

# Plant-based dairy alternatives dawning... and on the rise

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For a trend that seemingly came out of nowhere, plant-based eating continues to defy the odds as consumers in ever-greater numbers adopt this as a better-for-you lifestyle choice. Some experts predict that the trend is just getting started. But as a broader swath of consumers – from those who identify as vegans and vegetarians to the more adaptive flexitarians – embrace plant-based products, the stakes are high for brands to get all the attributes right, from taste and texture to sustainable sourcing.

Although it is hard to pinpoint the current size of the plant-based market, recent research from *NBJ* and New Hope Network's *NEXT Data & Insights* suggests:

- 20% of Americans identify as plant-based or say they eat a largely plant-based diet.
- Another 20% say they choose plant-based meat and dairy alternatives at least sometimes.<sup>1</sup>

Plant-based dairy alternatives have certainly led the way for the whole category and promise to offer further innovations as the segment evolves. Plant-based milk alternatives are the steadfast category leader, at \$2.6 billion in sales for 2021 and 33% growth over the last three years. It continues to forge a path for consumer acceptance of

new plant-based sub-categories. In fact, data from the Plant Based Food Association (PBFA) and the Good Food Institute (GFI) suggests several plant-based dairy alternative segments are now growth engines – outpacing increases in the broader dairy space:

Source: SPINS “Plant-based positioned” product attribute, customized by PBFA and GFI to include private-label and customer categories, 52 weeks ending December 26, 2021.

“The plant-based, dairy alternative space has been one of the most dynamic categories for the last decade, growing from a small niche into a market segment with true mainstream appeal,” said Mark Fahlin, business development manager for Cargill. Recent developments suggest it’s far from done, he added, “as consumer demands for products with great taste, high protein, reduced sugar and a solid sustainability story align with ongoing ingredient advances related to sweeteners, texturizers and plant proteins. Together, these forces are kick-starting a fourth wave of innovation, which promises to dramatically boost both protein levels and consumer appeal for plant-based, protein-fortified dairy alternatives.”

Undoubtedly, a plant-based diet has appeal for many reasons revolving around health, and represent a balanced approach to eating that allows flexibility and discovery.<sup>2</sup> It's also bigger than diet and nutrition, with many people now seeking plant-based products because they believe they are more sustainably produced and environmentally friendly.

This leaves product formulators with a tall order. They must formulate with health in mind – but think beyond those boundaries. “As these products have attained mainstream appeal,” Fahlin noted, “consumer expectations for taste, texture and nutrition have increased, too. They’re looking for plant-based dairy alternatives that deliver similar experiences to their animal counterparts, including creamy mouthfeels, rich, dairy-like flavors, and comparable protein content.”

Fortunately, ingredient technology has come a long way in addressing common formulation issues. Protein fortification, for example, is a “priority for many brands as they race to close the gap between plant-based options and conventional dairy products,” said Christine Addington, senior technical service representative for Cargill. “In the plant-based milk alternative space, for example, it’s common to see offerings with just a single gram of protein. For comparison, traditional dairy milks have 8 grams and ultra-filtered options have around 13-14 grams of protein. Bumping up those protein levels, however, can be a challenge. Flavor is a major consideration.”

Flavors are especially exposed in dairy alternatives. “Add protein to a snack bar, and there are a host of other ingredients that help cover off-notes. Push protein levels in an almond milk, and there’s not as much room to hide,” Addington explained. “While flavor profiles of botanical proteins have come a long way in a short time, they remain prone to earthy, beany and grassy notes – off tastes that become more apparent as inclusion levels rise.”

Solubility is another concern. For beverages targeting 1-10 grams of protein, pea protein typically provides enough solubility. However, push past those levels, and brands historically run into texture and mouthfeel challenges, as grittiness, sandiness and viscosity become a factor.

## **Solid solutions**

A next generation of pea proteins, PURIS™ 2.0 from Cargill’s joint venture partner PURIS, addresses both challenges, delivering significant advances in its flavor profile, coupled with enhanced solubility and a smoother, creamier mouthfeel. “It is a game-changer for plant proteins, enabling brands to create products with double-digit protein enrichment, yet still meet consumer expectations for taste, texture and mouthfeel,” Addington said.

High-protein, plant-based dairy alternatives also need the right stabilizer. Whether made with animal or plant proteins, these products tend to thicken and gel over shelf life, creating off-putting textures and mouthfeels. In these situations, Addington said, “adding hydrocolloids like carrageenan or gellan gum help stabilize proteins and maintain viscosity.”

With nearly three in four consumers now noting that they are trying to limit or avoid sugars,<sup>4</sup> sugar reduction is another common ask. “High-intensity sweeteners like stevia are widely used in this space. They are another example of how improvements on the ingredient side are reshaping formulation possibilities,” Addington noted.

Cargill’s newest solution is a great example: combining the best-tasting Reb M and Reb D stevia sweetener, EverSweet®, with a natural flavor. EverSweet® + ClearFlo™ delivers “plenty of sweetness and little linger, while also modifying off-notes associated with plant proteins and providing an improved, indulgent and creamy mouthfeel – delivering on every aspect of sensory performance,” Addington said.

Re-creating traditional, creamy mouthfeel and white appearance in plant-based dairy alternatives is another common challenge. Texturizers like starches, hydrocolloids and lecithins help deliver on these goals. SimPure™ label-friendly functional starches, for example, add a creamy mouthfeel while also holding up to harsh processing parameters to help achieve a white appearance. SimPure™ soluble rice flour provides a one-for-one alternative to 10 DE maltodextrin, making it “great for reduced-sugar coffee creamers and dairy-alternative beverages, adding an extra bit of creaminess to formulas, while also scoring well with label-reading consumers,” Addington said.

Label considerations *are* important, and formulators also must select ingredients that are backed by sustainability programs with transparent supply chains. Ingredients should be backed by third-party certifications or company sustainability programs to guarantee integrity, such as Cargill’s industry-leading Stevia Sustainability Agricultural standard. It has been verified and benchmarked as a Silver-Level program by the SAI Platform’s Farm Sustainability Assessment 3.0.

Of course, every brand has specific priorities, and each formulation is complex and unique. So, suppliers like Cargill will continue to innovate with new ingredients and custom tools to meet the next challenges in plant-based dairy alternatives – and that’s a win for both brands and consumers.

#### *Resources:*

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

*[1] NBJ, NEXT/New Hope Network. “Plant-based Foods Market Analysis: Attitudes and Opportunities in a Thriving Market.” 2021.*

[2] The Hartman Group. "Myths and Realities Behind the Plant-based Trend." Infographic. September 21, 2021. <https://www.hartman-group.com/infographics/1635781807/myths-realities-behind-the-plant-based-trend>

[3] Cargill Proprietary Research. 2022.

[4] International Food Information Council (IFIC). 2022 Food and Health Survey.  
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