

## **Introduction**

This essay is concerned with the Dairy Industry and will answer the question "Have we been misled by the Dairy Industry"? I want to know whether the industry and its products are really necessary to our wellbeing.

The essay will cover the importance of the industry, environmental and animal cruelty issues and health implications and what influences our beliefs.

Finally, I will make suggestions on how to change our beliefs as well as to make dairy farming environmentally sustainable.

Where it is available, I will use New Zealand (NZ) information and research, however where none is available, I will use research from other developed countries that have comparable dairy industries, diets and cultures.

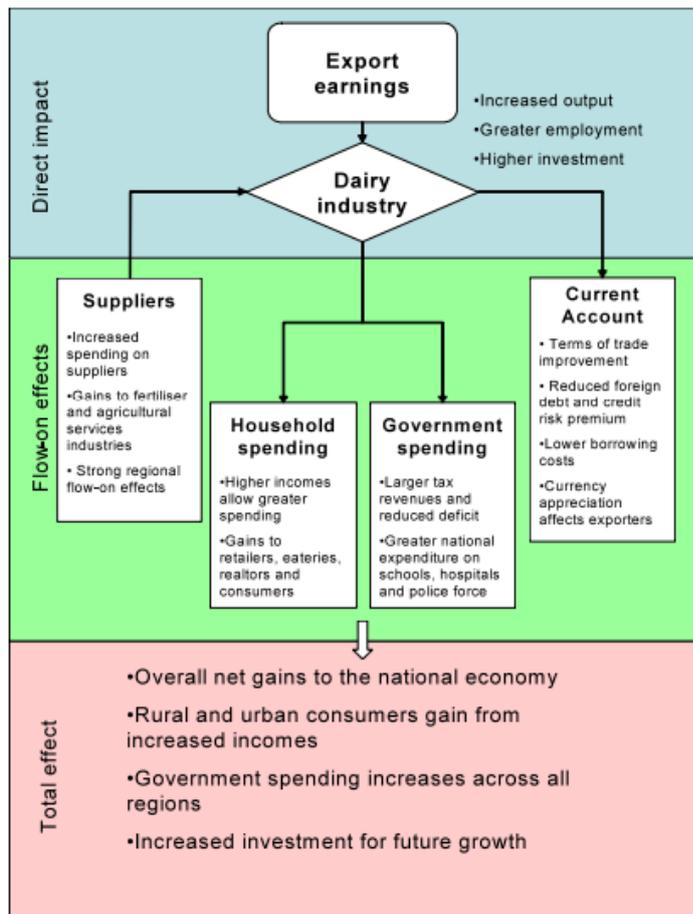
## **Importance of the Dairy Industry to NZ**

The NZ Dairy Industry is a huge part of our culture and wealth. We are a country built on the dairy industry with a large number of our rural towns dependent on the surrounding dairy farms.

Farmers are viewed to be hard working and honest members of our society and contributors to the communities they live in. 4,000 farmers are part of the Fonterra cooperative and this further strengthens the case that they are working for the good of the country and not as individual profit takers. Farmers are in the top 20 of most trusted professions according to the Readers Digest NZ's Most Trusted Professions 2014. The latest television ads for Fonterra are fronted by one of the most trusted men in NZ, the retired All Black captain Richie McCaw adding strength to the notion that the dairy industry and dairy products are trustworthy and essential.

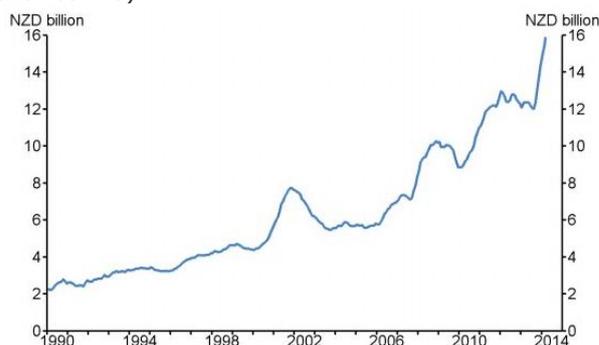
The dairy industry is one of our largest export earners with exports totalling \$12.3 billion for the year to 31 March 2016 only beaten by the tourist industry at \$12.9 billion (Cook, 2016). The industry has just over 48,000 employees, almost 12,000 herds, farms 1.8 million hectares of dairy land and is the world's largest exporter of dairy products (Dairy NZ, Quickstats about dairying, 2016). Contributions to the economy include increased supplier, household and government spending (Figure 1).

Figure 1 – Dairy Economic Impact



Source : (Schilling, Zuccollo, & Nixon, 2010)

Figure 2 - NZ Dairy exports (annual, New Zealand dollar terms)



Source: Statistics New Zealand.

Figure 2 illustrates the increase in dairy exports from just over \$2 billion in 1990 to its peak of \$16 billion in 2013 and although there has been a decrease to \$12 billion in 2016, the figures are significant for the overall wealth of NZ.

