



IUF Dairy Division



Fonterra Co-operative Group Limited- New Zealand



Abstract

The Fonterra Co-Operative Group Ltd. is a multinational dairy co-operative and is one of the world's leading dairy product exporters, accounting for more than one-third of dairy trade internationally. With roots in New Zealand, Fonterra has over 60 offices and over 60 manufacturing sites internationally and Fonterra's products are present in over 140 markets. While its offices span across the globe, currently most of its manufacturing operations are in the Australasia and American regions. The cooperative operates across a diversified portfolio and produces across a number of main dairy product categories that range from dairy ingredients, value added ingredients to food services. As a co-operatively owned company, Fonterra is governed by four external groups, including New Zealand Dairy Farmers, Fonterra Board of Directors, Shareholders' Council as well as the Milk Commissioner. Fonterra has been expanding its global presence and networks through engaging in various partnerships with other multinationals such as Nestle (Dairy Partners Americas), Dairy Farmers of America (DairiConcepts), Royal Friesland Campina (DMV Fonterra Excipients), Clover and Dairy America. Fonterra places strong emphasis on research and development in the aim to pursue processes that are more efficient and to develop more innovative produces. Innovation Centres are operating in New Zealand, Australia, China and Singapore and are dedicated to a wide range of sciences, including forage and bovine genetics, nutrition, flavours, texturants and packaging materials.

Currently, Fonterra is aiming to achieve three particular strategic goals. First, the cooperative aims to deliver sustainable co-operative performance through increasing the company's flexibility, scale and operational efficiencies; second, to build trusted brands in chosen markets through exiting from mature positions, continuing to invest in growing categories and consolidating operations; and finally, to grow lasting customer partnerships through leveraging proprietary processing and product intellectual property. Nevertheless, while Fonterra is now one of the world's top ten dairy companies and its practices in the past decade have proven the cooperative's capacity, Fonterra is facing various challenges to its performance and sustainability. In order for the cooperative to become genuinely global and sustainable, Fonterra needs to go through major transformations in areas such as its global supply chain, capital structure, allocation of financial investment, production location, technological innovation, business partnership and overseas management strategy. Also, Fonterra will need to benchmark its performance in response to recent trends, issues and campaigns such as environmental sustainability and energy efficiency. While Fonterra has already achieved

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some notable results since its establishment in 2001, revolutions are now needed for the cooperative to become a globally successful multinational enterprise.

General information

The Fonterra Co-Operative Group Ltd. is a multinational dairy co-operative with headquarters in Auckland, New Zealand. Established in October 2001 through a merger of the New Zealand Dairy Group (NZDG), Kiwi Cooperative Dairies and the New Zealand Dairy Board (NZDB), The Fonterra Co-Operative Group Ltd. is now responsible for one-fifth of New Zealand's total exports and 7 percent of its GDP¹. It is the world's largest dairy processor by milk intake in 2010.² The chronology below marks the significant events that eventually led to the establishment of Fonterra Co-operative Group Limited:³

- 1814:** Samuel Marsden brings a bull and two heifers to New Zealand.
- 1846:** The country's first export--a consignment of cheese--is shipped to Australia.
- 1886:** The Anchor brand is launched.
- 1923:** New Zealand establishes its first Dairy Board.
- 1935:** The government takes control over export marketing.
- 1961:** The Dairy Production and Marketing Board is created.
- 1987:** The Dairy Board Act is passed.
- 2001:** The Fonterra Co-Operative Group Ltd. is created from the merger of the New Zealand Dairy Group, Kiwi Cooperative Dairies, and the New Zealand Dairy Board.

Fonterra is one of the world's leading dairy product exporters and it is also accountable for more than one-third of dairy trade internationally⁴. In a report published in 2010 by Rabobank Group, the Dutch financial services provider, Fonterra is ranked fifth by turnover among dairy companies worldwide⁵. Below are the key data of Fonterra (2010 Data):⁶

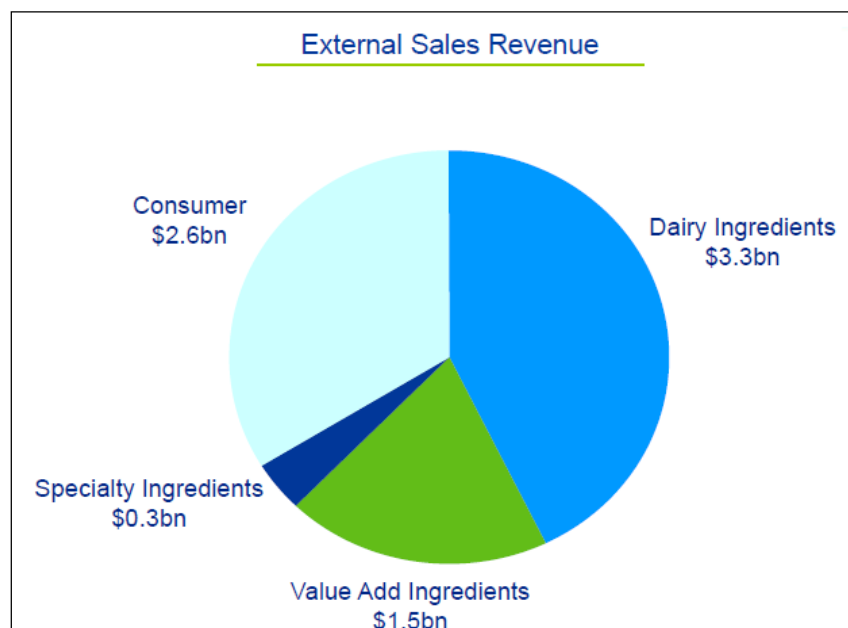
Total Assets	NZD\$14.1 billion (≈EUR 8.65 billion as of Aug 2011)
Annual Turnover	NZD\$16 billion (≈EUR 9.82 billion as of Aug 2011)
Milk Production (New Zealand)	14.76 billion litres
Sales Volumes	2.31 million metric tonnes
No. of Employees	15,600 (worldwide)
No. of Shareholders	10,537

