



Sitting among the pine forests of Mokai, 30km northwest of Taupo, Miraka Dairy Factory taps into the geothermal energy below

Miraka Dairy Factory - a unique development

Dave Pooch, FNZIFST

Tapping into geothermal energy, whānau owned and supported by Vietnam Dairy Products, Miraka Dairy Company embodies the vision of taking family owned dairy farms into the global market. The plant has the power and capacity to process more than 250,000,000 litres of milk into powders and UHT products every year.

About Miraka

Miraka Dairy Factory (Miraka) grew out of a shared vision that a group of whānau (family) businesses could add value to their farming enterprises beyond the farm gate by investing in the manufacture and marketing of their products to a global market. The company exports to the Americas, the Caribbean, North, East and West Africa, the Middle East, Asia, Australia and the Pacific.

Kingi Smiler, Chairman of Wairarapa Moana Incorporation and Tumanako Wereta, Chairman of Tuaropaki, led the initiative to unite and build confidence and trust among whānau with similar values to take on the competitive challenge of building the first Māori owned milk processing plant.

The company that emerged is owned by a group of Māori trusts and incorporations. Among its strategic partners and investors is Vietnam Dairy Products (Vinamilk), the biggest dairy company in Vietnam, which decided to make Miraka their first investment outside Vietnam.

The plant is supplied by 55,000 cows on 98 farms. The largest herd is 2,000 and the average herd size is 570 cows.

The operation has an innovative waste treatment system. Wastewater goes into a DAF (dissolved air flotation) plant. There, the pH is reduced to 3.85 and air is injected. This separates out the fat from the liquid, scrapers taking the fat off the top. The fat goes to a worm farm and



Miraka – Māori for milk

The Miraka brand, nurturing our world – and its logo – reflect the company’s commitment to whānau (family) and environmental values, sustainable business practice and production of a top quality product for the world market.

after the wastewater is adjusted back to pH 7 it is irrigated on to farmland. “Its a nice closed loop recycling system that illustrates our being responsible guardians of the resources”, says CEO, Richard Wyeth.

Currently the plant processes 23 million kg of milk solids each year, and produces powders and UHT milk in Tetra-Pak cartons.

Miraka is proud to be powered by renewable geothermal energy. Raw geothermal steam comes out of the ground, goes through a clean steam plant then is piped straight into the factory. Condensate is re-injected deep into the ground. Electricity comes directly to the factory from the Mokai geothermal power station. Although studies have been done overseas on the use of geothermal energy to power dairy plants, we cannot find any record of any another dairy company in the world that uses geothermal energy directly.

An interview with Richard Wyeth, CEO

FoodNZ: “How did you come to join Miraka?”

Richard: “I was working at Open Country Dairy as their global sales



Technical Officer, Veronica Isgleas, in the UHT Plant

manager when a friend of mine told me about a new dairy development near Taupo. I had an interview back in December 2009 and that was that. I was the first employee and came in as acting general manager. At that stage we hadn't raised the equity or debt and we hadn't signed off on the plant. After six months, when things were established, I applied for the CEO role and have been here ever since.

FoodNZ: "I note you are not making infant formulas. Is this in your future plans?"

"It is more challenging to make infant formula than commodity products. If something goes wrong, you go from having a lot of infant formula to a lot of low value stock food. Our strategy from day one was to start with commodity powder, build a strong base and go up the value chain from there. Infant formula is something we wouldn't say no to but we would only say yes if we had the right strategic alliance. And that means a partner with the right distribution and marketing facilities or the ability to grow that."

FoodNZ: "What drove your decision to install a UHT plant?"

Richard: "The market for UHT milk is both small and pretty flat in New Zealand. We may put a bit of product on the New Zealand market but you certainly could not build a UHT plant on the strength of that. The market is growing in Australia, although it is still a small percentage of total milk sales."

"It is a different story in Asia. Parts of Asia are still getting out of condensed milk and UHT is the next natural step. There is an increasing demand for liquid product."

"We have signed a tripartite agreement with Shanghai Pengxin and Mengniu to deliver UHT milk to greater China. Demand for UHT in



Miraka chief executive officer, Richard Wyeth

Tetra Pak

FoodNZ sent reporter Dave Pooch to Tetra Pak's offices at Waikato Innovation Park to learn about their involvement with Miraka. Integrated business manager, Lance Vernall (integrated as in processing plus packaging) said Miraka had installed two Tetra Pak® A3/Speed lines, each capable of filling 24,000 x 250ml TBA (Tetra Brik Aseptic) packs per hour. Combined, this is a staggering 200 million packs per year. He added that Miraka use a superior metallised packaging which comes in from Singapore.

Aaron Pooch, Tetra Pak's marketing, portfolio and categories manager said, "Our A3/Speed platform is normally selected when high efficiency is most important. A focus on efficient operation and minimised wastage gives our customers a competitive advantage with reduced production costs."