Figure 3

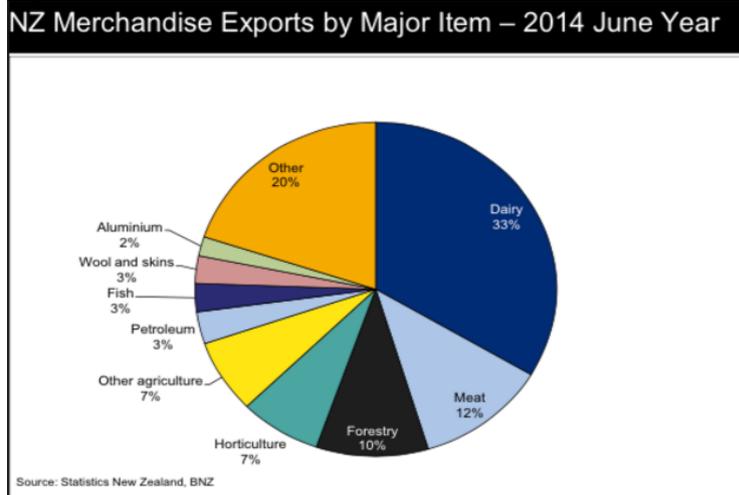


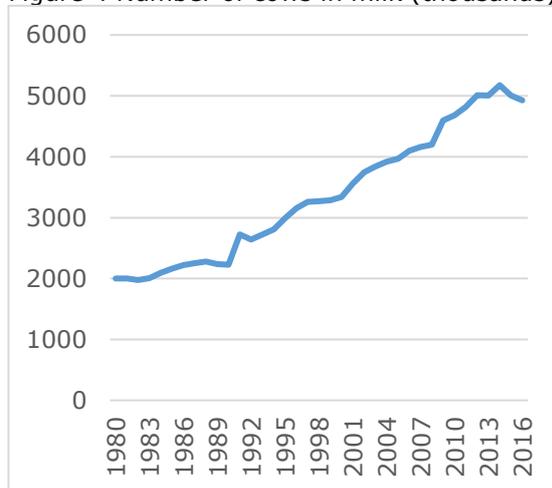
Figure 3 illustrates the significance of the dairy industry as a percentage of agriculture exports.

The dairy industry and farmers believe that they have an important role of feeding the world. We are internationally known as the 100% pure and green country and the NZ Trade and Industry PR machine claims “the taste of milk products from grass-fed animals with space to roam gives NZ dairy a full-flavoured natural quality that sets it apart” and the all-grass farming system is one of its key strengths (NZTE, Food and Beverage Manufacturing, 2016).

Sadly, this is not the truth.

**Environmental issues**

Figure 4 Number of cows in milk (thousands)



The dairy industry has a big impact on our environment, in particular pollution of our rivers and global warming. Between 2005 and 2015, the land area used for dairy farming increased by 28% (Safe, Dirty Dairy, 2015).

The industry has been denying the science behind global warming and incredibly the industry was excluded from the emissions trading scheme which was meant to mitigate NZ’s greenhouse gasses. The number of cows in milk has increased by over 150% between 1980 and 2016 (Figure 4).

Water pollution is caused by animal manure as well as the nitrates from fertilisers. Many of our waterways are now so heavily polluted that they are only safe for wading and boating. Remarkably our government has indicated that this is acceptable. The areas where there are a high number of dairy farms have the worst water pollution including Canterbury and Waikato (Safe, Dirty Dairy, 2015). Land, Air, Water Aotearoa (LAWA) estimated that between 1990 and 2012

nitrogen leaching into the soil had increased by 29% and nitrogen levels in our rivers increased by 12% (Land Air Water Aoteroa, River Quality,2015).

Between 1990 and 2014 our greenhouse gas emissions increased by 54% with around half being attributable to dairy farming. The breakdown of the emissions shows that 55% of the greenhouse gases are from Enteric Fermentation (Cows burping and farting) Figure 5. The dairy industry’s very clever PR was able to turn the seriousness of these emissions into a joke by referring to the possible tax on emissions as a “fart tax” and galvanising the country to support their objections.

Our emissions per capita compared to developed and developing countries is a very graphic admission that we have ignored this issue (Figure 6). Safe, a national animal rights organisation, said “while the world is starting to act on climate change, NZ’s agricultural policy is pushing in the opposite direction: to increase the national dairy herd and to implement increasingly intensive farming practices” (Safe, Dirty Dairy,2015).

