Dairy dreams

Insights Report

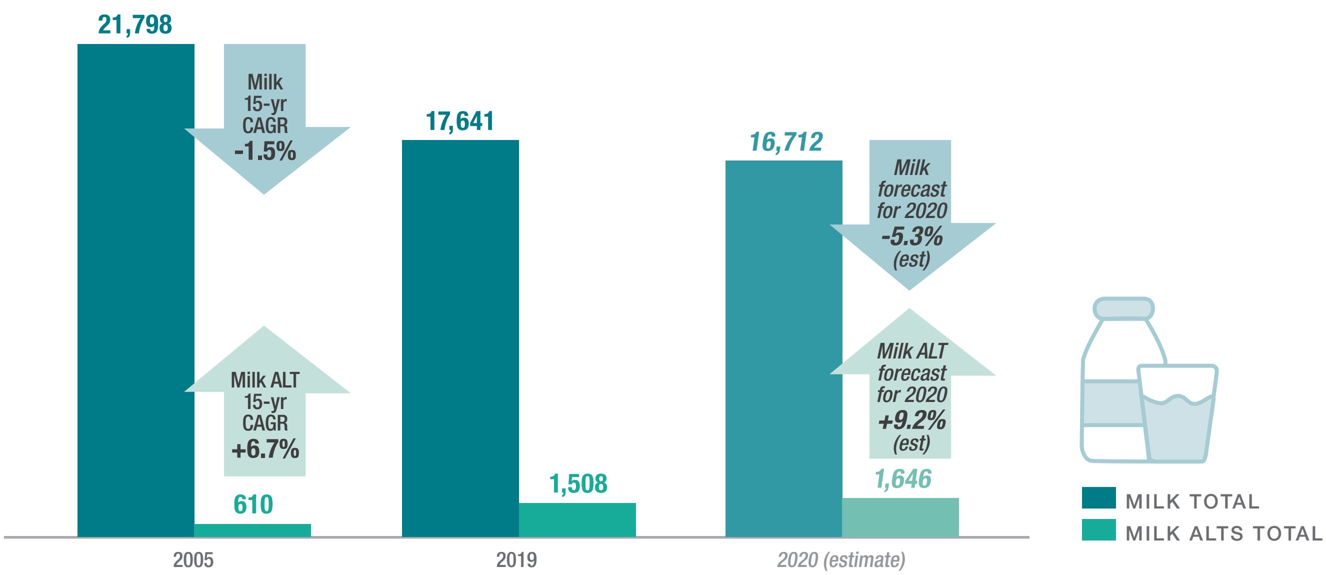
EXPLORING THE FUTURE OF DAIRY PRODUCT DEVELOPMENT

Dairy products in the average diet are as ubiquitous as sliced bread. But as attitudes about diet and health shift, the global dairy category has seen a seismic transition as consumers seek to understand their healthfulness in the wake of emerging information that is both conflicting and confusing. This is prompting today's dairy purchasers to look deeper at how ingredients impact their health, how these products are sourced and processed, as well as the impact they might have on a fragile environment. As manufacturers address the issues, it's a safe bet that innovation and disruption in dairy products will continue.

Considering the global impact of a pandemic and its unprecedented impact on consumer attitudes and shopping behaviors, the future for food and beverage in general is now difficult to predict . . . and the dairy category is no exception. Still, there are opportunities for strategic product development. Both traditional dairy and alternative dairy producers are becoming energized to identify opportunities for niche demand, both domestically and internationally, and to create new products and business models that reflect the increasingly fragmented space.

Cargill®

Milk and alternative milks growth by category, 2005–2020 *(in '000 tons)*



Source: Euromonitor International, May 2020, in "Plant-based Dairy Category Evolution." Cargill Inc.

