GS1 Australia


# Indoor Vehicle Tracking Supply Chain Solution bears fruit

# Indoor Vehicle Tracking Supply Chain Solution bears fruit

## Australian industry can now leverage the key learnings from the successful implementation of a supply chain solution in New Zealand's fresh produce sector.

## Australasia's first major commercial roll-out of Radio Frequency Identification (RFID) based on the Electronic Product Code (EPC) standard has been implemented successfully within the New Zealand kiwifruit industry.

Richard Jones, General Manager – Industry Management, GS1 Australia, said: "This project, implemented by GS1 New Zealand and Peacock Bros with their Skytrax indoor positioning system, has provided a business case for companies wanting to implement a unique warehousing solution in Australia using EPC/RFID technology. Now Australian industry can leverage these learnings".

### Logistical Challenges

EastPack is a grower-owned kiwifruit post-harvest company which each year packs 12.02 million trays of fruit for 389 suppliers. The company sorts, packs, stores and forwards to export a significant share of the nation's $1 billion-plus kiwifruit crop. Its pack houses must respond constantly to international market signals received through the industry's exporting arm, ZESPRI.

It's a supply chain with major logistical challenges that reflect the competitive market positioning of New Zealand kiwifruit, a critical focus on product quality, and the scale and structure of this industry.

EastPack turned to GS1 New Zealand for innovation that would enable the pack house to deliver export shipments with even greater efficiency, to reduce its fruit losses and to raise its operational productivity.

GS1 New Zealand, through its Supply Chain Enhancement Program, has designed and given close ongoing support to the implementation of a system that enables EastPack to track and trace every pallet of kiwifruit throughout its extensive Bay of Plenty operations. EPC/RFID went live at EastPack in late March 2008 from the start of the kiwifruit season.

For EastPack, export market signals hit the tightly-packed lanes of its 42 cool stores most days of the season. From late March, the company receives the freshly-picked kiwifruit for sorting, packing and temperature-controlled storage in readiness for trucking to ships berthed at Tauranga. EastPack's Te Puke pack house is the biggest facility in the industry, expected to handle 9 million trays this season.

Fruit coming off the sorting lines is packed by type, size, grade and harvest date on pallets before going into coolstores, sometimes for months on end. Through the season, the pack houses respond constantly to market orders from ZESPRI – orders that give 10 days' notice of the next shipment but may repeatedly change in detail until just a few hours before product is due on the wharf. (The fruit is owned by growers but in the custody of pack house operators until physically stowed on the ship, from which point ZESPRI takes ownership).

## Flexibility

Flexibility in filling orders is what helps make New Zealand so competitive on the international market – but it must be matched by extraordinary operational flexibility between orchard and ship. "Everyone in the supply chain has got to do their part to make it happen," says EastPack Company Administrator Donna Smit. "For pack houses, the logistical issues can be nightmarish."

In the EastPack coolstores, the pallets (each with up to 200 trays) are typically stacked in rows 12 long and two high. Pallets are moved in, around and out again as product is selected and accessed for exporting – and at Te Puke in the height of the season that can mean 24 forklifts at work during three shifts over each 24-hour period.

The kiwifruit must, of course, be kept in the correct cool temperature range all the time. Ideally, pallets move in and out of storage on a first-in/first-out basis, with softer fruit being taken for export ahead of harder fruit (and spoilage minimised). But the flow of orders and constant updating of type, size and packaging requirements invariably disrupts the ideal. Some pallets must be urgently retrieved, with others pulled aside and relocated in the process. EastPack makes a final check on product quality at the truck loading dock and Mrs Smit says this can mean further juggling as sub-standard fruit is removed and new trays added to these pallets.

## Incentives

Keeping both inventory records and pallet locations up to date is critical – but when the squeeze is on, the task becomes extremely difficult. "It really is a case of us growing too fast for our existing systems and people," says Mrs Smit.

For EastPack, there are obvious financial incentives in increasing efficiency in coolstore operations: easy and quick retrieval of fruit to the exact specifications of each order means higher sales volume and lower wastage; fewer forklift movements mean less likelihood of fruit being "lost" within the store, and lower requirements for both energy and labour; less juggling of pallets means more stable temperature control, with less energy consumption and fruit spoilage.

In all, EastPack will be better positioned to fill the more urgent and lucrative orders coming through from ZESPRI, and to avoid the penalties that apply when pack houses inadvertently send the wrong kiwifruit to the wharf or, on rare occasions, leave empty spaces in departing ships. EastPack saw big potential for automatic data capture and came to GS1 New Zealand for ideas in early 2007.