Product mix

Fonterra operates across a diversified portfolio and produces across a number of main dairy product categories (see Figure 1), including:

1. **Dairy Ingredients:** These products are targeted at markets with low barriers to entry and multiple suppliers. Dairy ingredients include whole milk powder, skim milk powder, butter and cheese.^{7 8}
2. **Value Add Ingredients:** In comparison to dairy ingredients, these products are higher up in the value chain. However Value Add Ingredients are not yet unique enough to be classified as Specialty Ingredients. These products include nutritional bases for infant formula, growing up milk powders, CheddarPlus and PowerProtein for snack bars.^{9 10 11}
3. **Specialty Ingredients:** These products have unique propositions with limited demand volatility and include dairy ingredients that could be applied to paediatric, functional or pharmaceutical uses. Examples of these products are Clear Proteins and Pharmaceutical Lactose Excipients.^{12 13}
4. **Consumer Products:** Consumer products are sold to consumers directly through consumer brands owned by Fonterra. Examples of these brands include Anchor, Bega, Fresh'n'Fruity, Mainland, Tip Top, Anlene, Brownes, Annum, Sorpole and Fernleaf.^{14 15}
5. **Food Services:** Fonterra has a global sales channel directed especially to meet the catering demands of restaurants, hotels, bakeries, cafes and fast food outlets. Core dairy ingredients and branded dairy products are both provided, including ready-to-serve cream and beverages, butter, milk, cheese, ice cream, desserts, frozen pastry and yoghurt.¹⁶

Figure 1. External Sales Revenue by Product (March 2010)¹⁷



Regional and country focus

With roots in New Zealand, Fonterra has over 60 offices and over 60 manufacturing sites around the world and Fonterra's products are present in over 140 markets.¹⁸ The company is owned by around 11,000 New Zealand dairy farmers who supply the company with over 14 billion litres of milk per annum.¹⁹ See table 1 for an overview of the spread of offices and manufacturing sites in different geographical regions:²⁰

Region	No. of Office	No. of Manufacturing Sites*
New Zealand	11	25
Australia	7	12
Asia	21	2
Europe and Middle East	10	1
Africa	4	0
North America	9	9
South America	3	21

* Includes secondary packaging

Table 1. Number of Fonterra office/ manufacturing sites in respect to geographic region

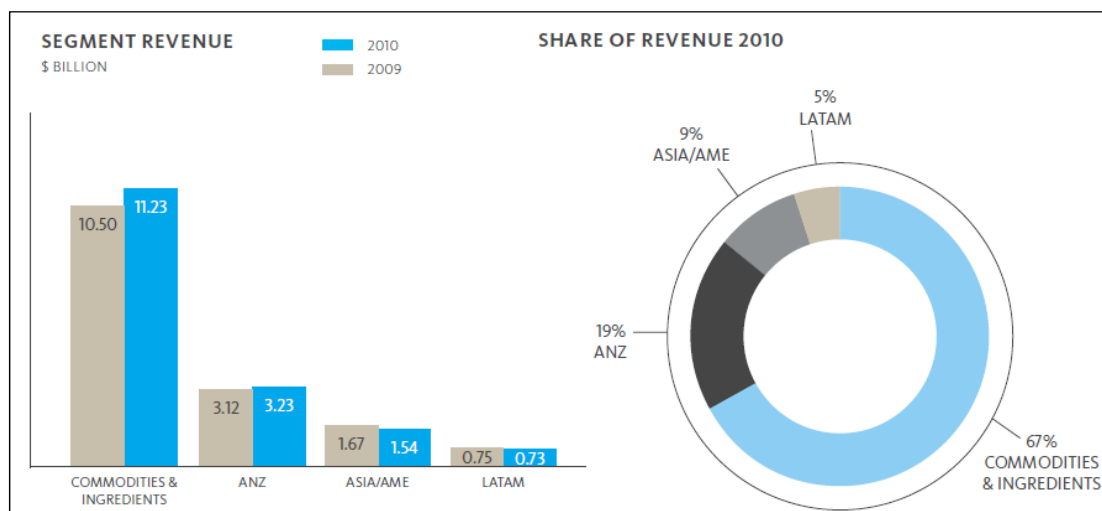
The main five business segments of Fonterra reflect its organisational structure. Three of these segments are defined by geographic region and are mainly consumer-focused, whereas the other two are centred on international ingredients business²¹. See Figure 2 for each segment's respective revenue in year 2010. The geographic segments include:

- **Australia/New Zealand (ANZ)** – This segment manages the operations and consumer brands in New Zealand and Australia, including businesses marketing brands such as Anchor, Tip Top and Mainland.^{22 23} ANZ is the largest consumer foods business in Australasia, which provides Fonterra with an assured supply of fresh milk, a network of 16 manufacturing sites, and marketing and brand synergies, offering competitive advantage in the Trans-Tasman market.²⁴
- **Asia/Africa, Middle East (Asia & AME)** – Asia & AME manages operations in Asia, Africa and the Middle East. In December 2009, full control of Saudi New Zealand Milk Products (a joint-venture dairy manufacturing factory in Saudi Arabia) was gained, which will further secure Fonterra's manufacturing capacity in the Middle East.²⁵
- **Latin America (Latam)** – This segment only represents Fonterra's business in Chile, Sorpole.²⁶ Fonterra's ownership Soprole is one of the company's largest consumer dairy investments.²⁷

On the other hand, the international ingredients business activities are overlooked by:

