

## Sniffing Out Emerging Ingredients continued...

### How Dairy Research Has Evolved

The California Dairy Research Foundation recently celebrated its 20<sup>th</sup> anniversary in promoting innovation through dairy research and development, as well as education. CDRF Executive Director Joe O'Donnell shared with *Food Technology* his views on how dairy research has evolved, some of the past and present trends addressed by CDRF, and emerging trends that may shape future directions of the dairy industry.

According to O'Donnell, who joined CDRF as its first executive director in 1990, twenty years ago the work focused on specific nutritional components of milk such as calcium or protein quality. The approach taken by nutritional research in general was to observe a beneficial effect and then try to understand the mechanism of action. Some examples included studying the role of calcium and the maintenance of proper blood pressure or the role of calcium in preventing osteoporosis.

Today, this research takes a more systemic look at milk, observed O'Donnell. This area really opened up over the last few years when the genetic, analytical, and computer tools to unlock the secrets of milk became available. "With this approach, the dairy industry can promote milk as a nutritional delivery system, as it has always done, but now with a greater confidence in understanding just how this system operates," he noted. "This represents a major change in what the global dairy industry can do to promote its products based on nutrition. It will also guide the development of dairy products intended for specific applications, such as weight management, proper immune functioning, bone health, and proper intestinal function."

Today, the human genome and the bovine genome are mapped, and the industry is using these tools to better understand the system by which milk delivers nutrition. The CDRF facilitated the creation of the International Milk Genomics Consortium ([www.imgconsortium.org](http://www.imgconsortium.org)), a group dedicated to the global development of new products based on the nutritional advantages of milk. In October 2008, the IMGC will present the 5<sup>th</sup> International Symposium on Milk Genomics and Human Health at which leading scientists will meet to share data and collaborate.

While nutrition research is critical, this does not negate the ongoing need for the industry to create and market a steady stream of new products meeting the taste and function needs of existing and new consumers. "Product research over the past 20 years has focused on improving processing for efficiency and novel product development, including emerging applications that make use of the functional properties of milk components," said O'Donnell. "And, of course, attention to flavor will always be at the root of any new product developed."

The research efforts today will allow the development of products that fit well in various ethnic cultures and are attentive to the nutritional needs of different groups of consumers, noted O'Donnell. For example, dairy is playing a starring role in the probiotic revolution, appearing in a wide range of products, including yogurt, cheese, smoothies, and cottage cheese. Through research, we understand that saturated fat in moderation is a good thing (and *trans* fats are not so good). We also know that dairy plays a key role in weight management, immunity, gut health, and many other aspects of dairy health, sparking the development of new products that are attractive, tasteful, and functional to consumers.

through trained sensory panels, and these analyses were then used to replicate the nuances of different pepper varieties. The resulting flavors can help create new opportunities for products with bold pepper profiles without the heat. While initial product development has shown that these zero-heat flavors work best in salsas, dips, sauces, soups, and prepared meals, further development in additional applications is currently underway that will include baked goods and snacks.

#### Your Pet Grain?

According to Datamonitor's *Productscan Online*, more than 500 new food and beverage products were introduced worldwide in 2007 featuring ancient grains such as quinoa, spelt, kamut, and amaranth. This represents a doubling of the new products featuring these grains in 2005 and a nearly five-fold increase over the products that used these grains in 2004.

The popularity of whole grains is opening up doors for more novel, flavorful, and lesser known types of grains. The newest example of this is chia—the name derived from the Aztec word, "chian," meaning oily. The oil from chia seeds is one of the richest sources of omega-3 fatty acids. It is also high in vitamins, minerals, fiber, and easy-to-digest protein. Known as the "running food," the Chia seed was used as a high-energy endurance food as far back as the ancient Aztec times.

*Benexia™ Chia Seed* from Canada-based Proprietary Nutritionals, Inc. (phone 519-647-2071; [www.pnibrands.com](http://www.pnibrands.com)), can enhance the nutritional profile of a variety of foods without compromising taste. It incorporates easily into baked goods, snacks, bars, and drink mixes. Recipes have demonstrated that chia seeds can be blended into smoothies, granola, oatmeal, and yogurt. *Sprouted Chia Seed Powder* may be used as a flour substitute for bread, muffin, cookies, and pie recipes. Chia seed can also be sprinkled onto soup, salad, and rice dishes.

Proprietary Nutritionals, Inc. offers the product in a variety of forms, including bulk seed, sprouted seed, milled seed, flour, and oil. Technical sheets are available describing the characteristics of each of these forms.

According to Datamonitor, the seed is starting to show up in new product launches such as *Chia Razz Pure Fruit and Nut Bar* from Nature's Path Foods and *Chia Goodness Cranberry Ginger Breakfast Cereal* from Ruth's Hemp Foods. With the growing interest in ancient grains, expect to see other new product launches using chia seed.

And yes, chia is the same seed used for the popular *Chia Pet®* animal figurines that were launched in the 1980s. Since then we have seen in the market *Chia Homer*, *Chia Shrek*, *Chia Garfield*, and even a *Chia Albert Einstein*. With its rediscovery as a healthy grain, "Ch-ch-ch-chia!" has a healthy ring to it, one which can find advantage in a variety of food applications.