

## **Prospects for Industrial Dairy Ingredients in Europe and North America**

*(Excerpts from the full paper delivered at CONGRILAIT in September 2002)*

Mr Chairman, Ladies and Gentlemen.

It is my pleasure this afternoon to introduce the topic 'Prospects for Industrial Dairy Ingredients in Europe and North America'.

May I first take the opportunity of thanking the organisers of CONGRILAIT for the opportunity to give this paper.

### **Introduction**

The subject is of course vast. What are industrial dairy products? They are mostly part of a protein chain. They do cover a huge range, from commodities to emerging nutraceuticals.

To give you some idea of the orders of magnitude, for milk powders the total consumption is about six million tons, and whey powders about two million tons with specialities which will include such products as demineralised wheys.

Even lactose has a volume of consumption of more than half a million tons and lower grade permeate, particularly a speciality in the US more than Europe is also of significant volume.

Caseinates and caseins again are of the order of 0.3 million tons, where the EU and US are major consumers. Though we have noted a major swing in the use as EU subsidies have declined, and these products have become more expensive, they are nevertheless still in growth.

WPC's have developed steadily over 2 decades, though real prices have been moving down I'm sad to say to about 1 dollar a kilogram for the 34-35% product, and 4 dollars a kilogram for the 80%. EU prices are somewhat higher than the US prices in this case.

However, given the limited time at my disposal today, I think in the twenty minutes I must focus just on a few of the more novel industrial dairy ingredients. Thus I intend to cover the milk protein concentrates and isolates, lactalbumin, colostrum and milk calcium. In all cases I shall be focussing on volumes.

## MPC/I

Starting with the milk protein concentrates and isolates. The overall consumption worldwide is of the order of # *(text suppressed)*. Looking at the consumption by sector, in 2001, the major consumption was in cheese, then in other dairy products, and following that in other foods.

Future prospects owe more to economics than functionality - mostly linked to vat capacity, and/or whey processing facilities. They will also be affected by competition from casein and whey protein concentrate, which can deliver the same protein balance as that found in whole milk, and with high concentrations of protein.

Moving from the concentrates to the isolates, we see again a much much lower consumption, # *(text suppressed)*.

What the product does do is avoid the lactose intolerance issue, whether it is real or imagined, but use of MPC is a very expensive solution and blends may well compete effectively.

## Alpha-lactalbumin

An interesting product, but we're down again to small volumes, # *(text suppressed)*. The product is in fact rather a mix of products if the truth be told, covering a range of concentrations of alpha-lactalbumins in a broader protein matrix, and according to users, perceptions of widely differing qualities from different sources.

Where does it go? Again, a very sizeable proportion goes into # *(text suppressed)*.

Prices range from around # *(text suppressed)* per kilogram. These huge differences representing significant differences in the concentration of the protein, and of the amount of alpha-lactalbumin found within that protein.

Our forecasts for this product are limited unless # *(text suppressed)*.

The subject of claims of course would be one that would require a lecture on its own but in general we could say that regulatory authorities are tightening up, are looking for more convincing and more scientific data in this and in other related fields.

## Colostrum

Let me turn to Colostrum. A fascinating product, with total consumption of somewhere around # *(text suppressed)* tons in the world. The US, a major consumer, followed by at some distance by the EU. The product mix includes a wide range of immunoglobulin levels, the relevant active. The major uses are essentially veterinary, the primary sector and human nutrition.

Prospects in the latter risk being diminished by BSE concerns, though this has not yet affected the US market and growth will continue to be healthy there in the absence of such a scare. The uses are slightly more exotic than before, and they include the delightfully coined 'cosmeceutical' use, largely in skin care.

Prices are equally exotic, ranging from of the order of # *(text suppressed)* per kg for the veterinary product, to # *(text suppressed)* per kg at the top end of the scale. The Ig levels here range from 10 to 30% and inevitably play a role in pricing.

## Milk calcium

The last subject for which I have time to present today is milk calcium. Milk calcium is one of the solutions available for fortification of foods, most logically used in the dairy sector where its claim to be hypernatural is part of its strength. It also finds a place in food supplements for the same reasons, and our estimates for consumption worldwide are of the order of # *(text suppressed)* tons today, with Japan being the main market.

The main use is in # *(text suppressed)*.

What is even more interesting is to compare the prices for the delivery of a kg of the calcium cation. Then products like carbonate and oxide, admittedly insoluble, or chloride, soluble, with rather a nasty taste, become dramatically cheaper even than citrate. Milk calcium becomes as expensive as calcium lactate, and yet according to GIRACT'S understanding, milk calcium is by no means as soluble and/or as stable as the latter, and there is significant difficulty in keeping it in suspension in non-viscose food systems.

The potential for milk calcium may be summarised:

# *(text suppressed)*

## **Conclusions**

Many of the more novel industrial dairy ingredients are solutions in search of a problem. They often suffer from variable specifications, and thus cause confusion in the market place. Those where performance benefits are unclear will remain niche ingredients. Major opportunities for novel claims will be limited by increasingly strict legislation, such as the novel food legislation in the EU. Protein fractionation is still one of the more interesting challenges and opportunities.

Thank you for your attention,