- **Fonterra Trade & Operations (FTO)** – This segment reports Fonterra's New Zealand milk supply, manufacturing, global trade and supply chain activities. FTO mainly deals with the production and selling of dairy ingredients. These include Milk Supply, Shareholder Relations, Milk Collection, NZ Operations, Offshore Milk Sourcing and Processing, Supply Chain, Sustainability, Government Relations and Global Trade.^{28 29}
- **Fonterra Global Ingredients and Foodservice (GIF)** – GIF mainly concentrates on producing high-value dairy solutions, particularly in North Asia, North America and Europe. The main focus of GIF is on selling Specialty Ingredients and Value Add Ingredients.^{30 31}

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Figure 2. Segment revenue for year 2010 ³²

* Figures for FTO and GIF are combined and reported as Commodities & Ingredients

Fonterra in Australia ³³

Overview: Fonterra and its predecessors have existed in Australia for over half a century. With revenues of A\$3 billion, Fonterra employs 2,000 people, collects 21 per cent of Australia's milk and operates 11 manufacturing sites. In 2007 merged its Australian business (milk supply, manufacturing, ingredients, brands and foodservices), its New Zealand Brands business and Tip Top, its New Zealand ice cream business, into one strategic Trans-Tasman business unit.

Ingredients: Fonterra is the leading domestic dairy ingredients supplier and marketer in Australia, handling close to 50 per cent of Australia's domestic dairy ingredients business. Fonterra supplies ingredients to the bakery, confectionary/chocolate, health and nutrition, and processed food sectors. Fonterra works to meet its customers' needs for specialised solutions, including ingredients and products that enhance or protect consumers' health, for example: probiotics and the sports nutrition market.

Foodservices: Fonterra's Foodservices operations are based in Melbourne and provide Australian foodservice operators, including McDonalds, Dominos, Yum! (KFC and Pizza Hut), Oporto, Subway, Red Rooster, Muffin Break, Bakers Delight and Bidvest with branded dairy products, as well as core ingredients and ready-to-use products.

Fonterra in Asia ³⁴

Overview: Asia is one of the largest consumers of Fonterra's dairy ingredients, second only to America. The Asian market makes up about 40 per cent of Fonterra's total global sales. Countries including Japan, China and Indonesia are among Fonterra's top five international markets. Across Asia, Fonterra has more than 2,500 employees in 15 operating countries. These employees cover jobs that range from marketing, distribution, manufacturing services to production capacities. Following are the details of some of Fonterra's operations in Asian countries:

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- **Indonesia**³⁵ - Fonterra Brands Indonesia employs over 150 permanent staff and over 1,300 outsourced employees. Fonterra Brands Indonesia partners with third party contract manufacturers and distribution parties to meet blending, packing and marketing needs in the Indonesian market.
- **Malaysia**³⁶ - In Malaysia Fonterra commands 76 per cent share of the adult milk category through its Anlene brand and 80 per cent share for prenatal dairy products with Annum. Solivite, a 70 per cent owned Fonterra operation which produces cultured and acidified milk products, is also based in Malaysia.³⁷
- **Philippines**³⁸ - In Philippines, Fonterra's operations are 157-employee strong with a head office in Quezon City (which employs around 60 employees) and a central warehouse in Pasig City. More than 80 products are available locally, of which 25 are locally manufactured by four contract manufacturers and co-packers. Directly servicing 27 key customers and partnering with 28 distributors in the retail channel, Fonterra work with over 500,000 outlets throughout Philippines.
- **Sri Lanka**^{39 40} - Fonterra is the largest dairy company in Sri Lanka, with a market share of almost 50 per cent. Fonterra's dairy products are manufactured from both milk produced in New Zealand and Sri Lanka. The manufacturing operations based at Bigyama produce both powdered as well as liquid dairy products.

Functional foods: Developed markets including Hong Kong, Japan, Korea and Singapore are at the leading edge of Fonterra's functional ingredients development. Japanese and Chinese consumers are particularly interested in new ingredients and functional foods.

Fonterra in the Middle East⁴¹

Overview: Fonterra has begun operations in the Middle East since 30 years ago. In the past few decades, business in the region has grown significantly due to the rising demand for dairy products among consumers as well as Fonterra's expertise in addressing specific health concerns.

Fonterra's presence in the Middle Eastern market includes a local holding company, Fonterra Brands, which is based in Dubai and operates across the United Arab Emirates (UAE), Saudi Arabia and Yemen. Around 185 employees are employed by Fonterra Brands. UAE and Saudi Arabia are the fastest growing markets in the region, and these two markets account for 60% of Fonterra's business in the Gulf region.

In June 2007, Fonterra launched its 'global brand' Anlene into the Middle Eastern market, and in April 2009, Fonterra entered Egypt by partnering with Arab Dairy Products Co. for the company to manage the franchising, processing and distribution of Anchor throughout Egypt.^{42 43} Fonterra's best selling brands in the Middle East are Chesdale, Anchor and Mainland.

Partnerships ⁴⁴

Fonterra has various partnerships around the world, including:

- **Dairy Partners Americas**

In March 2002 Fonterra established an alliance with Nestle to set up joint ventures the Americas. The joint venture, Dairy Partners Americas, operates in Bermuda, Brazil, Argentina and Ecuador. The alliance is established on a 50/50 basis, with Fonterra managing the large-scale milk procurement, processing, technologies and brands and Nestle providing its brands, product development expertise and distribution infrastructure. The partnership sources fresh milk from dairy farmers in the Americas and its ingredients from New Zealand.

- **DairiConcepts**

Through Fonterra's DairiConcepts joint venture, the company partners with Dairy Farmers of America. The partnership shares technologies, capital, knowledge and innovation to manufacture dairy products at 10 sites across the USA. DairiConcepts is the first commercial manufacturer of milk protein concentrate in the United States.

