated storage phase;

- ✓ Contributes to maintaining higher firmness (D5N method and penetrometry);
- ✓ Maintains stable quality parameters, such as pH, acidity, and sugar content, during storage.

Note: at a storage temperature of 5°C, some avocado varieties, especially when insufficiently ripe, may show symptoms of cold damage, or chilling injury. It is therefore necessary to adjust the storage temperature according to the variety.