Figure 5 Emissions by sector (CO2 equivalent)

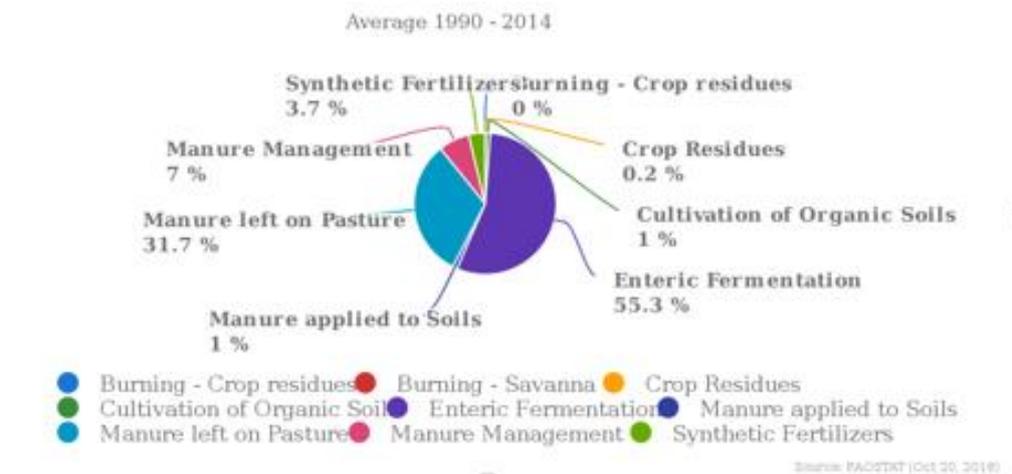
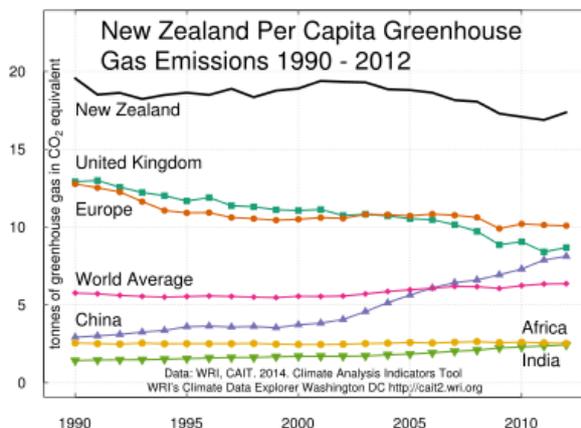


Figure 6 – NZ per capita Greenhouse Gas emissions



**Animal Cruelty Issues**



I cannot ignore the ethics regarding dairy farming practices. In order for cows to produce milk, they must first have a calf that is taken away shortly after birth. Cows, like most mammals are protective mothers and feel the stress of having their calves taken away. The image on the left of a cow and calf is what the industry wants to convey but this is a long way from reality. Female calves are normally kept as replacements to the herd, and male calves are disposed of either immediately or within a few days.

Undercover films of some of the cruel treatment of these calves by farmers and others in the supply chain have been made public by Safe. There has been a backlash from the public, but many farmers argued that, while most farmers do care about their animals, it was an inevitable result of dairy farming.

One of the arguments from the dairy industry "We don't want mothers to step on their baby or to harm them in any way" (Hastings, 2014) would have been better left unsaid. Many of the comments made by farmers suggest that non-farmers have no right to question their practices.

A reader Silverfox wrote "as a by-product, it [male calves] is a cost to the industry and the farmers to be disposed of as quickly and efficiently as possible to manage the bottom line, no different to a corporate making wholesale redundancies to placate the shareholders" and Gorpat "townies are so naive!" (Stuff, Top 5 reader comments on Dairy Farmers,2015).

The poster from SAFE (figure 4) graphically illustrates the animal cruelty issues regarding the dairy industry although it is argued by farmers that the animals are just an input into the efficient production of dairy products. The poster also highlights the increase in factory farming.

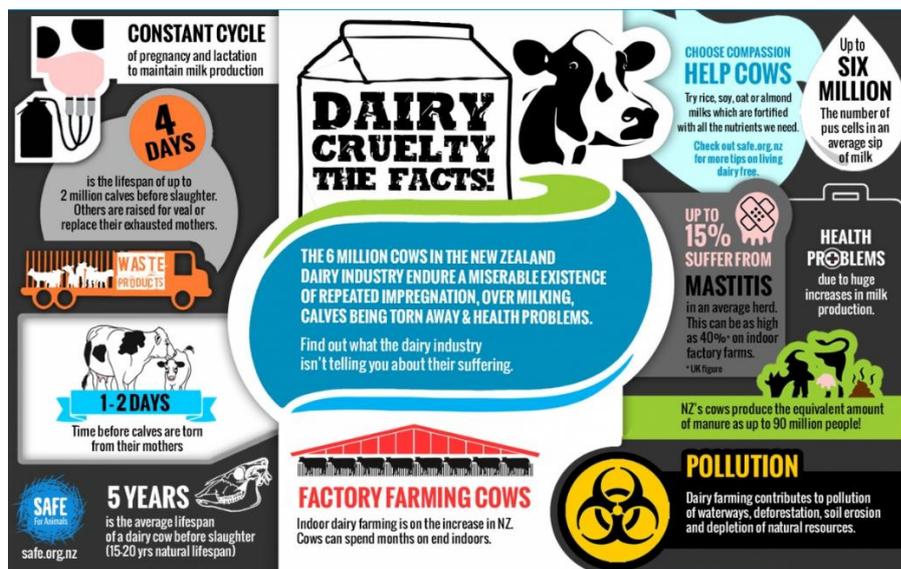


Figure 7 – Poster of Dairy Animal Cruelty - Source: (Safe, Dirty Dairy,2015)

**HEALTH**

Dairy products are generally considered to be extremely healthy and most people when questioned will say that milk is important because of the high calcium content (for bones) as well as for good quality protein. When pressed, they are unable to say why they think the protein content is important but just know that it is. There are lots of quotes, like the following one from google "Milk and dairy products are an important part of a young child's diet. They are a good source of energy and protein, and contain a wide range of vitamins and minerals, including calcium, which growing children and young people need to build healthy bones and teeth".