- **Dairy America**

Fonterra started its partnership with Dairy America in 2001, exporting skim milk produced by Dairy America through Fonterra's global network. Dairy America is an association of seven major US co-operatives.

- **Clover**

In May 2005, Fonterra concluded an agreement with South Africa's largest dairy company, Clover Industries Ltd, to investigate in dairy ingredients-related opportunities in sub-Saharan Africa. This was followed by the creation of a joint venture company, Clover Fonterra Ingredients (CFI), to carry out contract ingredient manufacturing, handle the marketing of dairy ingredients, and supply food service products to various quick-service restaurants throughout the sub-Saharan region.

- **DMV Fonterra Excipients**

DMV Fonterra Excipients is a joint venture between Fonterra and RoyalFriesland Campina, an European dairy company. DMV Fonterra Excipients is one of the largest providers of dairy-based excipients to the pharmaceutical market. The joint venture provides pharmaceutical-grade lactose, which is used as the carrier for active drug formulations in tablet and inhaler forms. DMV Fonterra Excipients has production plants in New Zealand, Germany and Holland.

Ownership and management structure

As a co-operatively owned company, Fonterra is governed by four external groups (see Figure 3):⁴⁵

1. **New Zealand Dairy Farmers:** Fonterra is owned by over 11,000 dairy farmers who are spread throughout New Zealand. These shareholders of Fonterra represent 95 per cent of New Zealand's dairy farmers.
2. **Fonterra Board of Directors:** There are up to 13 directors on the Board of Directors. Nine are elected by shareholders and the rest are appointed by the Board.
3. **Shareholders' Council:** The Shareholders' Council looks after Fonterra's shareholders. It is made up of 35 shareholders representing 35 wards all over New Zealand. The Council operates independently of Fonterra and its main responsibility is to make sure the needs of supplier shareholders are recognised by the Board.
4. **Milk Commissioner:** The Milk Commissioner is appointed by the Shareholders' Council to mediate any disputes between shareholders and Fonterra.

Figure 3. Governance Structure of Fonterra



New Changes to Capital Structure (Currently implementing)

In September 2009, the Board of Directors announced a three-step process to remove the redemption risk of its shares and to prevent large amounts of capital from being washed in and out of the company's balance sheet due to the fluctuation of milk production.^{46 47} At present, the dairy farmers are buying Fonterra shares based on the level of their milk production. Once the process is implemented, farmers would buy and sell shares among themselves through a Fonterra Shareholders' Market instead of buying and selling through Fonterra.

In addition, A Fonterra Shareholders Fund would also be set up to allow farmers to sell the share benefits of distributions and value changes but preserve voting and milk payment rights. Farmers could also be able to buy dry shares that do not have voting rights.⁴⁸ The process, which has already been accepted by the dairy farmers in June 2010, will be able to meet Fonterra's short term (five years) capital needs while also retaining dairy farmers' control and ownership of Fonterra.^{49 50}

The three-step process that will evolve Fonterra's capital structure includes firstly **strengthening the share structure**. Under the new system, dairy farmers would be able to hold shares up to 120% of their milk production (the existing limit is closer to 100. Secondly, **share value would be restricted**. The new system would adjust Fonterra's share value to reflect that the ownership of share is limited to farmers only. A transition process would be designed to address the likely impact of this restriction on the share price. Thirdly, Fonterra would move to a system where **farmers buy and sell shares among themselves**, rather than exchanging through the Co-operative.

Company strategy ⁵²

There are currently a number of main strategic targets which Fonterra is aiming to achieve through actualising innovative plans as well as carrying out concrete actions. These strategic goals include:

1. **Deliver sustainable co-operative performance** through increasing the company's flexibility, scale and operational efficiencies. Examples of actions and exercises taken in 2009 and 2010 include:
 - Launching the online trading platform "globalDairyTrade"
 - Adoption of the new Milk Price
 - Transformation of supply chain
 - Cost saving to offset inflation
 - Opening ED4, the world's largest Milk Dryer
 - Expansion of China farms

2. **Build trusted brands in chosen markets** through exiting from mature positions, continuing to invest in growing categories and consolidating operations. Examples of actions and exercises taken in 2009 and 2010 include:
 - Increasing holding of Soprole to 99%
 - Divestment of business in Western Australia
 - Acquisition of SKI brand (Australia) from Nestle
 - Launching Anlene and Annum Materna in Chinese regional cities
 - Expansion of Food Services in Asia
 - Divestment of JV with Arla in the United Kingdom
 - Acquisition of full stake in JV with Saudi New Zealand Milk Products
 - Investment in Ultra-High Temperature (UHT) plant expansion

3. **Grow lasting customer partnerships** through leveraging proprietary processing and product intellectual property. Examples of actions and exercises taken in 2009 and 2010 include:
 - Establishing new innovation centre in Chicago
 - Commercialisation of CheddarPlus and C21
 - Expansion of DairiConcepts (USA) and DMV Fonterra Excipients (Europe)