EPCglobal Powered by GS1 SUBSCRIBER

The pack house had long used bar code scanning to identify and track pallets, but it was very aware of inherent limitations when demands of the export season really hit. Staff just could not devote the time and rigor required to scan and record every pallet movement. Enter the GS1 New Zealand Professional Services team and its successful Supply Chain Enhancement Program. On request from EastPack, Senior Consultant Erik Sundermann immersed himself in coolstore operations.

GS1 New Zealand then came back with a proposed solution that would build on the company's experience with GS1 Serial Shipping Container Codes (SSCCs) and bar coding, and support the existing inventory management system. With his professional support, EastPack put out a request for proposal (RFP) to source the components for robust application of EPC/RFID throughout its facilities.

## Providers

Providers were selected in August 2007, with Peacock Bros, of Australia and New Zealand appointed to the role of project integrator (GS1 New Zealand was retained to provide close technical advice and project overview). In broad terms, the solution is simple: place EPC/RFID tags on pallets and EPC/RFID readers on forklifts; capture events automatically whenever a forklift picks up or drops off a pallet; identify where in the store this occurs; and instantly transmit the relevant data back to EastPack's inventory management system.

At any early stage, the project team experimented with a prototype solution that involved a forklift moving pallets between a limited number of locations in one store. Success led to a fully-operational pilot throughout one store in late 2007, the forklifts then operated by staff in the business-as-usual rush to locate pallets and fill orders.

Locations around the store were tracked through the use of forklift-mounted cameras and special location markers (dot matrix bar codes) attached to the ceiling: the cameras recorded the location each time a pallet was picked up or dropped off. That was matched to coolstore coordinates (room, row, height and position) fixed on a floor grid pattern; and this data, along with the SSCC of the relevant pallet and a time-stamp, was transmitted back to the management system.

## Roll-out

The pilot results were impressive. The accuracy rate for data capture in the management system exceeded 95% and the ceiling-mounted markers enabled pallets to be identified to within 20cm of their exact locations (the grid pattern is also painted on the floor). From there, EastPack and its project team began a full-scale roll out of EPC/RFID at all 42 stores on the company's three sites –all with the goal of full implementation in time for the 2008 season (starting in the final week of March).

The value of the solution lies, of course, in EastPack's vastly improved ability to locate particular pallets in store, and to quickly retrieve them for export at optimum times and with minimum reshuffling of other pallets. The management system already holds data on all fruit received for packing (eg. type, grower, harvest date) – and the system will now also hold real-time information on the location and status of that fruit by pallet SSCC.

## Powerful tool

Mrs Smit says the EPC/RFID solution gives EastPack a powerful tool for streamlining every aspect of its coolstore operations over time, with all the financial advantages mentioned earlier. The company will have a full history of each pallet – time spent in various locations of a particular coolstore, at certain temperatures and so on – and this will greatly increase its ability to track and trace product. The solution will also provide new streams of data on forklift movements, coolstore utilisation and other variables on which to measure and improve the operating performance of each facility. This will open the way for savings in energy consumption, labour and time. There will also be benefits in terms of enhanced safety for staff working in a busy, crowded environment.

Time is often the most critical element of all for EastPack. When fruit can be accessed and moved with greater certainty and speed, the company can far more easily manage the risk of its deterioration and loss. All parties expect the EPC/RFID solution will lead, ultimately, to reduced fruit loss, increased sales, cost savings and the avoidance of any missed-shipment penalties.

Even with conservative assumptions, EastPack anticipates recovery of the capital costs during the first two years of implementation. "We thought RFID was the way forward but couldn't have moved so quickly and so effectively without the knowledge and drive provided by Erik Sundermann," says Mrs Smit. "He gave us an immediate '101' understanding of the technology and very quickly wrote us a report explaining how it could work in our business."

The EastPack solution will mean ZESPRI receiving 15% of its product with GS1-standard EPC/RFID tags attached. The globally standard nature of this technology will open opportunities for wider application in the Australasia's fresh produce supply chain, from grower to the supermarkets of New York, Paris and Tokyo. EPC/RFID has arrived!

This case study was first published in the May edition of SCAN, GS1 New Zealand's supply chain magazine. GS1 Australia would like to acknowledge GS1 New Zealand for sharing this case study.

For further information contact Industry Management at GS1 Australia on 1300 366 033.

9 312345 022038

GS1 Australia

Head Office
Axxess Corporate Park
Unit 100/45 Gilby Rd
Mt Waverley VIC 3149
Locked Bag 2
Mt Waverley VIC 3149
T +61 3 9558 9559
F +61 3 9558 9551

Sydney Office
Lakes Business Park
Building 4B, 2-4 Lord St
Botany NSW 2019
Locked Bag 7002
Botany DC NSW 2019
T +61 2 9700 0933
F +61 2 9700 0820

National Number: 1300 366 033
ABN: 67 005 529 920

www.gs1au.org