



Our site is currently being updated and pages are changing regularly. We thank you for your patience during this transition and hope that you find our new site easy to use.

Avocado cooling and storage

Cooling is necessary to remove field heat and to lower fruit temperature to an appropriate storage or transport temperature.

In general, cool fruit if the period between harvest and delivery at the intended market is more than two days. This means that all fruit marketed outside the local area generally requires cooling. The general aim is to cool hard, green mature fruit to the following temperatures:

- 4°C to 5°C for Hass
- 6°C to 8°C for other varieties.

In general, cool fruit to the required transport temperature within 48 hours of harvest. However, if fruit is to be stored for longer than five days, cool fruit to the required storage temperature within 24 hours of harvest. Always check with your marketers to ensure that on-farm cooling practices are compatible with market handling conditions.

Avocado cooling requirements

The speed of cooling depends on the type of refrigeration system. Simply placing pallets or stacking packages into a cool room will result in slow and uneven cooling. Forced-air cooling is required to achieve fast effective cooling.

With forced-air cooling, an extra fan is used to pull cool air through the packages. Package ventilation must be designed to allow airflow across pallet loads. The speed of cooling is regulated through the selection of the fan size (airflow). Cooling times faster than eight hours are not warranted as the resistance to airflow through packages is very high.

Monitor the cooling process to check that cooling has been effective. For forced-air cooling, check cooling times for each batch, check room temperatures daily, and spot check fruit temperatures at least weekly. A record of these checks will provide evidence of whether cooling has been effective and will enable tracebacks if there are problems during marketing.

Avocado storage

Storage is the holding of cooled fruit before transport to customers (wholesalers, retailers, exporters). The optimum temperature range and the maximum storage time for avocados varies with variety (see Table 1).

Table 1. Optimum storage temperatures and storage life for hard green mature fruit

Variety	Optimum storage temperature	Maximum storage time
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Hass	4°C to 5°C	4 weeks
Other varieties	6°C to 8°C	2 weeks

Storage life will be reduced by:

- stress during growing
- fruit picked with advanced maturity
- delays in cooling after picking, particularly during hot weather
- storage at temperatures above the optimum range.

Chilling injury of avocados during storage can occur in two situations:

- If fruit are stored at very low temperatures, such as 1°C or 2°C. Symptoms appear as dark blotches on the skin.
- If fruit start to ripen during cold storage, because the storage temperature is too high and/or the storage duration too long.

In the second situation, the symptoms are usually only present internally and develop as fruit ripens. Internal symptoms vary from dark streaks to grey-brown discolouration of the flesh, particularly around the base. External symptoms are not present except in Hass, where the skin may have a bronzed appearance when ripe and fail to develop the typical black skin colour.

Daily monitoring of air and fruit temperatures is necessary to check the storage process. Keep a temperature log to provide evidence on whether storage has been effective. For long storage periods, check the fruit condition for any signs of ripening.

Avocados ripen quickly when they are removed from storage to normal air temperatures. For example, fruit removed from storage after two weeks and warmed to 20°C will ripen in about half the time as fruit held at 20°C immediately after harvest.

Controlled atmosphere (CA) conditions can extend the storage period for Hass. By reducing the oxygen level to 2% to 5% and maintaining the carbon dioxide level between 4% and 10%, a storage life of up to six weeks can be achieved. Specialised equipment and precise monitoring of the temperature and atmosphere is required. Only high quality fruit should be placed into CA storage.