NZ abandoned the food pyramid or food plate used by other countries and instead recommends eating from the four food groups (figure 8). The way that the food recommendations are displayed suggests that milk products are as important as the other food groups which I find very misleading. America uses a food plate (choosemyplate.gov) to illustrate nutrition guidelines with dairy highlighted separately.

**Eat from the four food groups**

Enjoy a variety of nutritious foods, including:

			
Plenty of vegetables and fruit	Grain foods, mostly whole grain and those naturally high in fibre	Some milk and milk products, mostly low- and reduced-fat	Some legumes, nuts, seeds, fish and other seafood, eggs or poultry, or red meat with the fat removed.

Figure 8 - Source: (Ministry of Health, Food Groups.2015)

Figure 9 compares the official American "myplate" with a "healthy eating plate" recommended by Harvard TH Chan School of Public Health which is part of Harvard Medical School. They claim that their healthy eating plate is based on science with no interference from political or special interest groups and the dairy recommendation on the official plate is replaced with water.

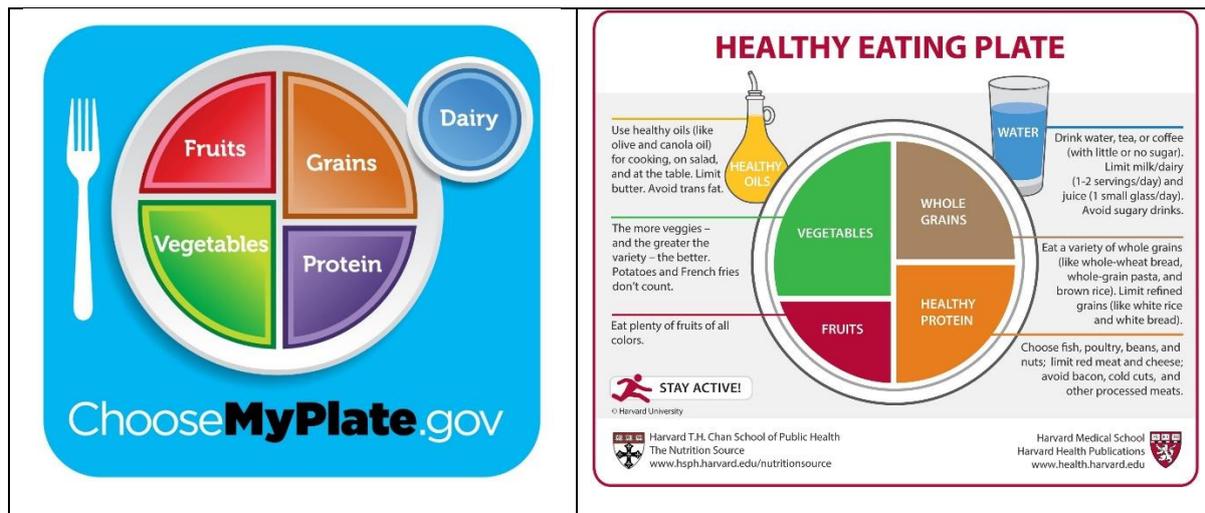


Figure 9 – Comparison between Myplate and Healthy Eating Plate

Source: (Harvard TH Chan School of Public Health,2011)

Producers and suppliers of dairy products in NZ influence what we eat by being actively involved in recommending nutritional advice and sponsoring organisations

that should be objective. An example is The New Zealand Nutrition Foundation. On its website it says "... is a professional, non-profit organisation whose members believe all New Zealanders should have access to accurate information to enable them to make informed choices about food and the effect it has on their health. We help New Zealanders make these choices by providing a balanced viewpoint on important issues around food, nutrition and health." Fonterra is a partner.

Nestle states on the kid's page of its website "Milk and Dairy Products are essential for strengthening bones and teeth and important for overall growth. That's why it's crucial to offer milk and dairy to your child several times during the day." It follows up with serving size suggestions and a list of their dairy products.

### Strong bones and calcium

CALCIUM RICH MEALS EVERYDAY KEEPS  
OSTEOPOROSIS AT BAY!

