

# FTD

SUPPLY CHAIN MANAGEMENT

# magazine

volume 23 | No 3 | June/July '10 | \$ 9.95

## LOGISTICS & TECHNOLOGY

Technology trends

## FREIGHT & DISTRIBUTION

Domestic transport

## MATERIALS HANDLING

Warehouse management



*Smarter thinking.*

**SPACE:  
FONTERRA'S  
FINAL FRONTIER**

# Space: Fonterra's final frontier



**More than 10 percent of the 2 million tonnes of dairy ingredients produced by Fonterra per annum passes through its Crawford St cool store in Hamilton**

Fonterra is New Zealand's largest company and, despite its distance from key markets, the world's largest exporter of dairy products. With a proud cooperative heritage stretching back to the 1870s, Fonterra was formed in 2001 with the merger of the New Zealand Dairy Board, the New Zealand Dairy Group and Kiwi Cooperative Dairies. The company's global supply chain involves 10,700 farmer/shareholders in New Zealand, with distribution to stores and customers in 140 markets. Fonterra collects over 14 billion litres of milk a year, converting them into 2 million tonnes of milk powder, butter, cheese and specialty dairy ingredients. More than 10 percent of this product passes through the doors of Crawford St, Fonterra's cool store in Hamilton.

"Fonterra came from a base of a number of different organisations which had different infrastructure," says Chris Alderson, general manager of transformation and projects for Fonterra's group supply chain. "When it was joined together, it was not the most effective system from an efficiency

point of view."

The supply of more than 210,000 tonnes of local butter and cheese each year had outstripped capacity, leading to reliance on third-party overflow stores and resultant inefficiencies in inventory management, handling and transportation.

"With Crawford St we saw an opportunity to look at our infrastructure and make it as effective as possible and enable us to manage the supply chain in a more efficient manner," says Mr Alderson. "It's a logical economy of scale. Sitting at the bottom of the world with an incredibly long supply chain makes it a big challenge to get our products to our customers in an efficient way."

## Streamlining business processes

"Fonterra was really looking to consolidate," says Stuart Macnab, general manager, Dexion New Zealand. "The cool store was seen as instrumental to streamlining Fonterra's processes, plus delivering cost savings and a more efficient supply chain." The new plant, designed by



**The shuttles, supplied by Dexion, transport pallets within the system**

Sinclair Knight Merz and built by Haydn & Rollet, is 230 m long, 94 m wide, 15 m high, and encompasses nearly 20,000 sq m of freezer space. There are five separate rooms: two for butter and three for cheese. Temperatures range between minus 18 to plus 13 degrees Celsius.

Allowance was made for easy movement between freezer rooms, cool rooms and ambient rooms. The maturation of cheese, for example, requires time spent at different temperatures at different stages.

Dexion was asked to provide high-density, cold storage racking and a satellite retrieval system. "Obviously, refrigerated storage is considerably more expensive per square metre," explains Mr Macnab, "so we really had to be clever about delivering a high-density yet accessible solution. We reached across the Tasman and the world to tap into our global knowledge, and were able to bring a lot of extra experience to bear." In fact, the task required coordination across the entire Dexion family,



**Shuttle controls have been integrated into the truck itself for operator efficiency and ease**



*Allowance was made for easy movement between freezer rooms, cool rooms and ambient rooms in the new Crawford St plant*

involving Dexion's industrial storage division in Australia and Dexion in New Zealand.

### **Next-generation technology**

Complementing Dexion's thinking was a partnership with Swedish shuttle manufacturer, Texo Applications. "We'd previously worked with Texo to develop some brilliant next-generation technology which we'd used in other New Zealand projects," says Mr Macnab. "The shuttles have no

hydraulics, few moving parts and easily removable batteries that can easily be recharged without interrupting operations – they were perfect for Crawford St."

To service the shuttles, Dexion worked with Eurolift to modify their existing R17X reach trucks. Shuttle controls were integrated into the truck itself, putting complete command in the hands of a single operator.

"Our high-density racking system was specifically designed to work with the shuttles. The shuttles

deposit and retrieve units as required, travelling out along the rails of the racks, beneath the pallets," Mr Macnab continues. "This flexibility was important, as the density of the design meant that the racking is seven pallets high – two pallets higher than standard – and 29 pallets deep in places."

All in all there are more than 51,156 new pallet positions – 35,600 for cheese and 15,556 for butter. Each pallet of butter weighs one-and-a-half tonnes. More than 700 tonnes of shuttle rail was used.

### **Innovative implementation**

"With the sheer amount of materials required, and the shortness of the deadlines, we had to be pretty innovative with our implementation," says Mr Macnab. "With 51,156 pallet positions, that's a lot of steel, so we manufactured the material in advance, delivering to a nearby staging site ahead of schedule in order to ensure a timely delivery to the Crawford St site."

"With Sinclair Knight Merz and Haydn & Rollet still working all around us, we had to be extremely flexible with our implementation schedules.

Fortunately the cooperation was fantastic, and any minor issues were dealt with within the team. All our milestone dates were met, sometimes even beaten."

In fact, three rooms were operational before Christmas last year, while the final two rooms were completed on 24 February, a full two days before schedule.

Today, 2000 tonnes of Fonterra's Waikato manufactured dairy products move through its Crawford St hub every day. The company's links between its Waikato manufacturing sites and ports are significantly more efficient. (For example, cheese maturation now happens at a single facility, rather than across locations.) And better integration with rail networks has taken a significant number of transport movements off the road, contributing to a reduction in the carbon footprint of Fonterra's logistics operations.

After this successful transformation, both Dexion and Fonterra look forward to the completion of the Mosgiel cold storage facility in the South Island in July 2010.

For further information, visit [www.dexionsmarterthinking.com](http://www.dexionsmarterthinking.com)