Supply Chain- manufacturing locations and products ⁵³

New Zealand-

- **Canpac International:** Based in Hamilton, Canpac is Fonterra's largest secondary packager of milk powders. Canpac supplies branded nutritional powders, bulk blended nutritional milk powders, and cans and can components. Canpac's product blending facilities brands Fonterra's products for export.
- **Clandeboye:** Clandeboye is one of Fonterra's seven South Island manufacturing sites, and the third largest of the 26 sites in New Zealand. Clandeboye is supplied by 865 farms through the Central South Island. The site produces milk powder, butter and cheese (cheddar varieties, Mozzarella, and Whey).
- **Edendale:** Edendale's facilities convert milk into whole, skim and butter milk powders and produces mineral casein for the Japanese and North American markets. The Anhydrous Milk Fat (AMF) plant exports product for use in consumer foods around the world.
- **Edgecumbe:** Processes protein products for use in sports drinks, protein bars, soups and baby foods, whey products for use in sports nutritional supplements, and ethanol for alcoholic beverages. The site also produces specialty cream products, butter, casein, lactose concentrate, Anhydrous Milk Fat and AMF products blended with vegetable oil.
- **Eltham:** Cheese from Fonterra's New Zealand primary processing sites is cut, grated, shredded and packaged for consumers around the world, including fast food chains Pizza Hut, Dominos, and McDonald's. Eltham is also home to one of Fonterra's speciality cheese operations, which produces cheeses such as blue vein, camembert and brie for the local and international markets.
- **Hautapu:** Manufactures a variety of specialty cheeses, including Edam, Gouda, Egmont and Cheddar products. The site also specialises in lactose, casein, milk protein and whey protein products, which are all exported to markets in Europe and the United States.
- **Kaikoura:** Kaikoura manufactures cheese that is used by fast food restaurants around New Zealand. The cheddar products manufactured by this site are also exported to Japan, the USA, Australia and Europe for both direct consumer use and as an ingredient in the manufacture of other consumer products.
- **Kapuni:** Kapuni produces refined-grade lactose for Fonterra's Ingredients business as well as pharmaceutical grade lactose for DMV-Fonterra Excipients. A small quantity of the site's dry lactose is further processed into inhalation grade lactose for use in asthma inhalers.
- **Kauri:** The plant produces butter, skim milk, whole milk and nutritional powders for use in chocolates, milk reconstitutions and a variety of other foods. The site's Concentrated Milk Fat is exported to America, Europe, Australia and the Middle East.
- **Lichfield:** Cheese produced at Lichfield are destined for markets in Japan, America, Latin America Europe and Australia. Fonterra Lichfield also produces whey protein concentrate and isolates for use in infant formulas and energy drinks.

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- **Longburn:** Collects milk for transportation to Whareroa and produces Mineral Acid Casein over the peak milk season for general trade use.
- **Maungaturoto:** Produces Whole Milk Powder for the South American market. Most of the Casein produced on site is used in processed cheese production and the site's whey powder is used in the production of Fonterra Brands products as a source of protein, nutritional powders, beverages and cultured products (yoghurt).
- **Morrinsville:** The site produces butter, whole and skim milk powder and Stolle milk.
- **Pahiatua:** Processes whole milk for use as an ingredient in a range of consumer products, including confectionery.
- **Plains:** Located in Christchurch, this plant specialises in producing buttermilk and skim milk powders.
- **Reporoa:** Produces food-grade ethanol for use in the manufacture of consumer food products and alcoholic beverages. The site also uses skim milk to produce a range of protein products, such as caseinate for nutritional supplements and lactalbumin.
- **Stirling:** Produces normal & reduced salt cheeses, such as Cheddar and Colby, to supply the Australian, EU, Middle Eastern, Central American, Asian and domestic markets. The site also produces whey protein concentrate for use in nutritional supplements, baby foods and sports drinks and lactose concentrate which is sent to other sites to be processed into sugar.
- **Takaka/Brightwater:** Located right at the top of New Zealand's South Island, Fonterra's Takaka and Brightwater sites produce skim milk powder, whole milk powder and whole milk concentrates for use in sweetened condensed milk, reconstituted milk, ice cream and other consumer dairy products.
- **Te Awamutu:** Produce a range of instant, regular, vitamin fortified and nutritional powders. Salted and unsalted butter products are also produced for markets around the world. The Anhydrous Milk Fat plant also produces sweet cream, whey cream and colostrum AMF for use in the reconstitution of milk and the manufacture of spreads, chocolate, ice cream and baking.
- **Te Rapa:** Produces nearly 20 per cent of the company's whole and skim milk powders. The site also turns its daily quota of 304 tanker loads of milk into a range of cream products, such as butter, cream cheese and Anhydrous Milk Fat.
- **Te Roto:** Supplies speciality cheese, such as creamy blue, brie and parmesan.
- **Tirau:** Produces technical casein which is then used to manufacture adhesives, textile fibers, paper coatings, leather finishing and paints. The site's acid casein is also used in the manufacture of a range of food products, including infant formulas, coffee whiteners, confectionary and cereals. Tirau lactalbumin is used in pharmaceutical applications, health foods and infant formula, and the site's ethanol is used in a range of household items, including perfumes and deodorants.
- **Tuamarina:** The Tuamarina plant in Marlborough removes water from milk before transporting it to the company's Clandeboye site, also in the South Island.

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- **Waitoa:** Produces nutritional products, such as infant formula and dietary supplements, along with standard skim and whole milk powders.
- **Whareroa:** The site converts milk into instant whole, skim and butter milk powders. Butter, Cheddar, Colby, Egmont and Mozzarella are also manufactured.

Australia-

- **Balcatta:** Produces fresh, flavoured and functional milk, which is sold under the brands Anlene and Brownes across Australia.
- **Bayswater:** Manufactures convenience packs including Mainland Cracker Cuts, Munchables and On The Go, which are sold in Australia and New Ready-to-use sliced cheese is also produced at Bayswater.
- **Brunswick:** Produces Brownes yoghurt, Brownes cream and a range cheeses for the domestic market.
- **Cobden:** This site produces butter and spreads, which are sold under the Western Star and Mainland brands in Australia. Whole milk, skim milk, buttermilk powders and frozen cream are also produced here for the domestic and export markets.
- **Cororooke:** This site produces Italian cheeses, including Perfect Italiano mozzarella and ricotta, for the Australian and New Zealand markets. Cream and whey powders are also manufactured for both domestic and export markets.
- **Darnum:** Produces cream and whole and skim milk powders for both domestic and export markets.
- **Dennington:** Manufactures whole and nutritional milk powders which are sold locally and around the world.
- **Echuca:** Manufactures a range of yoghurts and dairy desserts that are sold under the Nestle and Connoisseur brands.
- **Spreyton:** The site produces milk powders (skim, whey and buttermilk), Anhydrous Milk Fat, lactose and frozen cream for the domestic and export markets. Butter and spreads sold under the Duck River and Western Star brands are also manufactured here.
- **Stanhope:** Produces a range of specialty cheeses including cheddar, parmesan, pecorino, romano and gouda for domestic and export markets. Stanhope also processes ingredient cheddar, ghee, AMF and milk powders (skim, whey and buttermilk) for export.
- **Wagga Wagga:** Produces Riverina Fresh white milk, yoghurt, desserts and cream cheese.
- **Wynyard:** Manufactures cheddar cheese and whey powder for both domestic and export markets.

