

Perspective: Guest Columnist
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The right way with whey research, product development

By Joseph O'Donnell, executive director, California Dairy Research Foundation

In the dairy realm, whey products have held a precarious position. While not totally independent of the price-support structure, whey has nevertheless always been more dependent upon market research, product development and marketing than other dairy products.

It wasn't that long ago that whey was a true waste product and simply dumped because it was perceived as having no value. Two important things happened to change whey's fate — environmental concerns that put a cost on dumping and the development of technology to separate the protein from the lactose. These things, along with the evolution of concentration/separation technology, created a new industry of whey protein concentrates and lactose products. The low cost of raw materials allowed for money to be invested in technology for new products that could be competitive around the world. The result is an aggressive industry with a growing product line and marketing capacity.

In this timeline, whey protein has been a relative sleeper – but no more. It is now the superstar of the industry, with an impressive list of health benefits on its resumé. Weight management, control of hypertension, immune system regulation and nutrient absorption are just a few of the positive health benefits associated with milk that are likely due to whey proteins.

The U.S. whey industry has recognized the importance of working together to support research to substantiate health claims and bring new whey products to market. Looking at the progress soy has made after it secured a health claim has made the project all the more necessary and urgent. Technologies developed through dairy industry research are now available to nutritionists, food chemists and engineers, allowing them to take full advantage of these health benefits in the face of increasing competition from soy and other products. If we can't parlay this into something marketable, then we're in the wrong business.

Where does whey technology stack up for our industry today? The human genome has been sequenced and is under intense research. Understanding the process and control of human milk component production is included in this research. With it, we will be able to answer why the various proteins are there, when they are produced and at what levels, whether there are affectors, what happens during digestion, what are the interactions, etc. These questions and many more are being researched around the world and the basic, non-proprietary information upon which product development will depend will be shared throughout the industry.

The genomic work doesn't end with the human genome. Researchers are identifying marketable target proteins in milk and then manipulating the cows to produce milk rich in those proteins. Companies that separate biologically active proteins from non-dairy plant and animal sources are looking at whey/milk as a starting material.

Put this all together, you have an understanding of 1) the nutritional/health role of milk proteins, 2) how to increase the yields from the raw material and 3) how to efficiently extract the biologically active proteins from the whey/milk. Whey/milk-derived bioactive products will become increasingly competitive because they will have features that no other product can deliver. We will increase the efficiency of producing these products so as to remain price competitive.

As the list of bioactives grows, so does our product line and so do the nutritional messages we can deliver about milk because it contains all of these bioactives. These new dairy-derived products will find their way into dietary supplements, nutraceuticals and pharmaceuticals and will be used for functional performance to extend shelf-life, antimicrobial properties and more.

Most of the dairy products we know are mature products, but whey is still in its infancy. Still, whey is one global product that will have a resounding effect on the U.S. dairy economy. Buckle up – it's going to be an exciting ride.

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