

JOHN LUXTON

Farming for tomorrow – the future of the New Zealand dairy industry

The New Zealand dairy sector has developed a ‘free range farming system’. Along with a kind climate and a specialised milk processing sector, this gives it a significant commercial advantage compared to other major dairy countries, despite the distance from the market place and the domestic protection accorded other competitors.



Change and uncertainty

These are times of change for farming, and with change comes uncertainty, whether it be in international politics or uncertainty around sustainability and what it means for the industry. Added to this mix is the increasing role of social media and the activism of specific-issue non-governmental organisations. However, change also produces opportunity.

These changes have been underway for some time and coincide with rising urbanisation and, in many cases, an increasing polarisation of views in society. Social media is changing perceptions, sometimes at the expense of reality, plus it is changing the speed of information flow. Mega data will also mean many changes over the next few years. This reflects improving information and, in some areas, better science and also fake science. As always, different parties often highlight information which helps their arguments.

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Farming important to economy

Farming is still a very important part of the New Zealand economy. In merchandise exports, the primary sector still contributes around two-thirds of the value, and of that dairy has accounted for up to half or generally around one-third of merchandise exports by value. Fonterra alone is responsible for around a quarter of New Zealand's exports.

Our exports are important; they also highlight the areas of our economy which are truly competitive internationally and none more so than dairy exports. With 93-95% of New Zealand milk production being exported, the dairy sector has relied for the last century on being able to land a vast array of products into almost every country in the world despite significant tariff barriers and subsidies to its international competitors. This country's dairy sector has doubled in size over the last two decades.

Compared to other dairy exporting countries, New Zealand is unique with its almost total reliance on the world market. Australia's dairy sector has the next largest dependence on exports at 40%, meaning there is less volatility over time from the international commodity market. The EU and US sell around 15% of total milk production internationally.

The New Zealand dairy sector's reliance on the international market also means more significant market fluctuations, particularly as international supply and demand are fairly evenly matched. However, such price fluctuations also drive on-farm innovation. For any business to succeed, over time revenue must exceed expenditure. Of our land-based industries, dairy has consistently given a better return to landowners than most other farming alternatives, hence the very significant growth in dairy exports from around \$2 billion in 1990 to \$16.6 billion in 2014. To this could be added another \$3 billion worth of beef exports from the dairy sector.

New Zealand has benefited from the growth in dairy exports. The stronger New Zealand dollar has allowed consumers to buy lower-cost items in the market place. It has also pushed the dairy sector to continue to improve

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Farming versus the environment

With the increasing intensity and herd size of farms in the dairy sector there has been some noticeable impact on the environment, which makes it a political issue for some in our society. Such an impact has been observed in other dairy-intensive countries such as Ireland, the Netherlands and Denmark, other countries in the EU and in the US.

Most notable are the nitrate and phosphate directives now in place across EU countries. New Zealand is now moving through a similar process of reducing nutrient loads into our groundwater, rivers and lakes. The National Policy Statement for Freshwater Management drives this process and, in the case of the Waikato River Catchment, it is the Vision and Strategy in the Waikato Tainui Raupatu Claims (Waikato River) Settlement Act 2010.

The New Zealand dairy industry has been proactive, with leadership from Fonterra signing up to the Dairying and Clean Streams Accord in 2003 and then the wider industry setting national good management practice benchmarks in the Sustainable Dairying: Water Accord in 2013. These agreements are already showing measurable benefits in reducing nutrient run-off into waterways and in decreasing sediment and E-coli loadings.

DairyNZ has also provided significant leadership through its team of water quality scientists and its development and extension team. When such challenges as nutrient run-off or leaching arise, then this also focuses attention on resolving them.

Science has alerted us to the challenge and is also likely to provide some solutions over time. Nitrogen leaching is



Gay and Marilyn Baldwin's new wetland in Putaruru under construction

also a challenge in heavily cropped areas and with crops such as rice or potatoes. Interestingly, recent research in Sri Lanka has shown that a compound found in bones, hydroxyapatite, can be bound to urea and significantly reduce nitrate leaching (*Economist*, 18 February 2017).