Asia-

- **Colombo (Sri Lanka):** In Sri Lanka, Fonterra produces fresh milk, Ultra Heat Treated (UHT) milk, milk powder in sachets and cultured products for domestic consumption.
- **Selangor:** Fresh milk, canned milk powder, Ultra Heat Treated (UHT) milk and cultured products are produced in Malaysia at its Dairymas operation.

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Middle East-

- **Saudi NZ Milk Products:** Operates a site in Damman (Saudi Arabia) which produces processed cheese, feta, sachet and canned milk powders that are sold throughout the Gulf States.

North America-

DairiConcepts has nine manufacturing sites across the USA, including a large Milk Protein Concentrate (MPC) plant. DairiConcepts mainly produces cheese and dairy powders, cheese concentrates, functional dairy replacement systems and hard Italian cheeses. DairiConcepts also supplies dairy ingredients to a number of America's leading brands. The nine manufacturing sites are located in:

- Allerton, IA
- Bruce, WI
- Chili, WI
- Eldorado Springs, MO
- Greenwood, WI
- Hummelstown, PA
- Pollock, SD
- Portales, NM
- Springfield, MO

South America-

Dairy Partners America (DPA), the 50/50 joint venture between Fonterra and Nestle, operates 13 manufacturing sites across Brazil, Argentina, Venezuela, Colombia and Ecuador. These sites collect and process fresh milk, manufacture dairy products, and distribute ingredients commodities and consumer goods. These sites are located in-

- DPA Araras, Brazil
- DPA Barra Mansa, Brazil
- DPA Cayambe, Ecuador
- DPA Chivacoa, Venezuela
- DPA Firmat, Argentina
- DPA Goiania, Brazil
- DPA Itabuna, Brazil
- DPA Ituiutaba, Brazil
- DPA Rialma, Brazil
- DPA San Andres, Argentina
- DPA Valencia, Venezuela
- DPA Valledupar, Colombia
- DPA Villa Nueva, Argentina

Soprole: Soprole, the Chilean-based joint venture between Fonterra and Soprole, has operations in Los Angeles, Los Lagos and Osorno that produce cheese, milk powder, butter and whey permeate powders. Soprole also manufactures a range of dairy products, including milk, Ultra Heat Treated (UHT) milk, yoghurt, table spreads and desserts, for domestic and international markets.

- Soprole Los Angeles
- Soprole Los Lagos
- Soprole Osorno
- Soprole - San Bernardo
- Soprole Santiago

Research and Development (R&D)

Fonterra invests in R&D in the aim to be at the forefront of innovation, to pursue processes that are more efficient and to develop more innovative produces. Below are some R&D projects that Fonterra is currently working on:

Processes ⁵⁴

- **Manufacturing Innovation:** Increases manufacturing efficiency while driving down operating costs
- **High Pressure Processing:** Aims to turn the water pressures that are normally used as a “blunt” food preservation tool into a high precision instrument for working with dairy products.
- **Heat Recovery Loop:** This project sees products requiring cooling and heating receiving stored energy recovered from other product streams. In other words, product streams are indirectly heated and cooled by each other, which will in turn bring more efficiency
- **Highly Automated Manufacturing:** This project endeavours to see manufacturing processes automated by leading edge dairy manufacturing technology and process innovation. A number of HAM technologies have already been implemented in Fonterra’s manufacturing facilities.
- **Milk Concentration Technology:** Saves cost and energy through decreasing the number of tanker movements. This has already been implemented at Fonterra’s Tua Marina site in New Zealand’s South Island.

Innovation in the dairy sector ⁵⁵

Fonterra has Innovation Centres in New Zealand, Australia, China and Singapore that are dedicated to R&D in a wide range of sciences, including forage and bovine genetics, nutrition, flavours, texturants and packaging materials. Fonterra also has a Strategic Innovation Group that is chaired by CEO Andrew Ferrier. The Group manages Fonterra’s innovation activities and checks that the company has the appropriate and required capability and resources to engage in these projects.

Fonterra also belongs to a network called InnovationXchange, which helps companies with safely exchanging intellectual property to develop networks with potential innovation partners. On the other hand, Fonterra also has a fully owned subsidiary, ViaLactia Biosciences, which is a biotechnology company that concentrates on identifying, discovering and commercialising methods of selection and genes that are affecting pasture grasses, milk production and milk composition.

Innovative Products ⁵⁶

Chesdale Chocolate Cheese Slices: Developed for the Asian market in response to the research finding which pointed out that cheese is now increasingly valued in Asia.

Anlene: The brand Anlene incorporates products that are specially formulated for bone health maintenance, especially for adults. Anlene is the product of over US\$40 million dollars of investment in bone research and a team of 19. This brand has continued to advance bone science through leading bone health innovation.

Probiotics: Fonterra's two single probiotic strains, DR10 and DR20 are formulated to maintain a healthy digestive balance, bolster the gut's defences, increase the overall immune system, improving infection resistance, and providing protection from daily stresses. The probiotic is now licensed to the world's biggest culture supplier.