Your Healthy Bones



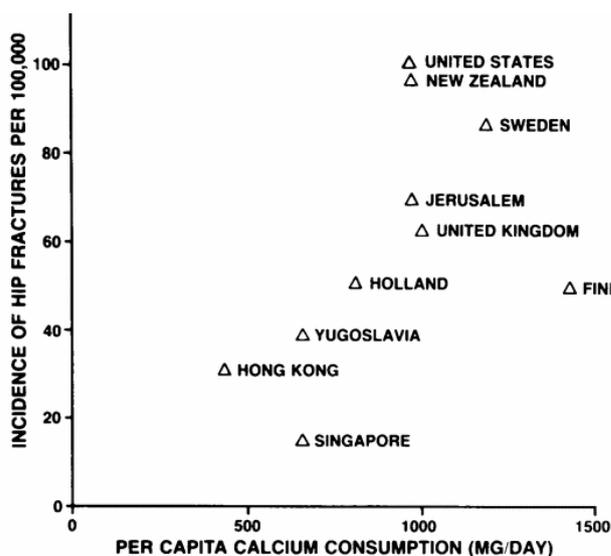
Source: (Nestle.2016)

There are studies that do support the view that dairy is the best source as well as others that refute it. A literature review of 58 studies concluded "scant evidence supports nutrition guidelines focused specifically on increasing milk or other dairy products intake for promoting child and adolescent bone mineralization (Lanou, Berkow, & Barnard, 2005). Another examined two large Swedish cohorts of over 100,000 men and women and concluded "high milk intake was associated with higher mortality in women and men [...] and with higher fracture incidence in women" (Michaelsson et al., 2014) although they recommended a cautious interpretation of the results.

A two-year Dunedin University longitudinal study of young children who avoided milk demonstrated a height reduction and among other things, a poor skeleton. They recommended future studies to see whether this resolved itself by adulthood. (Rockell et al., 2005). This study was partially funded by a grant from New Zealand Milk.

Although NZ is a high milk drinking country it also has a high rate of osteoporosis along with other high milk drinking countries including America, United Kingdom, Sweden and Australia. Figure 10 clearly demonstrates that drinking milk does not protect you from hip fractures or osteoporosis. China, which traditionally did not consume dairy products, has a much lower risk of the disease and hip fractures are only 20% of western countries (Campbell, 2014). The latest thinking is that rather than protect bones, dairy products may actually weaken bones due to the high protein content which leeches calcium (Castle & Goodman, 2014).

Figure 10 – Incidence of hip fractures per capita calcium consumption



Source: (Hegsted, 1994)

## Protein

Milk is considered to be a great source of protein but it is a myth that we need large amounts to be healthy. Dairy milk contains 3 times more protein than breast milk yet the time of life when humans grow the most is during their first year when the optimal nutrition is breast milk. Protein is important to our health but the average American is consuming double what they need (PCRM, The Protein Myth, 2016). Too much protein has been implicated in Osteoporosis, cancer and impaired kidney function. According to the Physicians Committee for Responsible Medicine, high protein diets are unhealthy and if you will always get enough protein from whatever you are eating as long as you eat enough calories. There has never been a recorded case of someone dying from a protein deficiency.

## Cancer – Prostate and Breast

Dairy product consumption has been implicated in the development of both Prostate and Breast Cancer. There have been many peer reviewed studies that confirm the link while others that refute it.

Examples of research confirming links are:

- T. Colin Campbell linked caseins to cancer promotion and his experiments were able to turn cancer cells on and off in mice (Campbell & Campbell, 2005).
- A literature review done at Princeton University evaluated evidence linking dairy consumption and breast cancer and concluded there was a correlation between the two (Outwater, Nicholson, & Barnard, 1997).
- The association between dairy product and calcium intakes and prostate cancer risk was investigated in the Physician's Health Study. (Cohort of male US physicians). It concluded that there was a greater risk of prostate cancer (Chan et al., 2001)

Not all research confirms this link and research done by Peter W. Parodi entitled "Dairy Product consumption and the risk of prostate cancer" concluded that results are contradictory and that observational studies do not support a link (Parodi, 2009). This study was done on behalf of Dairy Australia.

Figure 11 – Breast Cancer Vs Milk Production clearly shows the higher milk producing country have a higher breast cancer death rate. The NZ indicator though is misleading as NZ only consumes a small amount of the milk produced. What it does show is that NZ is right up there with other developed country while the countries who consume little or no milk have a much lower rate of breast cancer.