It's worth a look at how we got here. Changes to dairy consumption haven't happened overnight. It turns out this shift has really been a long time in the making, with dairy consumption on the decline for about two decades.[1] And the pace of change may be accelerating. Back in 2013, according to data from the Food and Agriculture Organization of the United Nations, milk was still a top global commodity—with a $328 billion market and dairy overall one of the fastest-growing sectors.[2] Today, while milk and dairy products are still widely consumed globally, the picture is different. Between 2005 and 2019, milk saw a 1.5% decline while alternative milks grew 6.7%—and the gap is expected to widen this year.[3]

The U.S. dairy market appears to be similar. Between 2015 and 2018, top-selling dairy items such as cheese, milk and yogurt all declined.[4] During a similar time period, between 2015 and 2017, plant- and nut-based dairy beverages grew 9% (or $141 million).[5] And the growth for these plant-based segments has continued, with plant-based milks, for example, reaching $2 billion in 2019 on 5% growth and yogurt reaching $283 million on 31.3% growth.[6]

Defining **disrupters**

As dairy producers seek to navigate this developing landscape, they must understand the sea change in consumer thinking that has prompted growth of alternative dairy products and address their concerns about the healthfulness of specific dairy ingredients, dairy's sugar content and nutritional aspects, as well as the environmental impact of its production.

A first step is understanding dairy consumers specifically. According to recent research for dairy producers from McKinsey and Company, dairy purchasers tend to have a higher-than-average interest in health: 35% report eating healthy foods, and 32% say they read nutrition labels. The report states that their top 3 attributes for healthy eating are "all natural," "low sugar" and "organic."[7]

Expectations for dairy products are especially high with regard to nutritional value, according to proprietary Cargill research:

Source: Cargill Proprietary Plant Protein Research, 2019

These changing attitudes have proliferated for a number of reasons. Consumers in general want the food and beverage products they consume to be not only good for their health, but also better for the planet. This thinking has evolved into a powerful global movement in which consumers are taking a holistic approach to what they purchase—taking into consideration the fact that everything they eat has an important internal *and* external effect that can influence health and well-being.[8] This mentality now translates into growing demand for products that contain healthy, functional ingredients and which are produced ethically and sustainably.

Such perspectives are gaining special traction among younger consumers, particularly millennials, as they come of age and start new households and families. Millennials are now the largest generation in the United States,[9] and as consumers, they have more spending power than any other generation.[10] Millennials are more sophisticated, demanding and diverse; they are empowered by digital technology, and they also have unique preferences and values as consumers.[11]

According to the McKinsey report, young consumers tend to have different attitudes about brands . . . believing that disruptive startups are simply better and more innovative. They also demand more from products—including experiences—making them more receptive to new products and options.

Millennials are also impacting the retail experience. As they dig into ingredients they like and dislike, they have led the way in using technology, now at their fingertips, to investigate manufacturing and sourcing as they shop. Consumers across generations are now adopting these strategies, and this has created a melding of online and traditional in-store shopping in which consumers now compare product ingredients, prices, brand substance and nutritional value as they make purchasing decisions.[12]

Models made for dairy

Today's brands must stay on top of these consumer developments and use the growing body of purchasing data to better understand the segmented consumer landscape. These insights can help them work within new strategies that are succeeding in both traditional and alternative dairy.

First, according to the McKinsey data, a health and wellness positioning is the new benchmark for all dairy products. As noted above, these consumers are highly savvy when it comes to health and nutrition, and they are frequently defining what that means for them individually. Both traditional dairy and alternative dairy products are poised to meet consumer demands for products that are natural, environmentally friendly, certified organic, or free from specific ingredients. But dairy companies do have an opportunity to strengthen their health claims, according to the McKinsey research, as consumer mindsets can be contradictory and variable. One example, the report points out, is that consumers are both embracing and avoiding butter for reasons of health, so the language of health claims is exceedingly important.