Savoury Powder: Fonterra's savoury powder allows the level of sodium to be reduced by at least a third while boosting savoury flavours in a range of processed foods. This has enabled great taste to be preserved while salt is reduced. The product boosts meat, cheese and vegetable flavours in a variety of foods. Primarily made from wholemilk using a fermentation process that is patented, all of the ingredients used to produce this are natural.

Fonterra- Commentary Summary

With a long history as a dairy product exporter and the world's ninth largest milk producer, around 95% of New Zealand's total production is exported around the world. Being New Zealand's largest company, Fonterra itself is among the globe's largest raw milk processors and about 95% of its revenue is gained outside New Zealand through direct sales to over 100 countries.⁵⁷ Although it is now one of the world's top 10 dairy companies and its practices in the past decade have proven the cooperative's capacity, Fonterra is nevertheless facing various challenges to its performance and sustainability. The current summary will provide an overview of the commentaries on Fonterra's cooperative structure, 2008 Chinese Milk Scandal, and present challenges.

1. Cooperative Structure

- Supply Chain

Fonterra's superior knowledge of milk production, processing technology, and consumer markets has allowed it to become a company that is globally competitive. Being a cooperative that is largely export-oriented, Fonterra has implemented an effective supply chain system that is fully vertically integrated. The company is in control of activities that range from managing dairy herds, producing milk products, to distributing end products in retail markets. Its packaging, quality control, transportation and freight forwarding have all been integrated, hence making the practices of the cooperative more effectual.

Although facing strong competition internationally from other multinationals, such as Danone and Nestlé, Fonterra upholds its global status and performance through maintaining a strong research base, employing a flexible integrated supply chain, as well as forming business partnerships with other companies in foreign markets. Fonterra's supply strategy runs along two tracks in foreign markets. While operating in countries that have strict requirement for food products, Fonterra keeps tight control over the raw ingredients and products. In other markets where the relevant regulations are less strict, Fonterra would choose to outsource some activities within the supply chain in order to increase efficiency and flexibility.^{58 59}

However, despite above highlights of Fonterra's supply chain structure, the cooperative has faced significant supply chain constraints right from the beginning of its inception. These constraints include the cost in energy and time to reach distant overseas market, a lack of sufficient raw milk supply from New Zealand to meet global corporate demand and the seasonality of milk production indicating a need to retain inventory of product. On the other hand, various new supply chain challenges have emerged over recent years and effective supply chain management no longer concerns the products only. Consumers and campaigns are now also focusing on issues such as environmental sustainability, carbon footprint, animal welfare and movement towards buying local and decreasing food miles.

To date, Fonterra has already conducted several projects that seek to reinforce sustainable farming in New Zealand. These projects include Clean Streams Accord, Nutrient Budgeting, Pastoral

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Greenhouse Consortium, and the activities that Fonterra has engaged in aimed to understand more about its carbon footprint through scientific research, increase energy efficiency, eliminate waste and recycle wastewater. In order to perform sustainably and successfully, Fonterra needs to further develop these projects and thus prove itself to be a sustainable dairy cooperative at every level in its global supply chain.⁶⁰

- Capital Structure

While Fonterra has grown to become internationally competitive as an exporter in the past decade, the cooperative would still need to go through more transformation before it could reach its ambition. That is, to become a truly multinational enterprise that has operations that manage the developing, manufacturing, supplying, processing and selling of milk products around the world. In order to do embark on such transformation, Fonterra would require a capital structure that has the capacity to support the company's investment in local farms, the supply chain and in-market. Although the dairy farmers and the milk they provide are vital to the cooperative, they alone could not come up with sufficient capital that Fonterra requires to become genuinely global.⁶¹

Economic analyst Brian Gaynor points out that the main reason behind the determination of Fonterra's directors transform the cooperative's capital structure is the company's lack of permanent capital.⁶² As the shares are tied to milk supply, once the milk supply decreases, shares will be redeemed and Fonterra would lose its funds. In addition, as most of Fonterra's earnings are distributed to its shareholders, the cooperation has almost no retained capital. Under such circumstance, any uncontrollable event (such as drought) could seriously affect the company's ability to carry out its activities or implement timely operations.

In June 2010, a new change to Fonterra's capital structure was accepted by the dairy farmers. Once the new system is implemented, the dairy farmers would trade shares among themselves rather than through the cooperative. Through this change, Fonterra hopes to shift the redemption risk from the company to the farmers who are exiting the cooperative. Business analyst Rod Oram points out that while this system is by far the most far-reaching than any previous proposal, it would be "tricky" to carry out the process fairly. Farmers deserve a true and fair price for the shares for sure, yet a very well-regulated and liquid market is needed to justly establish the share price.

Rod Oram suggests that liquidity is the biggest challenge, as in a thinly traded market, any seasonal or occasional by-shocks (such as drought or exchange rate fluctuation) could make the number of sellers greatly exceed the number of buyers, and thus distorting share price. Fonterra is hoping to overcome this issue through three improvements. First, the Fonterra Shareholders Fund will allow farmers to sell the share benefits of distribution and value changes while preserving their voting and milk payment rights. This will mitigate the financial burdens of the dairy farmers. Second, Registered Volume Providers such as banks or brokerages would be in the market assisting the trading of shares and holding them on a short-term basis while they match farmers who are buying

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and selling. Third, Fonterra is proposing three years for farmers to buy or sell shares. This will allow sufficient time to smooth the procedure and the system.⁶³

2. The 2008 China Milk Scandal⁶⁴

In September 2008, the outbreak of Sanlu's contaminated milk powder scandal has challenged Fonterra's ambition of becoming genuinely global. Sanlu, the Chinese dairy company, is 43% owned by Fonterra. Rod Oram argues that Fonterra's disaster in China was not simply the result of Chinese corruption, but is in fact due to the company's flawed Chinese strategy. While Fonterra has enjoyed the rapid growth of export to China, the fast-rising Chinese consumption has urged Fonterra to start investing in local production. Similar to many other foreign investors, Fonterra's difficulties stemmed from its naivety in taking a minority stake in a local company.

