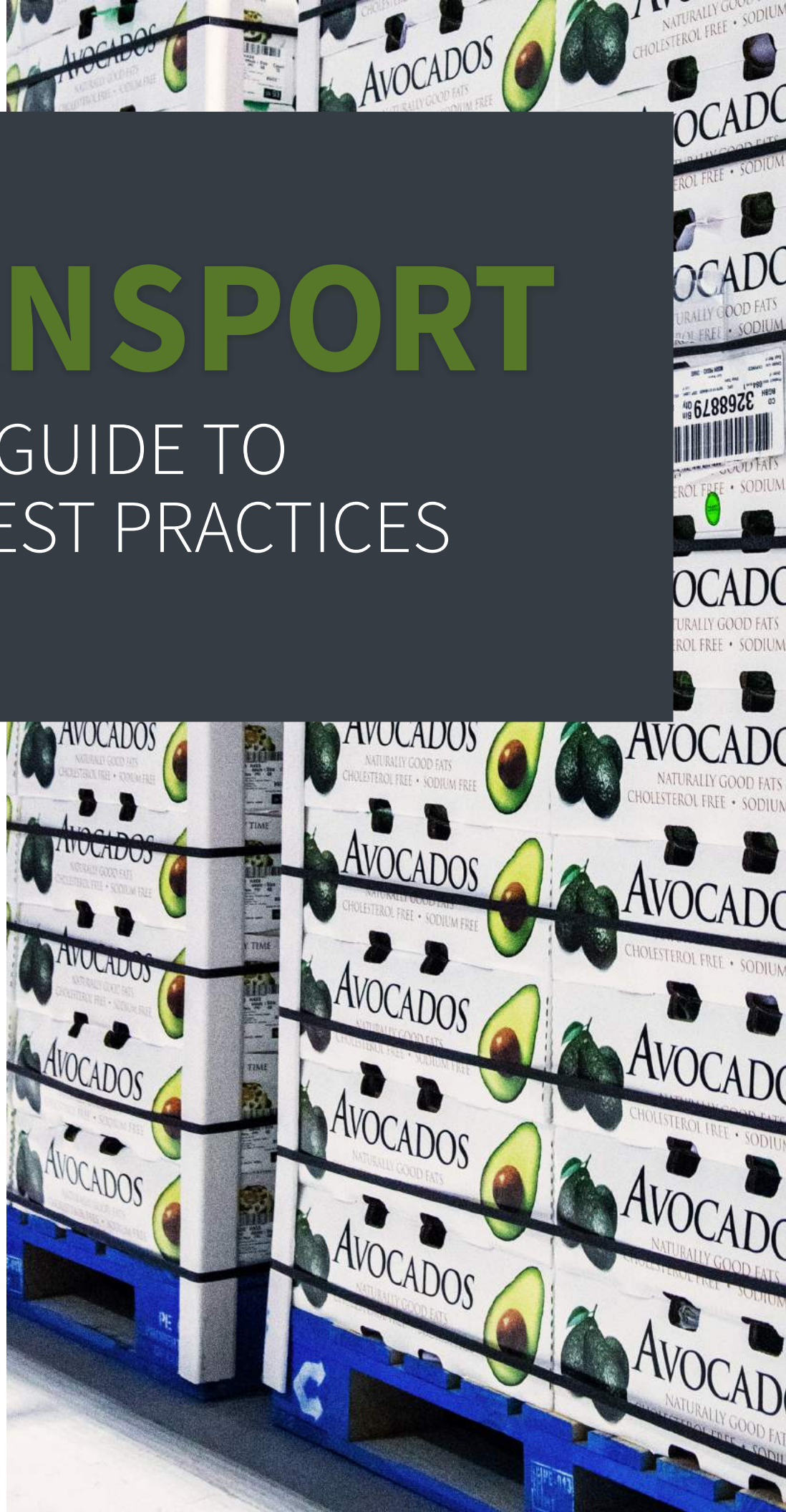


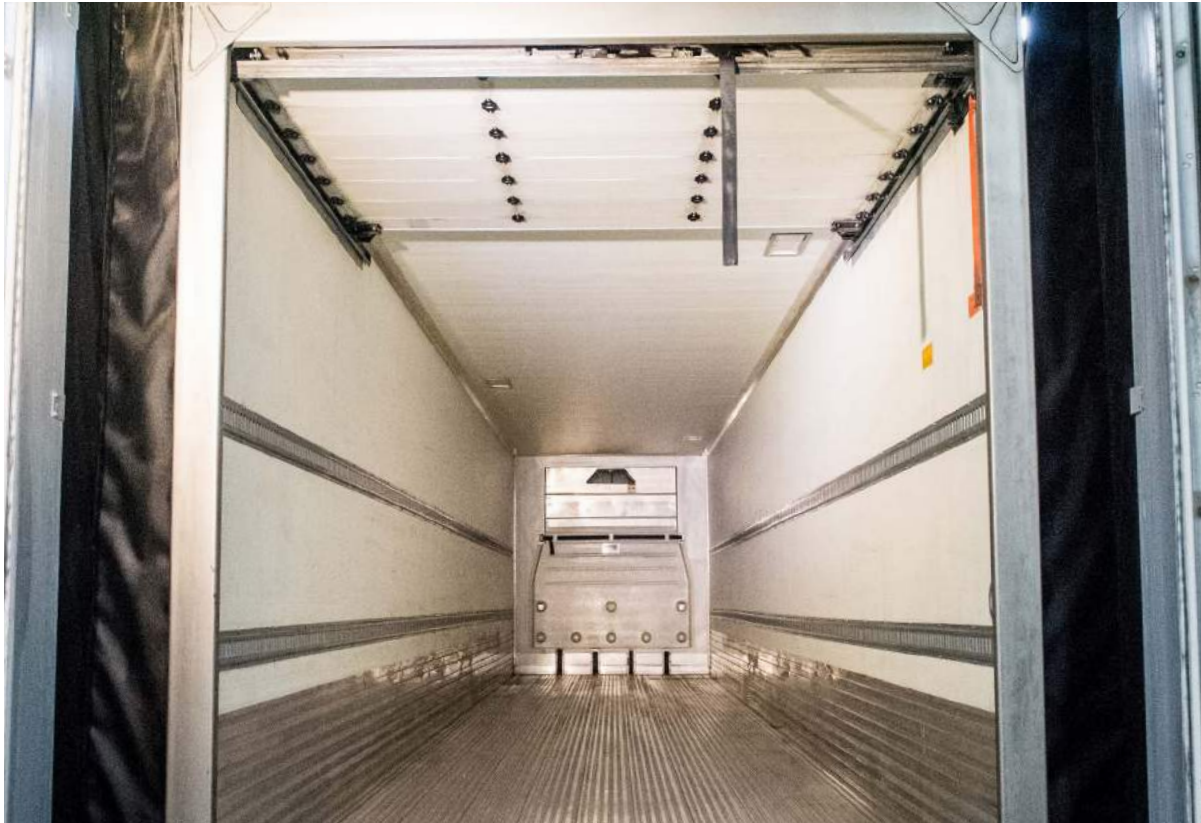
TRANSPORT

03 A GUIDE TO BEST PRACTICES



TRANSPORT

This section is related to road transport of fruit within the USA. It does not include container transport of imported fruit from country of origin to the port of entry, but does take into account the temperature and atmospheric conditions within such containers.



Transport of fruit is very important to eventual fruit quality. The transport operation is complex because it may entail short distances with multiple stops for loading or unloading, or long distance inter-continental travel over a number of days. The transport may be from packing house origin to distribution centers, to retail sales points or from ports of landing for imported fruit or trans-shipment of fruit at the USA Mexican border in the case of Mexican origin fruit. There are therefore multiple parameters to consider, and optimal fruit handling will need to consider different situations, but still ensure maintenance of cold chain to prevent premature ripening and loss of shelf life and quality.