Boosting **brand relevance**

Beyond this new baseline, there are some models that can work for any dairy product. One strategy focuses on brand relevance. Many consumers now want to understand the substance behind the brand—and they're taking time to find out. They are reviewing product information for ingredients, as well as qualities they like and dislike and looking deeper for transparency. More than 80% of consumers now say they "must know" or "would like to know more about product ingredients," while seven in ten note similar demands for sourcing information.[14]

Raising a brand's relevance now extends beyond healthy ingredients and sustainable sourcing to the use of environmentally friendly packaging, as well as giving back to communities in which a brand operates. Perhaps above all in this model, it is critical to understand what is important to the key customer base and then support that with third-party certifications and full transparency.

Small and local are good

Smaller brands now have an edge in overall consumer perception. This has been fueled by the democratization of technology, which has leveled the playing field for startups and lowered the barriers to market entry and category disruption. In dairy, small- and medium-sized companies have largely driven growth between 2015 and 2018.[13] According to the McKinsey data, consumer interest in small dairy companies and startups is propelling this, with more than 41% of respondents saying they've tried a new dairy brand, and more than 70% citing repeat purchase of these products. The report also noted that 10 of the 16 leading brands were from small- to medium-sized companies noted for creative vision in classic dairy.

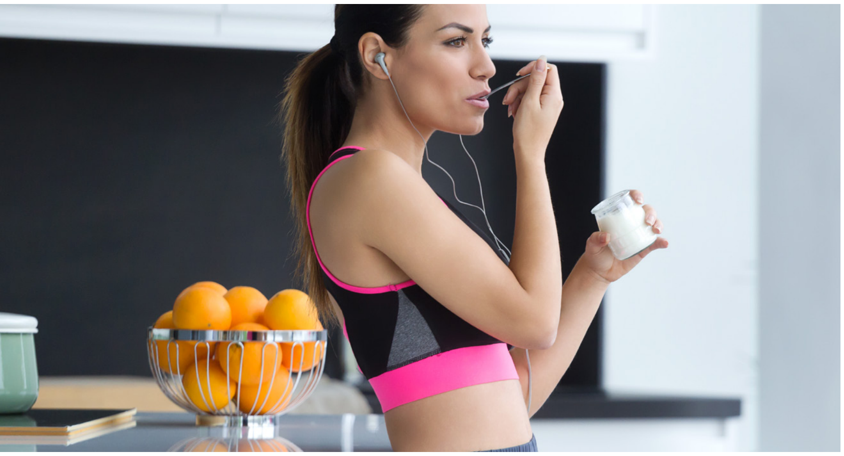
Creating **new markets**

A deep understanding of niche consumer markets can also identify growth areas and categories ripe for disruption. Companies can re-think ingredients, packaging options and price-point to fulfill the needs of particular market segments. But this approach will also require new levels of market understanding and the agility to quickly identify and dive into niches. In the United States, this is producing dairy products with innovative flavors, new formats and the potential for customization or personalization.

Dairy companies also have an opportunity to seek a foothold in select global markets with a dairy deficit.[15] While this is a good defensive, long-term strategy, the McKinsey report suggests it does require dexterity on the part of dairy brands to identify key regions, innovate and introduce products quickly and cautiously, while being prepared to scale up swiftly based on consumer interest.

Rethinking dairy—what's trending?

All these developments are prompting movement in dairy and alternative dairy products to meet the needs of healthy, active consumers who want clean, high-protein, low-sugar products. Following are a few of the trends that will play a role in shaping dairy in 2020 and beyond.