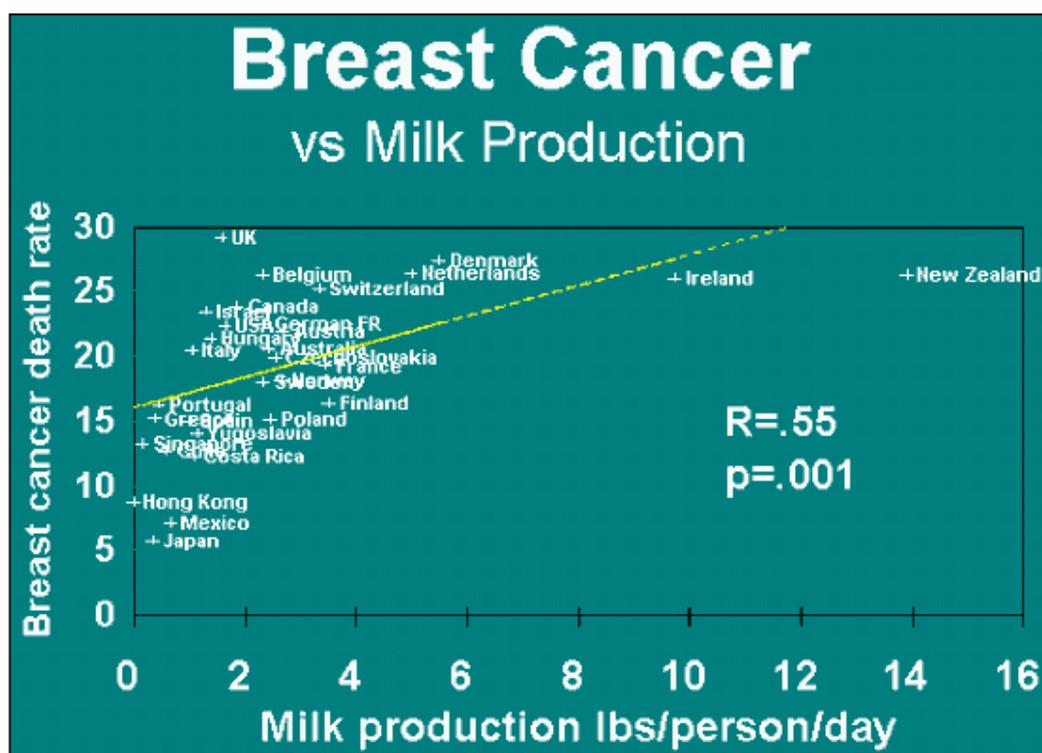


Figure 11 - Source: (Harris, ND)

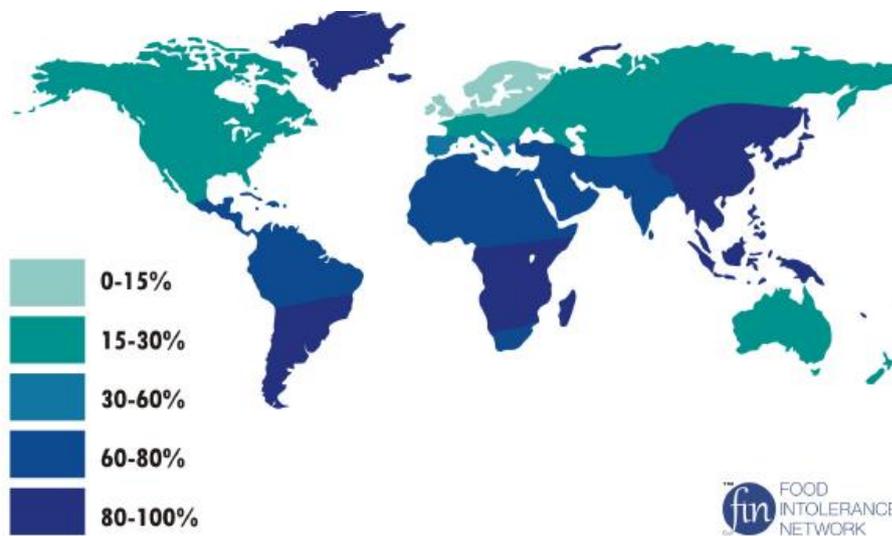
Even though the links between cancer and dairy are not conclusive, there is a lot of well researched evidence suggesting a risk. I was surprised that the possible risk was not mentioned on the NZ Breast Cancer or the Prostate Cancer websites. Giving people information that may save their lives surely is the ethical thing to do. Both organisations give a list of things that can lower the risk including healthy choices and regular exercise but there is nothing regarding reducing the consumption of dairy products.

There seems to be a blind spot regarding the possible role of dairy products in these two common NZ killers. Either the respective cancer societies are not aware of these studies or they have chosen to not highlight the possible link to our largest export. The latter option would be a pretty unethical stance for cancer organisations to take but may have taken this stance as they rely heavily on donations from the general public.

## Lactose intolerance

Lactose intolerance is the inability to properly digest lactose (milk sugar) and can result in stomach aches, nausea and diarrhoea. It is very ethnically diverse in its prevalence and there is a very clear North/South divide with 90% of northern Europeans and the descendents from them, including NZ, able to digest lactose. African and Asian populations and descendants are predominantly lactose intolerant (Figure 12). Rather than accept that some people just cannot digest dairy products, the pharmaceutical industry has come to the party and developed pills that allow dairy products to be consumed comfortably. I find this so unethical as the solution to lactose intolerance is very easy – just avoid dairy products. As these lactose intolerant populations do not suffer from poor bone health, this is evidence that dairy products are not necessary for health.

Figure 12 - Worldwide prevalence of lactose intolerance in recent populations



Worldwide prevalence of lactose intolerance in recent populations. An average of all ethnic groups of the total population of a country is represented. Because of sometimes poor data situation partly extrapolated. Data were collected over the years in countless publications, and then evaluated and displayed graphically.

