

CHARACTERISTICS OF THE NEW ZEALAND DAIRY INDUSTRY

October 16, 1982

I do appreciate the opportunity to speak to you today. It is now ten years since I first came to Korea and worked in your dairy industry. In that time the development of dairying and, in particular the dairy markets has been spectacular. I commend you on your great achievements for you have created, from almost zero, a lively and creative industry. You have increased the dairy herd substantially which must be of considerable advantage in improving the utilisation of hill side pastures. You have modernised your dairy processing facilities and have left beyond many of the traditional processes which are used in other countries. You have created a which are used in other countries. You have created a varied range of new dairy foods that have been widely accepted by your customers. Possibly this is your greatest achievement for dairy foods which were "new" foods in the Korean diet and their acceptance has been spectacular. I have the greatest respect for your successes.

Today I wish to describe to you the dairy processing and marketing system of New Zealand. It is a very different dairy industry and I would like to suggest to you that it can be complementary to the Korean dairy industry.

First, let us see where New Zealand is. New Zealand is not much larger than Korea. It is located in the South Pacific between 38-45 degrees South. That is almost quarter way around the world heading south from here. About 10,000 Kms but closer than Switzerland and closer than California. We are not close neighbours but we do have direct shipping and our trading links are strong.

We have almost as many dairy cows as we have people. We are able to keep our cows outdoors because there is no snow in winter. Grass grows best through the August to April period and the calving cycle is managed so as to produce milk in that period alone. For those of you who have visited New Zealand your impression I imagine would be of its greenery, its open spaces, and its relatively small cities.

To illustrate more clearly we have prepared a film which will show you the workings of our dairy industry system.

(Show the film "Cows, Computers and Customers" with Korean soundtrack.

Subsequently ask for any questions that may have arisen.

I now wish to emphasise one of the points which arise from this film. New Zealand's dairy trading pattern is quite different to yours. Seventy five percent of our milk is made into products for export. That is, to say, that we are specialised dairy traders. No other country has done this.

In the United States of America there are occasional surpluses which are available for export. But their Administration aims to keep their product within the country. They do not intentionally involve themselves in export. Whenever they do export they incur a substantial loss.

Europe as a whole is an exporting area. However the level of their export surpluses fluctuates from year to year. Exports depend upon restitution payments the level of which is set politically.

Australia has been a significant exporting nation but they are reducing their dairy industry so that the volume of exports is declining. Their local market pays them better than the export market and it has been expanding in recent years.

No other country has devoted its dairy industry so totally to its export trade. One hundred years ago New Zealand did not have dairy exports. The whole development of the dairy industry has been based on international trade: not on the satisfaction of local needs. Consequently we have developed our industry in ways that are unusual.

First there are no export subsidies on dairy exports from New Zealand. The income of the New Zealand dairy farmer is directly determined by the international value of his milk in the form of prices received for products.

Secondly the industry is entirely co-operative. There are 34 dairy processing companies operating and they are all completely owned by the farmers. There are no dividends and all profits from trading are returned to the farmers in the form of the milk price.

Third, in order to gain the maximum economies of scale New Zealand factories are large and specialised. The average size

butter - 6,500 tonnes per annum

cheese - 2,400 tonnes per annum

spray skimmilk powder - 5,600 tonnes per annum.

These figures are much larger than the average figures in any other country. Also, the farms are much larger than elsewhere. The average herd size today is 130 cows per farm.

Fourth, all sales of dairy products are carried out through a single seller: the New Zealand Dairy Board. This improves our customer service. The product which is wanted can be selected from among the supplying dairy companies to best satisfy a customer's needs. The Dairy Board is like a large marketing Corporation. It has 15000 share holders, who are all active farmers. It handles over 1 billion US\$ in sales annually.

Fifth our product range is made up primarily of products that will keep well and so will be suitable for export. We have developed the art of producing dairy ingredients as well as the art of producing consumer products. Our products must be internationally price competitive and quality competitive.

