



# Consumers Drive High-Protein Dairy Trend

Scan any supermarket dairy aisle, and you'll find it filled with products touting protein claims. Milks, yogurts, processed cheese, even ice cream – it seems nothing is immune to the pull of protein.

"It's a constant request from our customers," notes Christine Addington, Cargill's senior dairy technical service specialist. "Dairy may be naturally high in protein, but that's not stopping product developers from trying to push it even higher."

The reason is clear; consumers are seeking protein like never before. The reason for this is that they perceive protein as the macronutrient most beneficial for top health issues like cardiovascular health, weight loss and energy, according to the 2018 Food and Health Survey from the International Food Information Council Foundation (IFIC). No longer the sole purview of weightlifters and gym enthusiasts, consumers of all types are attracted to protein's nutritional appeal, associating the macronutrient with supporting weight management, muscle-building and more.<sup>1</sup> It's a point driven home by many of today's most popular diets, which also emphasize high-protein consumption.

"Consumer interest in protein spans all segments of shoppers," adds Mark Fahlin, Cargill's dairy business development manager. "Moms are choosing high-protein products for their families because they view them as a healthier choice."

Seniors, on the other hand, may struggle to get enough protein in their diets, and some research suggests they should incorporate even more than current recommendations.<sup>2,3</sup> High-protein dairy products can help them reach their daily protein requirements.<sup>4</sup>



For millennials, however, protein health benefits are only part of the story; they also want to know where their protein comes from.

"Protein – especially plant proteins – enjoys a special place in many consumer hearts," Addington contends. "They're perceived as natural, healthy, label-friendly and sustainable, all critical points for today's discerning shoppers."

## Protein calculations

Given all the positives, it's easy to see why dairy processors are turning to plants to give their products a protein boost. The challenge, Addington says, is landing on the right protein solution.

Protein claims are based on complete proteins: those protein foods that contain all the needed essential amino acids. A "good" source contains five grams of complete protein, while an "excellent" source contains 10 grams. However, many plant-sourced proteins are incomplete proteins, meaning they don't contain all of the essential amino acids in the appropriate proportions. Further complicating the calculation, protein digestibility also factors into protein quality determinations.

"Digestibility and absorption play important roles with amino acid content in defining protein quality," adds Paige Ties, senior technical services representative, Cargill. "It's not enough to have all the right amino acids present. They also have to be available in a way that the body can digest and absorb them."

In the U.S., the most recognized method for quantifying protein quality is the protein digestibility-corrected amino acid score (PDCAAS). Using PDCAAS, protein quality ratings are determined by comparing a protein's amino acid profile against a standard. A score of 1, the highest possible score, means that after digesting the protein, it provides 100 percent or more of the essential amino acids required.

Adding a further layer of complexity, protein digestibility and absorption levels from the same plant source can vary based on the ingredient supplier. Processing techniques and plant-source genetics can influence a protein's PDCAA score. In short, not all proteins are created equal.

That said, Ties says formulators can craft dairy products with complete protein claims by using two or more complementary proteins as building blocks. For example, developers could start with pea protein. It contains all of the essential amino acids, with solid digestibility and absorption levels, but it is not a complete protein because two of the amino acids, methionine and cysteine, are lower than recommendations.

To compensate, formulators can blend the pea protein with a complementary protein source like rice, chickpea, soy or pumpkin. Rice, which has higher levels of methionine and cysteine, is a common option.

"Blend pea and rice protein together in the right ratio, and you'll have enough of all the essential amino acids to make complete protein claims," Ties explains, noting that another option is to add extra pea protein to hit the target protein claim. "Either approach requires careful calculations, making it a complex requirement that plenty of experienced product developers sometimes find confusing."

## Formulation factors

Amino acid computations aside, formulating high-protein dairy products brings other considerations too. Beyond protein claims, will the product be marketed as GMO-Free,\* USDA Organic or All-Natural? Processing, product texture, packaging and shelf life can impact ingredient choices too. Then there's taste, the single biggest arbiter of product success.

"Some consumers might be willing to make concessions, but to go mainstream, we have to address the flavor gaps often associated with plant proteins," Addington emphasizes. "Ultimately, if a product doesn't taste great, it doesn't matter how nutritious it is."

Taste considerations were a key driver behind Cargill's recent partnership with PURIS™, the largest North American producer of pea protein. While most pea proteins bring along a host of flavor issues, Addington says PURIS pea protein is different. It's sourced from non-GMO yellow pea seed varieties specially selected to minimize the off-flavors normally attributed to pulses. In addition, it's processed without the use of hexanes to bring out the best flavor possible.

"Protein fortification can help drive dairy sales, but given the ever-expanding pool of products, it's no longer enough to simply pack in the protein," Addington advises. "To be successful, these products also have to meet consumers' other label considerations, while still delivering the right look, feel and taste."

**It might seem like a tall order, but ingredient suppliers like Cargill have made rapid progress uncovering the secrets to successful high-protein dairy formulations. As a result, today's plant protein options are giving rise to trendy dairy products with plenty of consumer appeal.**

\* There is no single definition of "non-GMO" in the USA. Contact Cargill for source and processing information.

PURIS™ Pea Protein is a trademark of PURIS Foods, a Cargill strategic partner.

*Claims: The labeling, substantiation and decision making of all claims for your products is your responsibility. We recommend you consult regulatory and legal advisors familiar with all applicable laws, rules and regulations prior to making labeling and claims decisions.*

## References

- <sup>1</sup> Phillips, SM; Chevalier, S; Leidy, HJ. "Protein 'Requirement' Beyond the RDA: Implications for Optimizing Health." *Applied Physiology Nutrition and Metabolism*. May, 2016; 41(5): 565-572.
- <sup>2</sup> Hooker, LM; Brunstrom, JM; Corfe, BM; et al. "Protein for Life: Review of Optimal Protein Intake, Sustainable Dietary Sources and the Effect on Appetite in Aging Adults." *Nutrients*. March 16, 2018, 10(3).
- <sup>3</sup> Bauer, J; Biolo, G; et al. "Evidence-Based Recommendations for Optimal Dietary Protein Intake in Older People: a Position Paper from the PROT-AGE Study Group." *Journal of American Medical Directors' Association*. August 2013; 14(8): 542-559.
- <sup>4</sup> Tunick, MH; Van Hekken, DL. "Dairy Product and Health: Recent Insights." *Journal of Agricultural Food Chemistry*. November, 2015. 4; 63(43): 93819388.