

# CHEESE MARKET NEWS

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## Perspective: Ingredient Technology

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### Probiotics – The key to innovation

The business of milk production is changing considerably. While the cost of milk production in the United States isn't the lowest in the world, it's on the lower scale. Looking forward, picture a global dairy industry without price supports. The countries with a higher cost of milk production will have to innovate or face obsolescence. Pressures on commodity prices will continue to escalate — not just from our Oceania friends but also from other areas like Brazil, Eastern Europe and China where they are moving to expand their dairy industries. Anyone who has followed the brouhaha over outsourcing overseas understands the threat countries with such low land and labor costs pose. We also must innovate or we'll find ourselves out of business.

In our industry, I see two clear ways for innovation — through milk composition control and fermentation.

Milk composition from any mammal is a variation on a theme. Composition is genetically controlled and can be manipulated. Just look at the enormous variation in milk compositions among mammals. If we can discover the role milk components play in delivering nutrition and health or if we can uncover the functional properties in milk components, we can integrate this knowledge with the knowledge of the bovine genome to design milk with more value. Additionally, we can apply separation science to refine this milk into value-added products. Commercial separation is already expanding in the form of milk protein concentrates, whey protein concentrates and the like. Think what you could do if you started with a material that contained high-value components at twice the concentration than the competition's raw milk.

The second approach to innovation lies with fermentation. Excluding the alcoholic beverage industry, no other food source relies as heavily on bacterial fermentation than dairy. Fermentation in cheese, yogurt, sour cream, etc. represents the first human approach to innovative product development and that was only the beginning. I'd like to focus further on fermentation and its role in innovation for the global dairy industry.

Research describing the role of bacteria in health and product development is expanding because of two factors. In the public domain, there are genomic sequences for more than 11 lactic acid food-grade bacteria. Another key factor is consumer awareness. Over the last 25 years, the entire concept of probiotic bacteria in the United States has grown from an esoteric awareness to increasing consumer buy-in. Consumer interest is half the battle to creating new products.

This begs the question — where do we stand today on probiotics? We have the genomic

sequences. This knowledge delivers in two ways. First, we can utilize it with regard to fermentation bacteria which helps us with quality control and efficiency. Secondly, the genomic sequences help us in understanding the positive health implications of probiotics. Together, this knowledge supports health-related product innovation — adding value and efficiencies to our dairy industry.

While we're neophytes in comparison with our Japanese and European counterparts, Americans are finally waking up to the benefits of probiotics. Due to positive coverage of these healthy bugs in major consumer newspapers and magazines, awareness is increasing and that's good news for the dairy industry. We must be careful, however, to deliver upon the health promise of probiotics without simply using it as a tool for adding high fructose corn syrup and flavoring lest we risk ending up like the soft drink industry.

Commodity products will always be with us — they are our lifeblood. But if it is profit we seek, we must focus continually on finding new value to add to our raw material. The best opportunities exist in the modification of raw material composition and/or processing designed to maximize the inherent value of the raw material to the consumer. Again, the big advantage dairy has over most other foods is that the processing can either use machines or it can be biological. Having options and acting on them is what innovation is all about.

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