Because the New Zealand industry is totally reliant on export prices we have developed a low cost production industry. Cows are all calved in spring. They are milked during the grass growing season and they all stop milking during the winter. There is little feeding of concentrates. Production costs are reduced by economies of scale and one family will typically care for over 100 cows with no hired labour. The winter is relatively mild and cows are not housed.

All of these things have happened because the international market prices are far lower than internal market prices in other countries. For Skimmilk powder the N. Z. export price is half that received on the U.S.A. market.

Nature of Processing -

New Zealand has become the largest international trading country for dairy products. This is because we process the products that are wanted internationally and we constantly change our products to suit customer requirements. Our Dairy Research Institute devotes itself entirely to product development and process improvement. The Institute and the Dairy Board cooperate very closely to ensure that the right products are made at the least cost. Milk at the farm gate has zero value unless it is processed into a product that can be transported and profitably sold anywhere in the world.

Of course we produce consumer goods in the traditional product lines. Our Anchor brand is the largest selling dairy brand in the world. It is the largest butter brand in England and has been the largest for many years. The "Anchor" brand covers butter, cheese, and milk powders.

Food ingredients:

Additionally however we produce ingredients for food recipes and some of these will be unfamiliar to you.

1. Skim Milk Powder is produced in many modified forms. A heat stable form can be recombined, canned, and sterilized recombined to make UHT sterilized milks. Yet another form is required for sweetened condensed milk. Age thickening will occur if the wrong skim milk powder is used for sweetened condensed

milk.

2. Casein and Caseinates are re-solubilised proteins which have been isolated from milk. These proteins have been used in a number of countries as a basis of infant food formulations. There are many other used for casein and caseinates in specialised modern foods. These proteins perform a function in foods. They will emulsify fat. They will stabilise a foam. They will modify texture. They have been used and are being used today in over 600 supermarket items in the USA.
3. Natural cheese is an ingredient for process cheese. In Japan total tariff remission formula has been introduced to use 1 parts of local cheese in ratio to 2 parts of imports. By this means the market for processed cheese was able to grow before local production became viable. The market for cheese has grown dramatically over the years and new cheese plants are being established by the large processors.
3. The proteins of whey are a relatively new dairy ingredient. They are finding use in new infant food formulations. It has always been known that the ratio of casein protein to whey protein in cows milk (80:20) is different to the ratio in mother's milk (40:60). For a long period formulations have used whey powder (or more commonly demineralised whey powder) to offset this imbalance. The new process of ultrafiltration has permitted the production of whey protein in a concentrated and soluble form which has low mineral levels. Whey protein concentrates have begun to find a very valuable place in infant formulations because of their very real advantages. Not all whey protein concentrates are successful. The processes which are commonly used in Korea, require that the WPC shall be stable to heat sterilisations. Only the best WPC products can be heat sterilised.
5. Alcohol is a fermentation product from whey. It is being made for a solvent in the paint industry and it is also being made as absolute alcohol with a clean flavour for vodka and wine.
6. Hydrolysed proteins are being made for hospital dietary use. Milk proteins have excellent nutritional value and will assist healing when fed to injured patients and old patients.
7. Cream is being prepared in aerosol cans so it is ready-whipped for use in the household.
8. Milkfat is available in pure form as butteroil. It will keep without refrigeration. By blending milkfat with vegetable oils superior margarine products can be made that have butter flavour with margarine spread ability. Low fat spreads with only 40 percent fat are also possible.
9. Lactalbumin is a pure insoluble whey protein that is specifically designed for protein fortification of bakery goods.

The use of dairy ingredients in the food industry is very wide. Products which were unimaginable 10 years ago are common today. Many other innovative products are under research today for tomorrow's markets. There is a close relationship of pure and applied research with processors to satisfy the needs of the market. This provides the essential ability to be flexible and to serve economically.

In conclusion I do thank you for the opportunity to discuss these views with you today. There are many opportunities for cooperation between the Korean and New Zealand Dairy Industries. We supply some ingredients to you now. There are many ingredients we cannot yet supply and we should seek ways to gain mutual benefit from working together.

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New Zealand Dairy Board