

Case Study

Thermal PalletQuilt® Wrap Protects Sweet Potato Shipment & Reduces Transportation Costs

Challenge

When business started to boom for a Northern California sweet potato supplier, shipping cross country became a challenge as individual customer locations were receiving less than truckload quantities. In order to avoid supply chain disruptions, the supplier was packing full truckloads and delivering to multiple customer locations in the Eastern and Southern parts of the country. The temperature and humidity sensitive nature of sweet potatoes limits their transportation options to a single temperature set at 55°F, resulting in a higher transportation spend for an already low-margin commodity.

Solution

In collaboration with their customer, an idea was presented to combine sweet potatoes with other perishable commodities, such as strawberries, at the customer's cross-dock facility in California. These full truckloads of mixed refrigerated commodities would be sent to individual customer locations. It was imperative to achieve the following: Retain the warmth of the sweet potatoes so they do not lose integrity by getting too cold, and ensure the refrigerated product would not be impacted while traveling with a warmer conditioned commodity. A new thermal wrap was designed that created the ability to retain product temperature of the sweet potatoes without impacting surrounding pallets of refrigerated products. To further enhance the validity of the results, a simulation test was performed to show which sample of product would perform best.

PalletQuilt® Produce Wrap captures the existing temperature of the product

Reflective pallet covers maintain product temperatures with no heat transfer to surrounding



Industry:
Food, Produce



Application:
Cross Country,
Freight



Route:
Northern California
to Eastern and
Southern US



Challenge:
Difficult to secure
truckload quantities
& transportation
options of sweet
potatoes due to
their temperature &
humidity



Solution:
PalletQuilt® wrap
to retain product
temperature
without impacting
surrounding pallets
of refrigerated
products

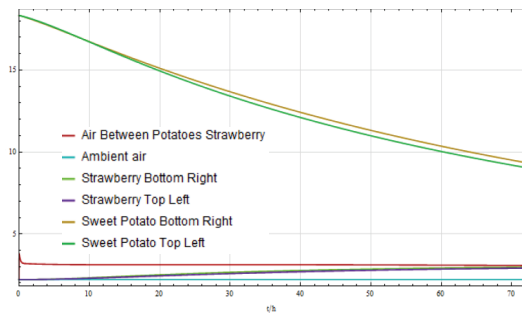
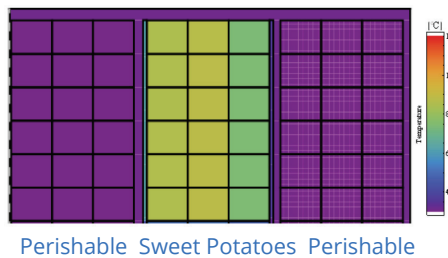
Simulation and Live Test Results

A simulated temperature study was done to understand the heat transfer effects of a higher temperature pallet of sweet potatoes near sensitive perishable food pallets (strawberries) that require refrigerated conditions. Throughout the simulation, the covered sweet potatoes remained in the desired temperature range while the air space between the two pallets remained near ambient temperatures during a 72-hour time frame proving the feasibility of a live temp study.

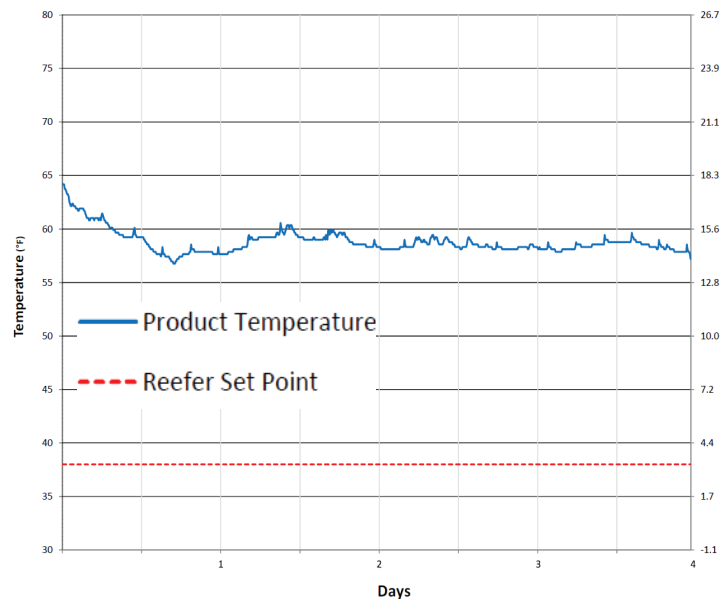
A refrigerated truckload (34°F) containing 8 pallets of sweet potatoes, each covered with a different pallet cover solution, were sent cross-country from Northern California to the Eastern and Southern US. Temperature loggers were placed on each pallet to capture product temperatures during transit.

Temperature test results and shelf-life testing showed the sweet potatoes covered by QProducts PalletQuilt® Wrap was the only pallet that remained dry and within temperature specifications without impacting surrounding perishable product.

Simulated Study



Live Temp Study



“ The TF-150 quilted wraps provided superior product protection during transit... Insulation performance allowed us to utilize more efficient intercontinental multi-temp transit options, reducing product dwell time, lowering inventory costs and boosting sales by offering fresher product to the customer. ”

— Director of Retail Sales, Produce Company