

## ***Cheese Market News – January 17, 2003***

### **Perspective: Ingredient Technology**

by Dr. Joe O'Donnell

#### **New Milk Products for New Markets**

Most of us in the dairy industry know that Jersey milk is richer and higher in protein and fat as compared to Holstein milk, with the others falling somewhere in between. We also know that milk composition can be modified through animal nutrition and genetic selection/breeding. Overall, though, the specific proteins and fats in all bovine milk are similar. Each component is there for some reason related to nutrition delivery.

With this in mind, what if a consumer had a health condition such as cancer, heart disease, allergy or immune disorder, or a nutritional need like extra energy for athletic performance or nutritional supplementation for weight loss or geriatric patients? A milk product designed to deliver one kind of protein or fat over another to address health and lifestyle issues would have great appeal. The ability to significantly alter milk composition to address specific consumer needs in this way has the potential to greatly expand the market for fluid milk and dairy ingredients.

Now for the good news — it's happening. The work on the human genome did two things related to the above point. First, it gave scientists an opportunity to understand how dietary components, especially those in milk, influence our physiology. Secondly, the machinery used to sequence the human genome has been applied to other genomes — like bovine. Put these together and you have a consumer with the knowledge of what is needed to achieve certain physiological goals and milk producers with the ability to create products targeting these goals. It all sounds pretty futuristic, but it's happening and accelerating.

Critical to all of this is the ability of scientists and dairy companies to communicate to consumers and manufacturers the huge volumes of data associated with this kind of research. The key is the Internet. Software designed to facilitate the communication of research addressing the role of milk components in reaching human physiological goals is nearly completed and installed in the University of California at Davis laboratory of Dr. Bruce German. Several overseas research organizations and companies are lining up to take part in this unique project. These participants will lead the way in producing a line of dairy products not even conceivable today.

Consider all of the people in the world with varying personal genetics, climates, cultures and lifestyles who would benefit from foods containing dairy components targeting their needs.

Milk from the United States would be different from milk from New Zealand, Australia or Europe. Competition will heat up as companies target specific markets. While there will always be artisan products manufactured in the traditional way from traditional milk,

if you can produce milk that yields more cheese per pound, fluid milk products that control body weight or a yogurt that keeps the gut healthy no matter where someone travels, you will make money – a lot of it. This may sound a little outrageous, but we don't need exotic genes to make it happen – it can be done with the genetics already in the bovine.

This technology is on the fast track. Products formulated with dairy components designed to deliver against specific marketing objectives are right around the corner. This is not limited to nutrition and health benefits – efficiency of manufacturing commodity products also will be a driving factor. The question is, who will be the leader to bring this technology to market? Likely we will see strong competition, especially from overseas.

To quote Dr. German, “We consume dairy products because we can.” Milk is a highly nutritious food. As science reveals more details about the role of milk components and health, technology will allow dairy products to deliver these benefits to a much larger consumer base with a world of needs.

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