Source: (NmiPortal, *Worldwide prevalence of lactose intolerance in recent populations*, 2013)

## INFLUENCES

### Milk in Schools Scheme



Auckland school children knocking back half a pint, 1937

In 1936 the NZ Government established the Milk In Schools scheme with the objective to provide a free half pint of milk to every child attending primary school and kindergarten. This was a marketing campaign disguised as a health initiative. After the depression there was a surplus of milk and the decision was made to supply milk to schools as a way to feed malnourished children as well as helping the farmers. There was never any evidence of nutritional deficiencies

Source: (The New Zealand Journal, Free Milk in Schools Programme in New Zealand - 1937 - 1967.)

in children (NZ Milk Board, New Zealand's Milk in School Scheme.1978). The program was ceased in 1967 due to the cost and doubts about the health benefits.

The Milk Board provided schools with teaching material including film strips, project books and posters to assist them in the children's education of the benefits of milk. The scheme was extremely successful in locking in long term consumers by influencing impressionable children.

There were teachers and parents who regretted that the scheme had been ceased as they believed that it had been beneficial to a generation of children.

I believe the current scheme by Fonterra is another marketing scheme to address the reduction in milk consumption in NZ and is another cynical attempt to influence consumers by targeting children.

### **Academic Research**

I have hunted for research that is positive to dairy food and have found a selection, all of which have received grants from the Dairy Industry. These include

- A study done by researchers from The University of Hong Kong, University of Sydney and Weatmead Millennium Institute found no consistent association between the consumption of dairy foods and the risk of coronary heart disease, stroke and combined cardiovascular disease mortality (Louie et al., 2013). The study was funded by Dairy Australia.
- A study by Connie Weaver (CW) concluded that "milk is the most economical source of many limiting nutrients, especially calcium, potassium and magnesium. She found that milk and milk products had protecting effects for bone disorders, IRS and stroke and that vegans had reduced bone mineral density (Weaver, 2009). A research grant had been received from the National Dairy Council USA. CW advises, among others, The National Osteoporosis Foundation, Wyeth Global Nutrition and Cadbury.

I have not found any research that is positive to dairy that has not been funded in some way by the industry.

### **Advertising**

Milk and dairy advertising has changed markedly over the years and the ads no longer state that milk is essential for bone health. The latest Fonterra ads on television in NZ involve our Olympic athletes and it is suggested rather than explicitly stated that milk makes you strong. Most of the ads involved our fabulous athletes making breakfast flicking to doing some amazing sport and back to consuming dairy products. It is implied that milk is important. I don't believe that you could drink a large glass of milk and then go for a run without being sick. Richie McCaw is featuring in a batch of ads, adding fuel to our beliefs that milk is important and trustworthy. I question whether these athletes have looked at any research regarding dairy and are just interested in the sponsorship rather than any health outcome.

## **Our Past**

Why do we value the Milk Industry and link it to Good Health?

I needed to understand why we believe milk is so important to our health which has in turn led us to believe that the dairy industry is so important to the feeding of the world.

Before World War II, milk in Britain was considered to be a dangerous and hazardous substance and there were repeated attempts to have milk compulsorily pasteurised in addition to other regulations regarding milk safety. Dirty milk was implicated in outbreaks of typhoid, scarlet fever and tuberculosis as well as many deaths of babies. Pasteurisation was objected to on cost grounds by the Ministry of Food (MAF) and farmers (Phillips & French, 1999).

Farmers complained that urban dwellers did not understand farming so should not meddle in farming business and that "the scale of contamination was greatly over-exaggerated by those who live in towns" (Phillips & French, 1999). Lobbying from farmers was extensive and due to close links with the Conservative party delayed regulations for years. They threatened that if pasteurisation became compulsory they may be forced to give up milk production because of the high costs. According to Phillips & French, the farmers lobby manipulated the "public interest" argument by suggesting that by reducing the supply, public health would be compromised.

MAF insisted during negotiations with the Ministry of Health that any regulations must not 'inflict hardship on the milk producer' (Phillips & French, 1999). The states view was that what was good for the milk industry must be good for the public. Pasteurisation did not become compulsory until 1949 under a Labour government when Dr Edith Summerskill, Parliamentary Secretary of MAF said "we are here to celebrate a triumph, a triumph over ignorance, prejudice and selfishness". (Phillips & French, 1999)

It is quite remarkable that, given the lack of scientific evidence that milk was ever considered a healthy food, an industry could become such a powerful influence on public perception and policy regarding food and nutrition. I assume that the influence of farming lobbies and the generally accepted view that dairy producers were good for the general public in the United Kingdom was reflected in the culture and attitude in NZ. The NZ dairy industry is a very powerful lobby group with close ties to the National party which continues with this theme.

## **So, have we been misled by the Dairy Industry?**

I thought my research would make it very easy to answer this question and that "YES - we have been misled". I believe that I have shown there is so much evidence that the industry is damaging the environment and the benefits of dairy to our health are untrue. I admit that I wanted this research to back up my view that it was a wicked and dirty industry.

After delving deeper into why we, the people of NZ believe that the industry and its products are so important to our wealth and wellbeing, I concluded that the

answer to my question is NO – we have not been misled by the Dairy Industry but by our own values.

