



CHAMPIONING THE VALUE OF DAIRY NUTRITION



New Zealanders' average lifespan over the past five years has increased from 80 to 81.45 years and is expected to rise another half-year over the next five years as life expectancies increase worldwide.

Ageing populations are driving greater consumer focus on wellness, creating an opportunity for New Zealand dairy products to provide the nutritional quality that is a key part of this focus. Fonterra's New Zealand Milk Products brand (NZMP) has a targeted nutritional strategy that is a direct response to this trend.

At the heart of that strategy for Fonterra is creating sustainable value rather than pursuing market scale for its own sake.

In fact, over the next 10 years Fonterra is looking to produce less whole milk powder and switch to higher value protein products, where it expects a growing portion of margin and profit will be made, as existing processing plants reach their natural end of life, assuming no reinvestment.

The nutrition focus will be in three key areas:

- Medical Nutrition
- Pediatric Nutrition
- Sports & Active Lifestyle



Maintaining wellness and supporting lifestyles

Traditionally, sports nutrition has been targeted at athletes. However, this is now one of the fastest-growing categories in the general population as more and more people pursue more active lifestyles. Globally, eight out of 10 consumers today are looking for a functional benefit when they are snacking or consuming a drink, underpinning a \$200 billion industry.

With consumers now seeking nutritional, protein and digestive benefits even when having a 'treat,' the sports nutrition category is growing at 8% a year globally and in the high-20% range in South East Asia and China.

Fonterra has earned the right to play and win in this market because it has extensive knowledge of proteins and probiotics, and existing IP and innovation that responds to emerging consumer lifestyle concerns.

These include nutritional responses to factors like anxiety and stress, which research now suggests is a number one global concern for consumers. Fifty percent of adults report having some trouble sleeping and burn-out is now an officially diagnosed disorder. On top of this, 1.9 billion people - close to a quarter of the global population - are obese. Hence Fonterra's renewed focus on working closely with customers to provide innovative ingredients to help create nutritional support products that address these trends.

Fonterra is looking to bring its deep expertise in these areas to foster collaborative innovation and research to create unique new product attributes. One example: lipids that support cognitive development, which were previously only used in the pediatrics part of the business, are now also used in medical nutrition.

Using dairy nutrition to help heal, recover and age well

Fonterra established the medical nutritional business two years ago to help support healthy ageing. It is now developing products with customers to sell to hospitals and pharmacies for patients who need enriched protein 'power food' for recovery from illness.

New products in this area represent a win-win for patients, who are keen for a speedy recovery, and for governments and insurers, for whom swift patient recovery reduces costs and improves the productive use of health services and infrastructure.

There is also growing demand for products that deal with malnourishment, which is found to be a factor in up to half of all hospital admissions of elderly people. Governments are starting to recognise this and are implementing special programmes for the elderly. Singapore, for example, has launched a programme for over 60s to help them stay active and keep fit.

So Fonterra is looking to reinvent products with their global customers as well as to patent products to tackle these issues. It is looking to formulate products that have better taste, texture, and absorption while speeding up patient recovery and a return to good health. That means creating and launching new products that don't yet exist

CASE STUDY



With more than two billion people expected to be defined as elderly by 2050, with 60% of them in Asia. There is a growing market demand for recovery products that have a higher return per unit than Fonterra's traditional commodity ingredients.

Innovating with medical-grade nutrition requires extensive clinical trials and research. Fonterra will often partner with research institutes or other medical facilities to complete joint research and share costs.

It not just about the product, but also how people consume

Fonterra is also working hard with its customers on products that can be consumed in a variety of ways. For example, a giant 5kg bag of whey protein might be great for a bodybuilder, but unappealing to someone looking for a healthy, no-preparation afternoon snack bar. However, snack bars can often end up going hard on the shop shelf. The opportunity for Fonterra in this example is to develop ingredients that are not only nutritious but also prolong shelf-life and consumer appeal.

How people use products is almost as important as what they want to eat. To understand that, Fonterra mines data sources such as branded social media channels to see what consumers are saying, how many are following its associated brands, and what non-customers are doing. Understanding those trends helps future product development.

The complementary nature of alternatives

It's impossible to talk about dairy these days without including alternative protein sources in the conversation. Fonterra respects how alternative and traditional animal proteins can complement each other in the marketplace.

Earlier this year, Fonterra invested in Motif, a milk protein fermentation company with the growing awareness that people are choosing veganism as a lifestyle or cutting out dairy. Also, with a growing world population and demand for both traditional animal and alternative products, it's prudent to have a clear line of sight over the emerging alternative trends.

Alternatives play an important role but it's not an either/or situation but rather an 'as well as' approach. The big question around the alternatives is the capability to really scale up.

To put it into perspective, at peak scale a fermentation tank could produce a maximum of 300,000 litres (just slightly less than what you would need to fill a 25m swimming pool) in 5 days. At peak production in NZ on average 80 million litres (213 swimming pools) of milk per day is collected, 800 billion litres of milk protein are collected globally annually (which is loads of swimming pools).



To meet 50% of the global dairy demand you would need circa 25,000 fermentation tanks in action.

Cow's milk is nutritionally complex, it is made up of dozens of milk proteins. Some are in the same protein family and some are completely different families. It would take multiple fermentation vats to produce all the milk proteins that cows effectively produce in one 4 legged self-replicating fermentation tank. Without the complexity, it would be difficult to produce medical nutrition. Currently research is focused on the high value of proteins and there's almost no research for medical nutrition that is non-dairy based. If you want to do a plant-based alternative, you need to consume 25 times more than you would need from cows milk. Given it is difficult enough to get food into a recovering patient, it's not desirable to have to increase the volume of intake.

All the clinical trials and all the opinions of key opinion leaders, show that dairy protein or especially whey protein plays a big, big, big role. Alternatives have not been proven to support this area of nutrition yet but there might be potential for this in the distant future.

It's important that people understand the facts to allow a balanced perspective and see a collaborative relationship with animal dairy and alternatives. To produce cellular milk you need sugar and a nitrogen source. It can take up to 10kg's of sugar to produce 1 kilogram of protein. From this you are likely to produce 3-4 kilos of non-sugar waste biomass which is then – ironically – fed to cows.

Producing alternative products still generates waste and there is an issue with what to do with the waste. Fonterra don't see this as a negative. It's about complementing animal with non-animal. This could even be part of supporting a circular economy, feeding waste from one system to drive another system. We can use both to provide ecological and nutritional balance.

New Zealand is well positioned for future consumer's expectations

New Zealand pasture-produced cow's milk has a macro nutrition similar to other production methods, however, it is slightly higher in levels of antioxidants. Although other production methods around the world are good, NZ pasture-based milk is great. The great quality can't be attributed to one thing but is a combination of how we holistically farm. It's our animal breeds, which are bred to hold less milk, keeping the nutritional density concentrated. It's also our natural mix of pastures that we allow our cows to forage freely on.

Most importantly, it's our people who consistently strive to improve how they farm and meet consumer and community expectations. For all of these reasons we see a very bright future for New Zealand's pasture-based production and we also respect that we will need to keep working hard to earn that right.