So the dairy sector's response has not been a knee jerk one; it has shown leadership in this area ahead of regulators and some of our environmental lobby groups. The scale of environmental work on New Zealand dairy farms should not be underestimated. Effluent treatment systems, low application rate effluent recycling, waterway and drain fencing, wetland restoration, and significant riparian and retired land planting all demonstrate how the dairy sector is meeting these challenges positively. The mix of market and environmental pressures is also creating innovative responses from individual farmers, with a re-focus on lower-cost and lower-intensity dairy farming, which remain some of our most profitable farms. Very much a 'free range' farming system.

Investment in wintering barns in some areas can lower nutrient loads, but can also add to the capital costs of the farm, and overall return on capital may diminish. There will be trade-offs in the future.

The Dutch dairy industry now has a cap on nutrient levels, application rates and timing, and on cow numbers, as have several other jurisdictions. Land use change is being restricted, as is water use in many regions. But farmers respond to challenges (whether they be climatic, market-related or regulatory), and dairying with its dynamism is already changing.

Just as the environment is one such challenge, so too are animal welfare issues. The increasing prosperity of our society has also seen changing public attitudes, and with that our legislation and regulations. One of the basic challenges for farming and dairying is to keep ahead of society's changing attitudes. Today there is more transparency across the food-producing sector and to sell on the international market our systems must be the world's best.

With animal welfare concerns, for example, some farms are looking to reduce or minimise the selling of bobby calves. This is another of those challenges which will likely follow the elimination of battery cages for hens or sow crates for pigs.



Fenced and planted streams in Waihi



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Farms for the future

It is difficult to predict where dairy will develop on-farm other than a greater focus on systems to ensure regulatory compliance and to reduce the demand for labour. Because of the sector's growth and innovation, New Zealand dairying has led the world in pastoral low-cost systems of milk production, focusing on harvesting a maximum amount of pasture closely aligned to the annual growth curve. This system has ensured a low production cost and has also minimised greenhouse gas emissions compared to other countries which have major dairy industries that rely largely on harvested feed year-round. Most of our dairying will remain seasonal.

However, in focusing on market niches there will be a demand for more winter-sourced milk. Fresh milk exports into Asia will grow as will food service demands from the market place. Processors will need to pay incentives (and already do) to procure such milk during May, June and July.

The distance from our markets has also led to a processing skill base which is able to convert short-life perishable fresh milk into its longer-life products. We can convert most of our seasonal production curve into a year-round generally flat-to-rising demand in world markets.

Most major traditional dairy markets still restrict trade access to protect their rural sectors and because others, such as ourselves, can operate at a lower production and processing cost.

Traditional milk-consuming countries such as India, Japan, Britain, Europe, Russia, Canada and the US all consume significant volumes of generally higher-priced dairy products, but still severely limit access to their own

markets. Dairy, along with rice and sugar, is probably the most protected area of traditional food production around the world and has always been something of a stumbling block in free trade deals. This really signals this country's long-term price advantage.

So if the US Government wants to increase that type of protection to protect their 50,000 dairy farmers, then we may see similar barriers erected in other countries to which US farmers export. This may price them out of markets to New Zealand's advantage. The US dairy sector is very dependent on low-paid Mexican migrant workers with a current minimum wage of US\$7.25. If workers are paid a higher minimum wage, or even the New Zealand minimum wage, then production costs would also increase. Similarly, if migrant workers are repatriated to Mexico then production costs would also rise. There is an ageing population of farmers, largely on small farms in much of Europe and Japan, and I believe these markets will gradually open up to New Zealand dairying.

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Dairy sector debt on over valued farms could present a challenge to some farmers. However, the fact that many international pension funds now have a stake in the New Zealand dairy sector suggests that many international investment managers have recognised the long-term competitive nature of dairying in this country.

Future growth will be tempered by challenges. However, slower growth in volume will see our processors able to focus even more on adding value to our dairy exports.

