Transcending alternatives

The continued rise of plant-based dairy alternative products

Proprietary Research

Plant-based dairy alternative products have become a growing trend in recent years, but the events of 2020 have helped catapult this category from solid to sizzling.

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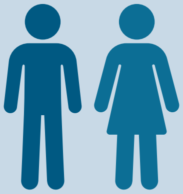
About the white paper

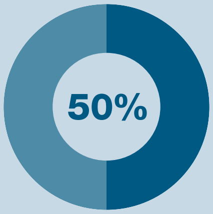
This white paper presents Cargill proprietary research, conducted in partnership with Decision Analyst, to better understand the growing and highly innovative category of plant-based proteins. Consumers are increasingly adopting the idea of plant-based eating—especially to increase their protein intake—either solely or in combination with animal-sourced proteins. But they also fundamentally want foods that support their health goals, as well as those that produce a lower environmental impact.

The research was conducted to explore both plant-based meat-alternative and dairy-alternative consumers. The research presented in this paper seeks to understand consumer demand and purchasing behavior for products in the plant-based dairy segment, exploring categories of interest, such as plant-based alternatives to milk, creamer, cheese, and ice cream/frozen desserts. This paper provides findings and insights regarding these plant-based products, consumers' desired product attributes and experiences, while offering understanding of specific demographic groups and the cross-over of these consumers to other trends like clean label and sustainability. The paper also offers context on the category regarding changing perceptions and behaviors, particularly those due to COVID-19, to help brands understand the segment with respect to product development, purchasing behavior and messaging that resonates with consumers.

Sample screening qualifications



Adults aged 18–65



Do at least 50% of the grocery shopping for the household

Purchased plant-based dairy alternative products in the past three months

Executive summary

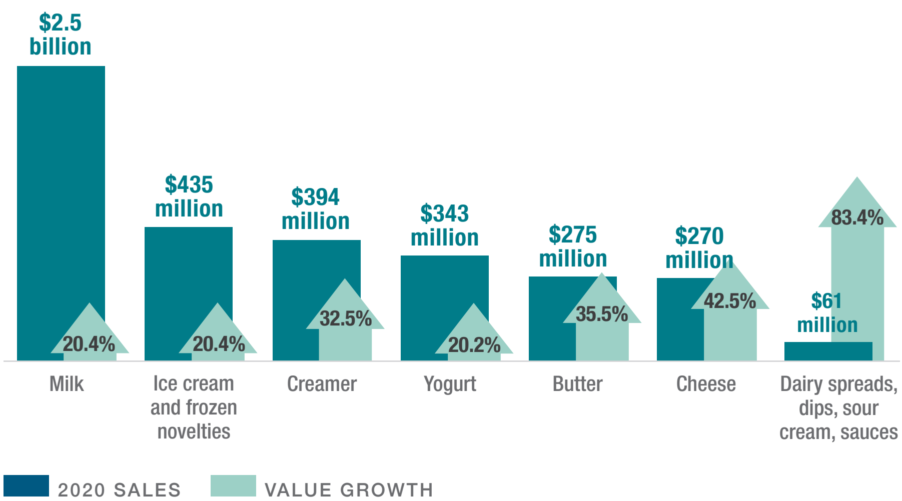
Plant-based dairy alternatives, from solid to sizzling

Just a few short years ago, the idea of a plant-based eating style wasn't really a thing—although there were those who followed a vegan or vegetarian lifestyle. But today in the world of foods and beverages, it seems consumers have jumped on the plant-based craze, and the effects have been especially profound in the dairy alternative category. Plant-based dairy alternative products have become a growing trend in recent years, but the events of 2020 helped catapult this category from solid to sizzling.

Survey data show that consumers are incorporating more plant-based foods into their diets. Plant-based dairy alternatives are particularly strong. Booming growth is forecasted for the next few years, with the global dairy alternatives market in 2020 estimated at $22.6 billion, and projected to reach $40.6 billion by 2026.[1] Growth is particularly strong in the United States, with overall sales leaping from $4.9 billion in 2018 to $7 billion in 2020, and sales of these products outpacing total food sales growth by almost two to one.[2]

Plant-based milk alternatives are still by far the largest category, but vigorous growth in smaller segments like creamers, butter and cheese illustrate consumers' growing acceptance for and trial of these products.

Growth of total plant-based dairy alternatives by category



Source: Plant Based Foods Association. Retail sales category, 52-week calendar year ending December 27, 2020.