Dairy—the ultimate snack

Just more than one in four Americans now say they snack several times a day, while 38% note they replace meals with a snack and another 25% report skipping meals altogether.[16] Snacks are clearly the new meals . . . and demand for healthy, on-the-go options has put dairy in a good position to capitalize on these changing consumer behaviors. Dairy snacks now account for about 13% of the overall snack market and are expected to see growth of 5.14% through 2025.[17]

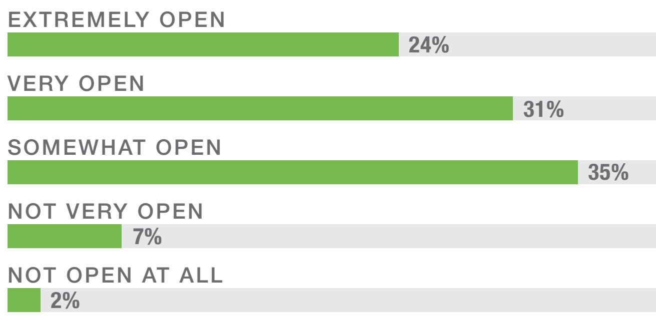
Dairy is tailor-made for healthy snacking, offering convenience and portability. These products also deliver handily on the nutrition front, with good protein content and more recently with great-tasting, lower-sugar options that please both moms and families.

That said, the competitive bar is rising as snacking becomes a worldwide mega trend. Companies will have to work harder to differentiate their products, according to the *New Nutrition Business* report, "Ten Key Trends in Food Nutrition and Health 2020." Successful snacks have to deliver on both taste and pleasure as well as health, but it is also ok to allow consumers permission to indulge, the report notes. Product developers in dairy will have to pull out all the stops in creating new dairy-based snacks that go beyond imagination. If they do this successfully, they can count on an eager consumer base and premium positioning for these products.

More alt dairy is coming

Consumers are turning to alternative dairy products in astounding numbers, with 24% of U.S. consumers now saying they eat plant-based dairy products.[18] Typically made with plant proteins, these products are generally viewed as healthier, more nutritious, free of undesirable ingredients like chemicals, and better for the environment than conventional dairy.[19] These products are gaining interest, with more than half of U.S. consumers now saying they are very or extremely open to proteins from plants.[20]

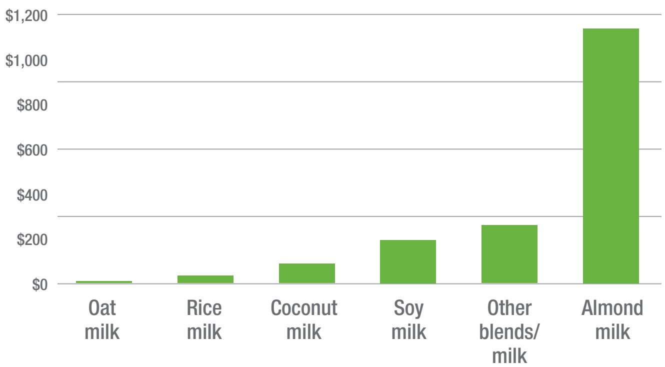
Open to plant-based protein as an ingredient



Source: Cargill Proprietary Plant-Based Research, "Report on Consumer Attitudes and Usage." 2018.

This acceptance has helped to drive the exploding growth of plant-based dairy products. The U.S. plant-based milk segment reached $2 billion in 2019 and made up 14% of the overall category, according to data from the Plant Based Food Association. While almond milk is still the most popular alternative milk, Americans are now accepting milks made with proteins ranging from coconuts to oats, with many of them gaining significant traction.

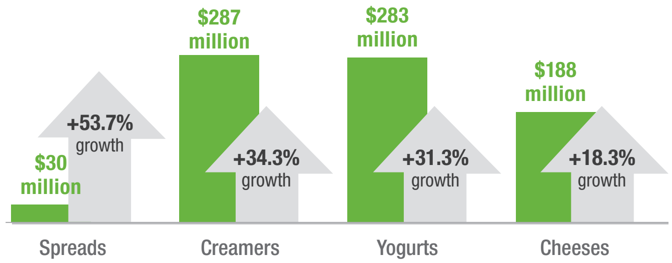
Plant-based alternative milk sales in the U.S., 2018–19 *(in millions)*



Source: GNPD Mintel, IRI data cited in NNB's "Ten Key Trends" Report.

