

# DAIRY BUSINESS NEWS



## Dairy ingredient innovations

**D**airy ingredients already are used in a variety of applications, ranging from texturization to microbial protection for food manufacturers making all kinds of food products and prepared foods. Yet those involved in dairy research say a mature market for dairy ingredients may be a long way off.

New food applications for dairy ingredients are in development, and more are on the horizon, and it all stems from a decades-long effort to keep byproducts from the waste stream, as well as advances in filtration technology. The newest uses for dairy ingredients were outlined this past month by speakers at the Institute of Food Technologists' annual meeting and exposition, held in New Orleans June 12-14. Specifically, the speakers focused on turning co-products, which are components developed from byproducts, into food ingredients.

The session, titled "Exploring new frontiers of dairy co-products for health and wellness and clean label applications," featured Mary Higgins, vice-president of U.S. ingredients trade services for the U.S. Dairy Export Council. Ms. Higgins said companies making everything from soups to ice cream are looking forward to utilizing

the new ingredient technologies.

"I think it's exciting for them," Ms. Higgins said in a recent interview. "They have known about dairy and used dairy, but I think it is causing them to take another look at dairy. People like dairy, but it's not the same old dairy – it's something new."

New functionalities are great for the folks in the research and development lab, but what drives them is consumer demand for foods consumers recognize, Ms. Higgins said.

"Consumers are looking for simplistic

The role dairy ingredients play in product development is expanding

labeling – for foods they are interested in and comfortable with and when they see dairy on the label they get that," she said.

### Considering procream's potential

Dairy ingredients sometimes may replace synthetic ingredients while offering enhanced functional performance. Because of their nutrient density, they may add additional value to the nutritional facts panel, Ms. Higgins said.

Kimberlee "K.J." Burrington, dairy ingredient applications coordinator for the

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Wisconsin Center for Dairy Research at the University of Wisconsin, Madison, also spoke at the I.F.T. session. Ms. Burrington's research centers on new ingredients and food applications for them. Sodium reduction in cheese is just one of the areas she has worked in recently (see June 21 issue of *Food Business News*, Page 42). A byproduct known as procream also has potential, Ms. Burrington said.

"Procream is a co-product of whey protein isolate," she said. "When combined with delactosed permeate it can find a better home in the food world. It has great applications in caramels, in ice cream and in soups."

When ingredient companies filter for whey protein isolate, a denaturing of some protein components occurs and those proteins experience a change in molecular weight, causing them to "go with the fat," Ms. Burrington said. This results in a dairy fat ingredient that may be used in place of vegetable oils while contributing a protein component to the end product.

As with other dairy ingredients, the technological hurdles may be easy to overcome, but at the same time, a market must be developed to make the product economically feasible. So ingredients like procream might have a hard time finding shelf space until some potential demand may be demonstrated.

Procream is a generic term, and several manufacturers sell it under various brand names, Ms. Burrington said. Applications have been found

for ice cream, where it provides phospholipids that serve as an emulsifier, similar to egg yolk. In caramels, procream adds a dairy fat and helps with browning, and in baking it also may serve as an egg substitute.

A dairy ingredient application that is still in the research phase is the use of extrusion to create oligosaccharides from lactose, Ms. Higgins said. Oligosaccharides include inulin, a plant-derived prebiotic that aids in digestion and nutrient absorption.

## Ingredient R.&D. center to debut

One of the other drivers of dairy ingredient development is the need to divert byproducts from the waste stream for environmental reasons, and a time-tested method for that is to sell it at low cost for animal feed. While that practice continues with less valuable byproducts, turning them into co-products with value to the food industry is the higher goal, Ms. Higgins said.

For this reason dairy research

organizations may continue examining the potential uses of the various components of milk, and a new pilot facility for ingredient application research will open later this year.

Remodeling has begun at the South Dakota State University dairy plant. When completed, the facility will house a new pilot plant and research facility dedicated to developing new applications for dairy ingredients.

The newly created Institute for Dairy Ingredient Processing will be a part of the National Dairy Foods Research Centers program, which includes the Midwest Dairy Research Center and others in California, Utah and the Southeast. The South Dakota facility is scheduled to open in October.

The I.D.I.P. will focus on dairy ingredient processing with the mission of helping the United States become a global leader in dairy-based ingredients.

"In today's ever increasing competitive dairy, food and beverage industries, this new

facility will serve as a unique and valuable resource," said Vikki Nicholson, vice-president of U.S. ingredients manufacturing and marketing for the U.S. Dairy Export Council. "The confidential researcher expertise combined with commercial scale simulation will help today's manufacturers gain the knowledge and edge needed in today's global marketplace."

Specifically, the center will fill a need in U.S. dairy research. Within the National Dairy Foods Research Centers program, no pilot-scale facilities are available to simulate commercial scale manufacture of dairy-based ingredients. Manufacturers, therefore, have been hesitant to commercialize new processes for dairy-based ingredients without a realistic feasibility study.

With the launch of the I.D.I.P., U.S. manufacturers will have facilities available to them for the commercialization of manufacturing processes that expand the product portfolio of dairy-based ingredients produced by the U.S. The net estimated cost of the project, including the building and equipment, is approximately \$9.3 million. All but \$1 million has been funded privately. DBH