The primary concern in relation to fruit quality and handling during transport, is the maintenance of temperature, and the correct choice of temperature.

Prior to loading, the truck needs to be cooled to carrying temperature. This needs to be checked and recorded by both the driver and person responsible for releasing fruit to be loaded.



- The carrying temperature should be stipulated by the packing house if fruit is being loaded at a packing house.
- If fruit is imported fruit, the original shipping temperature set by the packing house should be used.
- If fruit is loaded at a pre-packer or ripening facility, the facility should determine the transport temperature.

After inspection and acceptance of the truck in accordance with legal requirements, including food safety (consult requirements of the Food Safety and Modernization Act), to be signed off by both the driver and the person responsible for releasing fruit for loading, the truck can be loaded. Ensure that pallets are loaded in accordance with the first in last out principle, especially important if the fruit is destined for more than one destination.



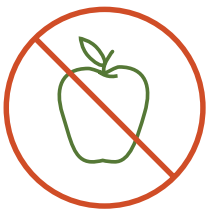
At packing houses, fruit transfer centers (Mexican USA border) and distribution centers with loading docks from the cold room holding areas, trucks need to be correctly positioned such that the door to dock seal is correct in order that fruit temperature is maintained.

Maintenance of the cold chain in imported fruit is more complex, because it depends on the time taken for customs and USDA/APHIS to inspect and clear the fruit. This includes Mexican fruit, which although in theory goes through a temperature controlled holding and storage area, may be subject to delays and cold chain breaks. The objective in the case of imported fruit, is to unload containers (or trucks in the case of Mexican fruit) and transfer to storage or directly to transport as fast as possible, and with as little break in cold chain as possible. There is a possibility that the cold chain break will result in some fruit warming, especially in outside boxes on pallets. Where possible, fruit should be re-cooled, but with care to ensure that excessive cold air is not applied. Static cooling in a cold holding room or in the truck should be sufficient.

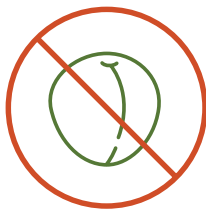
In the case of imported fruit arriving at USA ports in containers (such as from Peru and Chile), it is of the utmost importance that the cold chain is disrupted as little as possible. Containers need to retain cooling until fruit is finally removed, and where fruit needs to be removed for inspection, the cold chain must be disrupted as little as possible.

For long distance transport, pallets must be loaded such that air movement through the fruit is ensured. Pallets must therefore be tightly packed, or if the truck is not full, air movement needs to be restricted such that it can only move through the pallets of fruit.

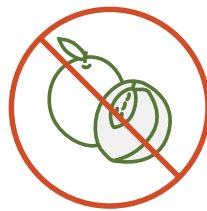
Where possible, avocado fruit should not be transported together with any other commodity. This is especially important for long distance transport. For short distance, such as distribution center to retail store, this is less important or feasible, but should be limited wherever possible. Avocados should not be shipped with ethylene producing products (such as apples, peaches, nectarines, bananas, melons, kiwifruit), although citrus, as a non-climacteric fruit, is generally safe.



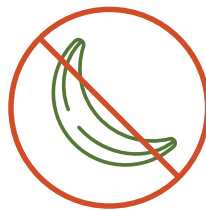
Apples



Peaches



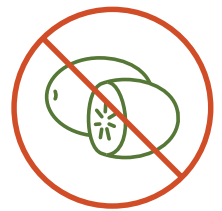
Nectarines



Bananas



Melons



Kiwifruit

To ensure that there are no cold chain breaks, the cooling unit should never be switched off. The temperature inside trucks can increase very rapidly without cooling, especially in summer.

Unloading at destination should be done to ensure the minimum cold chain break.

TRANSPORT

- Check that truck conforms to requirements
- Cool to transport temperature
- Certify that temperature logs are correct
- Load to ensure maximum efficiency and least potential for cold chain breaks especially if pallets are to be off loaded at more than one site
- Do not transport avocados with any other product except for short distances and avoid co-transport with ethylene producing products