As consumers embrace new plant proteins, including peas, nuts, oats, coconut, and even barley, this is leading to strong growth for other alternative dairy categories, including cheese, creamers, ice cream and yogurt:

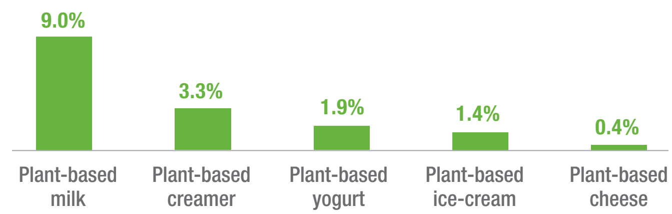
Alternative dairy *(2019 sales)*



Source: Plant Based Food Association-commissioned data from SPINS; 52 weeks ending December 2019.

While plant-based milk still has the highest market penetration, other categories are gaining market share.

Plant-based penetration by category *(by volume)*



Source: Nielsen Data xAOC Lb Volume. 52 weeks ending April 18, 2020, in Cargill "Plant based Dairy Category Evolution."

With ingredient suppliers and formulators making ongoing improvements in replicating the taste of traditional dairy, these products will most certainly see continued growth and success.

Out-of-the-box dairy

Alternative dairy may be on the rise, but many consumers do still prefer their favorite, tried-and-true dairy products. Nearly one in three say they think traditional dairy tastes better . . . and this may be one reason why four in ten say they consume both traditional and alternative dairy.[21]

These shifts are prompting new thinking and innovation in traditional dairy categories. Younger consumers are becoming more adventurous and open to new products and food experiences, leaving conventional dairy companies to branch out with new vision for dairy products, including exotic flavors, creative formats, enhanced nutritional benefits and indulgent experiences.

The market is now producing products like flavored butters, alcohol-infused ice cream and spicy yogurt dips. Indulgent products like ice cream are also edging into the healthy lifestyle category with low-calorie and reduced-sugar products, as well as more environmentally conscious sensibilities.

Fermented dairy products are likely to be a big winner, offering the tandem benefits of health and digestive support. Products like kefir, yogurt and cheese now boast trending ingredients such as probiotics, prebiotics and fibers. The category is predicted to see a bright future as consumers now report growing awareness of the dual benefits of dairy and fermentation for digestion. There is now a solid body of evidence for these products, showing their ability to enhance digestive health, support immune response and break down enzymes to ease digestion.[22] Combined with growing research of prebiotic fibers, it is likely that dairy-based fermented synbiotic products (probiotics and prebiotics) will provide strong efficacy and be rewarded with consumer loyalty.

Formulation faceoff

Consumers today expect a lot from their dairy products, including lower sugar, label-friendly ingredients and added nutrients. In the face of all these demands, it is needless to say that the dairy category does face some formulation challenges. Choosing the right ingredients and sourcing them appropriately is more critical than ever.

Sugar, for instance, has a big role to play in dairy. It contributes sweetness, mouthfeel and texture, so it's not easily replaced by a single ingredient. Product formulators are learning that a combination of natural ingredients often work best to recreate sugar's functionality. For example, formulators are combining high-intensity sweeteners like stevia (which can produce a bitter aftertaste when used at high levels) with other natural alternatives, such as erythritol, to balance out those bitter notes.

Chicory root fiber is another great option for adding sweetness and function in dairy. This multi-purpose ingredient can substitute for sugar by replacing its mouthfeel, texture and flavor while serving as a masking or bulking agent, as well as a fat mimetic. Because chicory root fiber contains inulin, a prebiotic fiber, this ingredient also enhances a product's digestive support.