Lance agreed and said "We had a lot of discussions with Miraka about what they wanted to do. Based on the orders they had, they decided on 2 x 250ml high-speed machines. They went for a compact line and a simple but efficient solution. The project was on a tight time frame but was installed and commissioned on time. Miraka really knew what they wanted as both the operations manager, Mike Payne and project manager, Brian

Coates had had UHT experience in the Middle East. That meant that Miraka were straightforward, very confident and able to make decisions on the spot."

"The equipment has performed well ever since. We have had one of our Tetra Pak engineers down there for last 12 months. That has been a good way to support a company which was new to UHT production. Now, New Zealand engineers are coming up to speed and we envisage that in the future local engineers will be able to do it all."

Dave asked Lance, "What are your thoughts on UHT and dairy exports?"

"Recently," answered Lance, "New Zealand and Australia have seen a resurgence in exports of UHT milk. While the domestic market is quite flat, UHT is going gangbusters in Asian countries and other developing countries."

"In the past, exporting liquid milk was uneconomic. The per capita GDP in Asia has risen quickly so that many more people are now able to afford to buy good quality New Zealand milk. They see that as a health benefit for them and their families."

"UHT is packaged at source. It is 100% New Zealand milk, not

China and South East Asia is strong and by aligning with the right partners we will grow together. The other feature of UHT is that it is a smaller capital investment. It is relatively easy to bolt on additional UHT lines as success grows."

"Having identified the potential for UHT product in China we put the UHT project out to tender. The successful parties were SPX Engineering of Hamilton and Tetra Pak, also of Hamilton, who supplied two of their Tetra Pak 250ml SB3 filling machines."

Richard enthused about his experience with Tetra Pak. "I have been involved from day one and their service has been excellent. They certainly provide a service above and beyond supplying a filling line. They give quite a lot of market knowledge as well and their innovation centre in Singapore is very impressive."

There's potential in UHT exports

For a major food exporting nation, New Zealand has not made a lot of investment in UHT. Fonterra has a new installation at Waitoa and Goodman Fielder has an older installation. New Zealand's UHT human resources in terms of operators, servicing and so on are still developing. Miraka operations manager, Mike Payne gained valuable UHT experience when he worked at the Almarai Company in Saudi Arabia. Almarai is the largest vertically integrated dairy company in the world according to Wikipedia. The UHT plant at Miraka was a \$27m project and took nine months from start to finish, which was mostly construction time for the building.

Richard Wyeth expects significant growth. "There is certainly the desire from our UHT partners for the business to grow. We have a goal to quadruple the output of our plant in the next five years."

The milk powder operation

Miraka's \$90m GEA spray drier produces eight tonnes of whole milk powder per hour and was mostly fabricated on site.

Describing the construction, Richard said, "It is quite impressive to see the big pieces being welded together. They build a square, roofless shell, put everything in then put the roof on. We started on the drier in May 2010 and the first milk was processed just over a year later in August 2011."

Richard gives plaudits on the construction. "Ebert Construction, without question, know what they are doing and they do a fantastic job. I have nothing but praise for Kelvin Hale and his team at Ebert. They have a great reputation in the industry there is no question."

Future growth

The cash flow foundation for Miraka was its GEA whole milk powder drier. Richard explained that Miraka's intent from day one was to develop a whole milk powder factory and then build from there. "The reality is there is already an established market for whole milk powder. You have to develop and grow the market for UHT. Powder and UHT markets are quite different."

"We already have good volume on the whole milk powder side, and one of our challenges is to maintain profitability on that while adding value through the consumer side. While our main product is whole milk powder, UHT will smooth the returns and on average provide better returns than whole milk powder alone. My goal is to have equal revenue from the whole milk powder and UHT milk after five years. The challenge is to work with companies like Shanghai Pengxin and Mengniu to achieve those goals."

recombined or local milk. People really see the value and are prepared to pay for it.”

“A UHT operation can be readily bolted on to an existing factory. It allows a producer to move along the value chain from a commodity product to a FMCG niche. I suspect that over the next few years we will see three or four more companies getting into UHT milk.”

Aaron Pooch, left, Tetra Pak Marketing, Portfolio and Categories manager, and Lance Vernall, Tetra Pak Integrated Business Manager. Miraka Dairy is running two Tetra Pak® A3/Speed lines, each capable of filling 24,000 x 250ml TBA (Tetra Brik Aseptic) packs per hour



Tetra Alex Homogenisers Pioneering Design for Sound Performance

- Extremely efficient homogenisation will reduce your energy costs
- Turnable parts and longer service intervals for lower service costs
- Easy access to reduce service times
- Separated wet and drive ends built for cleanability & higher hygiene