Knowing that Fonterra is desperate to secure local production, Sanlu played on Fonterra's innocence by maximising the price Fonterra has to pay while decreasing the control Fonterra has. By 2005, Fonterra paid \$US107m for a 43% stake in Sanlu. Furthermore, in 2007, Fonterra passed its technology and skills to run a plant for making high-value nutritional products to Sanlu. Sanlu took this skill and started a plant which manufactured infant formula that eventually led sickness in 6244 babies, of whom 158 have acute kidney failure, and four deaths.

This disaster reflects high vulnerability in Fonterra's strategy and its ineffective management system. The cooperation had inadequate control over the raw milk supply, as Sanlu relied on third-party collection depots that diluted the milk and then added highly poisonous melamine to maintain high protein value. As Fonterra has only allocated three directors and a number of technicians (out of which only one spoke Mandarin) to its investment in Sanlu, it is rather effortless for Sanlu to hide its activities and operations from Fonterra.⁶⁵ This incident reveals that Fonterra still needs to overcome more challenges before it could establish a trusted global brand.

3. Current Challenges

- Production and sustainability⁶⁶

In New Zealand, Fonterra has two main strategic goals. The first is to encourage dairy farmers to continue growing milk supply at a rate of 2.5% per year (which has also been a trend in recent years). The second is to develop more value-added products so that the cooperative could remain profitable in spite of the growing numbers of lower-cost competitors overseas, especially from the emerging markets.

Both goals are challenging and will require much more capital investment throughout the supply chain. Without further investment and development, current technology and farming activities will limit the growth of milk production and it is highly unlikely for the supply to increase continuously. Radical improvements in both management practices and technology are required for the output of Fonterra to keep growing at a rate that is economically and environmentally sustainable.

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While a 2020 strategy presented by Dairy New Zealand, the research body funded by levies, is in place, the strategy could only bring incremental improvements. Although the cost of production could be reduced, the value of the milk produced will not benefit from the current strategy. Yet at this moment the dairy sector is only distributing very little money into the area of science that has the potential to significantly enhance value and decrease costs: greenhouse gases. Fonterra has estimated that the 940g of greenhouse gases are produced for every litre of milk. These gases are generated in farming, processing and distribution. According to this estimation, around 15 million tonnes of greenhouse gases are produced every year, of which 85% is generated on-farm.

Research to date has proven greenhouses gases to be nutrients that are released into the air from farming activities. If more investment is made in science and encourage innovation in farming practices, the dairy sector could effectively tie up the loose ends of the nutrient cycle, enhance soil quality and animal productivity, which will in turn decrease on-farm costs, and increase the value of milk.

Despite having awareness of these potential benefits, Fonterra is only investing 0.02% of its revenues per annum to the work of the Pastoral Greenhouse Gas Research Consortium, the industry-government body that is working on this issue. Besides being rather sparing with research in sustainability, Rod Oram points out that Fonterra is also quite reserved when it comes to investing in science for its processing and products. It will be very unlikely for these incremental improvements to shift the products and the cooperation up the value chain. In this sense, if Fonterra wants to maintain its current growth rate, it will have to start looking into more technological advancements, which could not be achieved without more capital and resource investment.

- Global Presence

As previously mentioned, if Fonterra wants to have a thriving future and become truly sustainable, it will have to establish a strong global presence. While the traditional strategy of simply exporting has benefited Fonterra in the past decade, this strategy has limited upside, as world demand for milk products is increasing each year at a rate that New Zealand's domestic production could not keep up with.

With only a little more land that could be used for dairy farming, it is unlikely for New Zealand to see radical increase in milk production. Even if world milk prices increase, maintaining profitability would still be a challenge as costs of land and other inputs are also high. In terms of production cost, Fonterra and New Zealand will not be able to compete against the emerging low-cost countries that have abundant resources and workforce, such as Brazil, Argentina and Chile.

At the moment, New Zealand farmers, companies and investors are quite involved in the current transformation of the global dairy sector. Capital, skills and technologies are injected by these key players into these emerging markets. Currently around 20% of Fonterra's products are manufactured from non-New Zealand milk and it is already one of the largest dairy exporters from the United States. According to Fonterra's chairman, Henry van der Heyden, some day in the future,

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Fonterra will be sourcing half of its milk supply from New Zealand and the other half from other countries around the world (The predicted year cited in Gray & Le Heron (2010) was 2015). On the other hand, Nestle is buying products equivalent to around \$1 billion per year from Fonterra, which accounts for 8% of Fonterra's total business. These diversified trade and exchange around the world is deepening Fonterra's partnership and relationships with its major customers.⁶⁷

Fonterra's launch of *globalDairyTrade*, an Internet trading site that allows customers around the world to bid on its contracts, has brought basic risk management tools that are already used for many other commodities to the dairy industry. The fact that Fonterra has the global stretch necessary to conduct such a trading platform is again proving that Fonterra is globalising and moving beyond a large New Zealand-based exporter.⁶⁸

4. Brief Conclusion

From these commentaries, it is clear that Fonterra needs to go through major transformations before the practices of the cooperative could become genuinely global and sustainable. The areas that require transformation or improvement include its global supply chain, capital structure, allocation of financial investment, production location, technological innovation, business partnership and overseas management strategy. Also, Fonterra would need to benchmark its performance in response to recent trends, issues and campaigns such as environmental sustainability and energy efficiency. While Fonterra has already achieved some notable results since its establishment in 2001, revolutions are now needed for the cooperative to become a globally successful multinational enterprise.

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