Replacing dairy proteins with plant proteins is another important strategy. Dairy proteins are highly functional, providing emulsification, mouthfeel, protein, flavor, thickening and gelling, as well as synergies with other ingredients. When removing these proteins from a formulation, it affects three sensory attributes: flavor, texture and appearance. In selecting alternatives, it is important to choose those that will closely emulate their dairy-based counterpart. Texturizers such as starches, hydrocolloids and fibers, for example, can provide important functions like water-binding, mouthfeel, emulsification, viscosity and freeze/thaw stability.

Plant-based proteins can provide fortification, structure and texture, but they also need clean flavor—with less earthy/beany notes—for good organoleptic properties. Fat also plays a vital role in dairy, so alternative sources must mimic mouthfeel, texture and flavor. It is often key to select a fat source that works best in a particular application. All the alternative ingredients need to provide good solubility within the formulation.

When compared to dairy proteins, alternative protein choices do vary in their functionality. Some of the most ideal for dairy applications include pea, soy, chickpeas, fava beans

and oats. Pea protein, for example, provides a good-quality, sustainable protein source, with high solubility, a clean flavor, some emulsification, and an increase in mouthfeel.

Chickpeas and fava beans also provide high-quality protein with strong emulsification, good white color, and small particle size, making them good for vegan cheese, mayonnaise and butter.

Choline from lecithin provides a myriad of formative and wellness benefits, including development of the brain and nervous system, support for healthy cognitive function, liver and cardiovascular health, cholesterol transport and metabolism, as well as general structural integrity of cells throughout the body.

Beyond chicory root fiber, which adds sweetness and a variety of texturizing functions, there are now numerous alternative texture solutions. Starches, including label-friendly functional and modified options from various botanicals, including corn, potato and tapioca, provide structure and mouthfeel, while assisting with water binding to reduce syneresis.

Hydrocolloids, including pectin or carrageenan, texturize by forming gels to help thicken formulas and increase a creamy mouthfeel. Carageenan also increases firmness, which is useful in vegan cheeses. Lecithins or emulsifiers are essential for ensuring that there is no separation in plant-based dairy applications. Lecithins also help to improve a product's creamy mouthfeel.

Other plant-based fats and oils also offer alternatives in dairy. They include sunflower oil, which provides high stability and mid- or high-oleic values and is available in non-GMO ingredients;* canola oil, which is lowest in saturated fat and high in monounsaturated fat; and coconut oil, which offers high stability and great functionality in dairy alternatives.

Succeeding in today's dairy market

Whether you're a large or small brand, traditional or alternative, companies in today's fragmented dairy space must be increasingly strategic in both product development and market approach. To stay relevant, they should investigate new, niche audiences and fully understand those customers. Companies that develop strong consumer insight capabilities will have a perceptible edge.

And upping the bar in dairy is essential. Before, it was enough for a product to be clean, but now consumers are looking deeper at how ingredients are sourced and products are processed. Consumers want to recognize the ingredients used and understand where they come from, as well as the purpose each serves in the product.

Here are a few key strategies for dairy and alternative dairy producers looking ahead:

Know thy customer

Identifying new niche markets and reaching out to unique audiences with targeted options is a formula for dairy success. Creating new products that address nutritional needs with specific ingredients, strong packaging and reasonable prices is important. While there will be ample data and insight on young consumers, don't forget about targeting seniors. These consumers are concerned about their protein intake, and they are seeking protein in healthy dairy products to maintain muscle mass and activity levels as they age.

Make claims that resonate

There is plenty of opportunity to bolster health claims with value-added ingredients while exploring opportunities for targeted reductions of sugar and calories in dairy products. But it is important to back those claims for digestive health, weight management or bone health with solid science. At the same time, there is opportunity to give consumers permission to indulge. Just be sure not to overpromise on efficacy or under-deliver on taste.

Be transparent and nimble

Dairy supply chains must not only be honest and open about their ingredient sourcing, but also adaptable enough to respond to changing consumer values. Companies with flexible operations will be well-suited in this marketplace.

For more information, visit cargill.com/labelfriendly.

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