However, I have done another U-turn following my research into the lobbying of the industry in Britain and the influence they asserted in the early part of the 20<sup>th</sup> century. Our values were predominantly based on Britain as that is where the majority of our settlers came from. So my answer is YES – we have been misled by the Dairy Industry but they are not entirely responsible. The government has been an active participant in the deception but we have enabled it as well by our belief that milk and the industry are so important to our well-being.

## **SOLUTIONS**

So how can we fix this?

There are two parts to this question, how do we alter people's beliefs and how can we move the dairy industry into being sustainable?

### **Beliefs and information**

Altering views is difficult as most people do not want to acknowledge topics that don't agree with their principle beliefs. I think the only way to do this is with information that is targeted to specific audiences. The shocking images and messages regarding animal cruelty that SAFE have used has been successful to some extent, however the bigger issues of health and the environment are easy to sidestep as there is so much counter information out there. Much of the conflicting information comes from the media so it is easy to ignore.

I know my mother, who is in her 80s, is just not interested in the environmental issues as they are not going to affect her. The only time I can get her interest is when I ask "are you happy that your grandchildren and their children will know this generation did a huge amount of damage, knew about it and did nothing to clean up the world for them?" This could be the theme that a collective campaign could take, although it doesn't always make for easy conversations with my mother!

The information regarding the health implications of dairy products needs to be consistently and quietly provided. I believe that if mothers of young children were aware of some of the proven medical issues e.g. lactose intolerance and eczema, they would not give their children dairy products if there was even the slightest risk. Currently mothers will ask their Plunket nurses or other health professionals their opinion and I know they tell mothers that milk is important.

Our granddaughter is 50% Filipino so statistically is highly likely to be lactose intolerant and is constantly sick with tummy aches. We have given her parents the information but after consulting with their Plunket nurse, they continue to give her dairy products. My daughter had severe food allergies and has never had dairy products. For the first 20 years of her life I worried about the damage that must have been done to her bones because of a main food group not being in her diet. She was under the care of a team of paediatricians and dieticians who specialised in children's allergies from a very young age. It was only 3 years ago that I stumbled across the information that in fact, she probably will have a better health outcome.

Getting the information out to the medical fraternity is key. The government could make it compulsory for all medical professionals to study nutritional information that has not been provided by the industry. There are more and more health professionals becoming informed through organisations like the American Physicians Committee for Responsible Medicine who are very active in research, lobbying and education. Collectively, interested people and groups can start to make a difference.

### **Sustainable Farming**

After my presentation, I was asked whether I thought the dairy industry could ever be environmentally sustainable and I answered that I didn't think so, that we had left it too late. However, like so much on this course, when you spend time reflecting you do get alternative ideas and I think that it could be sustainable.

I do not believe that farmers are bad people who are purposely trying to harm us and our environment but are part of the New Zealand psyche that believes that farmers are the backbone to our economy, are feeding the world and therefore should be immune for any environmental damage.

New Zealand and our government need to wake up to the damage that the dairy industry is doing to our health, our country and our world although I believe that dairying is only one of the agribusinesses that is a major contributor to the issues.

The ethical issue is whether the livelihoods of the farmers, the dairy industry, rural communities and the wealth of New Zealand is more important than the health of the public and the environment?

My solution is to use the economy and let capitalism do its job but guided by the government. The cost of pollution needs to become a cost of production and the government needs to enforce it. Once costs are fully included the economics of supply and demand should resolve the issue.

1. All pollution costs need to become a cost of production. Rivers and streams must be fully protected from the runoff from animal waste as well as fertilisers and other nutrients. Scientists must know what needs to be done to protect the rivers and the government must insist this is done within a one or two-year time-span with severe penalties if the targets are not met. Special loans could be made to farmers so they can achieve the deadlines but continuing to pollute will not be an option.
2. Greenhouse gases will become a cost of production. Scientists must be able to calculate how much GHG is produced by each cow and how many trees are needed to mitigate it. Farmers would then be required to either plant the required number of trees on their own land or to rent trees from a forest.
3. Farms will not be allowed to undertake large irrigation projects and the land that is clearly unsuitable for dairy farming e.g. Waikato and Canterbury will no longer be allowed to be farmed in this way. Farmers would be compensated although the land would be very suitable to plant into native forests and could be rented to the farmers who have chosen to stay in the dairy industry.
4. Factory farms would be banned and the owners compensated.

5. The number of cows needs to be reduced. The cost of pollution being included in the cost of production would reduce profits and encourage farmers to come out of the industry. The government could compensate farmers to leave the industry and give financial incentives to use their land for other crops e.g. hemp.
6. The government would need to ensure that communities and towns that surround dairy areas were not hurt by encouraging new industries into the area with incentives, grants and assistance. The UK government closed the coal industry partly for environmental reasons but did not consider or care about the communities who supported the local coal mines. So many lives and families were damaged so this must not be allowed to happen.

I would not want to see farmers and their families hurt, but we cannot allow the damage that they are doing to continue. We are better than that.

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