Value add and the market for dairy

The ability of dairying to provide such a versatile foodstuff rich in protein to a protein hungry world will see the industry continue to prosper in this country. Because of the dairy sector's contribution to this country's economic wellbeing, particularly to the regions, and its impact over time on the value of the New Zealand dollar, it will continue to see a balance between its leadership around the issues of concern to all New Zealanders and the legislative restrictions it will face.

As mentioned, over the last two decades considerable growth has occurred in the sector. Future growth will be tempered by challenges. However, slower growth in volume will see our processors able to focus even more on adding value to our dairy exports. Most of our dairy processors have had a dominant focus in recent years on increasing processing capacity to handle the growth in volume. While whole-milk powder is a value add from skim milk powder and butter or anhydrous milk-fat, there are so many possible products available from milk and its micro-nutrients that over time many more of these will be able to find specific markets. However, all New Zealand milk processors are continually looking for a point of difference, which is another way of saying they look to add value.

Milk is a rather unique base substrate from which to manufacture products. It is produced daily in nature to provide nutrition to young animals. Most other foodstuffs are produced as reproductive material (e.g. seeds) or as a result of movement (e.g. meat or fish muscle). As a consequence, milk contains most (if not all) of the essentials for mammalian growth and sustenance.

The growing middle classes of the world are very focused on high-quality food. New Zealand, despite some critics, is one of the world leaders in food quality and also in the quality of our environment. Rapid global urbanisation and growth has created a dependence on world markets to meet this increasing demand. Considerable growth is occurring in the food service sector for a variety of dairy products, particularly those based on milk fat. Demand from bakeries, restaurants, institutions and hotels is driving this, partially through changing diets and also because of increasing international tourism.

Already there is sophistication to our dairy products marketed internationally, which will only continue to grow, including nutraceutical and pharmaceutical products from or with components from milk. New Zealand dairy scientists, marketers and processors continue to discover new dairy products and niches in the food chain for products made from milk and from isolates from milk fat and proteins. Some of these products sell at hundreds

of dollars per kilogram. Growing some of these valuable markets without turning them into another commodity is an ongoing market challenge. Likewise, there is a consumer story to tell the way Icebreaker does with its references to high country sheep runs, even though most of their product is processed in China.

The New Zealand milk processing and marketing sector is continually working internationally to seek new opportunities. Despite what some critics might say, Fonterra is a leader in this space and could be considered New Zealand's only true multinational of size, with a market presence in over 120 countries and a global supply chain sending products to almost every country in the world. Most of our dairy processors will have products in 50 or more countries.

Fonterra has identified some significant food trends which are to our advantage. Our milk is produced naturally from pasture. It is a natural authentic whole food and it is good for you. Milk contains high-quality protein and some healthy fats produced in a sustainable way. Consumers want less sugar and to know the source of their food. There is a trend towards healthier snacking and gourmet convenience with the occasional indulgence. Eating is more social, interactive and authentic, and with new products such as 'My Food Bag' also creating different food choices.

Summary

There may be a slow down in globalisation if the US goes down a more nationalistic path, but this has happened before. Countering this is an overall increase in urbanisation and rising prosperity in many countries, which will continue to grow demand for quality food to meet consumer preferences. Around the world local restaurants, snack manufacturers, bakeries and fast food outlets are always looking to make something that appeals more than their competitor's product or meal.

A large proportion of these new products that global and local food manufacturers produce will contain some of our dairy ingredients. We are very much a part of many global supply chains. It may be the top-end cappuccino requiring milk to froth, the Sao Paulo pizza with New Zealand-sourced mozzarella, crème fraiche in a Japanese restaurant, the special protein in a European hospital drip, or the lactose from Kapuni binding pharmaceutical drugs in pills around the world – all contain New Zealand pasture-sourced milk components.

So while negative headlines might cause some pessimism, our dairy sector has a bright future. It needs to continue to attract top people and to tell its story better to New Zealanders. **J**

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