

Press Releases

Corrugated Common Footprint Provides Best Protection For Tree Fruit In Transit

ROLLING MEADOWS, IL (November 9, 2001) -

A field test conducted by the University of California (UC)-Davis for the California Tree Fruit Agreement showed that new Fibre Box Association (FBA) Corrugated Common Footprint containers provide the best protection for peaches and nectarines with less statistically significant bruising in simulated transit testing. The study also found that the 5-down (five boxes per layer on a pallet) Corrugated Common Footprint container cooled 10 to 20 percent faster than the traditional 8-down corrugated box used for shipping tree fruit.

The goal of the study was to help quantify the impact on cooling time and shipping damage when switching from 8-down containers to 5-down Corrugated Common Footprint containers or returnable plastic crates (RPCs), and to advance efforts to develop optimal counts for the new 5-down footprint.

Jointly funded by the California Tree Fruit Agreement, the Reusable Pallet & Crate Coalition (RPCC) and the Fibre Box Association, three tests were conducted with three different tree fruit producers.



In-Transit Bruising

To compare in-transit bruising damage of volume-filled fruit shipped in the various types of containers, 5- and 10-down RPCs, 5- and 10-down Corrugated Common Footprint containers, and the current 8-down industry-standard box were volume packed with pre-cooled fruit, then subjected to a vibration table analysis to simulate cross-country transport conditions, according to ASTM Standard Practice #D4169-94. All RPCs had extra macerated fiber pads in the bottom of the containers, to help minimize bruising by the rigid plastic. The bruising evaluation analysis was performed by researchers at the University of California's Kearney Agricultural Research Center.

Results showed there was no statistical difference in bruising between fruit volume-filled in 10-down Corrugated Common Footprint containers and traditional 8-down industry-standard boxes, both of which protected the fruit better than any of the other containers tested. Five-down Corrugated Common Footprint containers performed next best, while fruit packed in 5- and 10-down RPCs showed the most bruising. Although fruit in both 5-down containers had more bruising than the current industry-standard box, the volume-filled fruit packed in the Corrugated Common Footprint box displayed over 40 percent **less** bruising than fruit packed in 5-down RPCs -- even **with cushioning pads in place** .

Additional testing with fruit in pocket tray packs and fruit in bags showed no statistically significant bruising differences between 5-down corrugated and 5-down RPCs.

Cooling Rate Differences

Cooling rates are important because fruit quality is preserved when the field heat is removed rapidly. Rates were measured by building pallets of fruit in each type of container, and placing them into normal production, forced-air cooling tunnels. Temperature probes at various levels within each pallet measured fruit temperature at predetermined intervals throughout the cooling cycle.

This test showed that fruit packed in trays or volume fill in the 5-down Corrugated Common Footprint cools 10 to 20 percent faster than in the 8-down industry-standard box. Five-down RPCs cool faster than 5-down corrugated containers. There was no statistical difference between tray and volume-fill cooling rates in either RPCs or corrugated, but bags cooled significantly slower in both containers.

Truck Capacity Differences

The third measure studied how much fruit could fit in a truckload when packed in each of the containers. Results: Given a maximum truckload of 40,000 pounds, the 10-down Corrugated Common Footprint container allows the same net fruit weight to be shipped as the current industry-standard box; all RPCs fit less.

For example, a truckload of 10-down Corrugated Common Footprint containers holds the same weight of fruit as the current 8-down industry-standard box. A truckload of 5-down RPCs contains about 6 percent (about 2,500 lbs.) less fruit than a truckload of 5-down Corrugated Common Footprint containers. A truckload of 10-down RPCs contains about 2.5 percent (1,000 lbs.) less fruit than a truckload of 10-down Corrugated Common Footprint containers.

Summary

Overall the UC-Davis study showed that:

- No statistical difference in bruising was seen between volume-filled tree fruit in 10-down Corrugated Common Footprint containers and in the current 8-down industry-standard container. The 5-down Corrugated Common Footprint provides the next best level of protection.
- Fruit packed in either 5- or 10-down RPCs, even with extra cushioning pads, receives the most bruising damage.
- 5-down Corrugated Common Footprint containers cool significantly faster than 8-down industry-standard boxes.
- RPCs cool faster than corrugated, but the fruit quality advantages may be lost in transit due to the increased bruising damage.

For more information, contact the Fibre Box Association **847-364-9600** .