The key question for brands is, what is precipitating consumers' meteoric shift from conventional dairy products to plant-based dairy alternatives? The answer is multi-faceted. Most frequently, consumers cite having a strong interest in supporting their personal health as well as that of the planet's, and products with plant-based ingredients are widely perceived as beneficial to health in both respects.[3]

But the COVID-19 pandemic also played an important role. According to research cited by the Plant Based Foods Association (PBFA), 77% of U.S. shoppers purchased a plant-based product in 2020, and 30% said they did so as a direct result of COVID, noting both the inclination to increase intake of immune-boosting foods, as well as a desire to experiment with plant-based ingredients when cooking at home.[4]

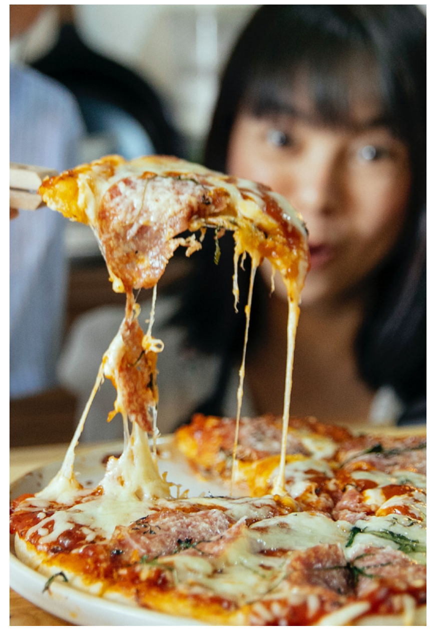
The data also suggest that these trends will have staying power, with interest increasing among mainstream consumers. Ninety percent of the shoppers noted by PBFA said these changes would be permanent, and analysts predict this will continue propelling growth of plant-based products, as consumers increasingly accept that their nutritional needs can be met with a plant-based diet.

Plant-based eating in general has become a lifestyle aligned with certain values around health, food safety, animal welfare and sustainability. To stay ahead of this wave (especially in the dairy alternative category), brands will need to increase their products' value equation by aligning with these concepts, boosting nutrition and meeting consumer expectations for great taste and texture.

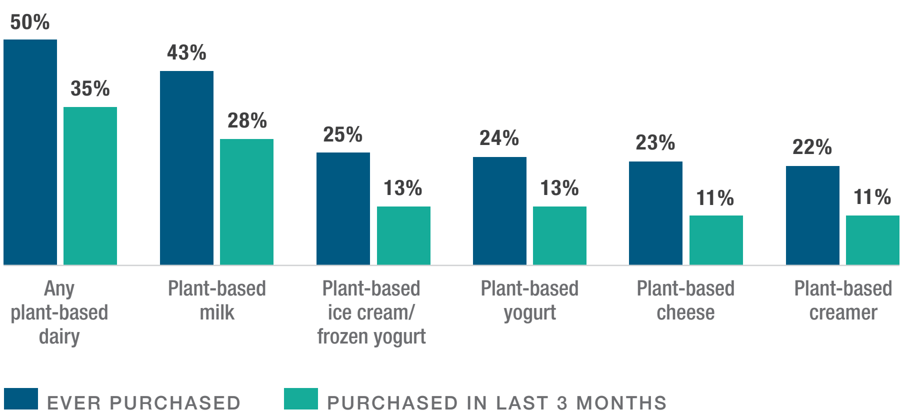
Executive summary

Snapshot of key survey findings

The shift toward plant-based eating is clear from the findings in this Cargill proprietary survey of plant-based dairy alternative consumers. Half of these respondents noted they have purchased some type of plant-based dairy alternative product, with almost as many saying they have purchased a plant-based milk. Plus, wider format acceptance is now common, with close to one in four saying they have tried other plant-based dairy alternative products, such as plant-based desserts or alternative cheese.



Plant-based dairy purchases



Milk and beyond: Plant-based dairy alternative consumers are branching out. They are most likely to be consuming plant-based milk alternatives, but as they have positive experiences, these consumers are now turning to other plant-based dairy alternatives such as yogurt, cheese, ice cream and frozen yogurt.

The plant-based play: The plant-based concept resonates for respondents. They say they look for this claim 11 times more than they do a vegan claim, although they are less likely than purchasers of plant-based meat alternatives to say they are vegan, vegetarian or flexitarian.

Plant-based is a plus for parents: Many more parents feel good about serving plant-based dairy alternatives to their children than they do about serving animal-based dairy. Parents perceive these products as offering nutritional benefits, and they are considering products based on their protein and sugar content.

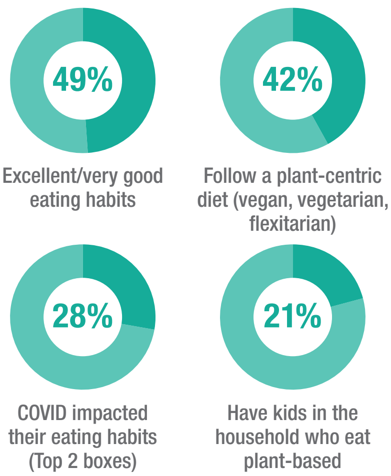
Health and nutrition drive purchase: As consumers became more conscious of their health during the pandemic, they changed their eating habits, and this included a large shift toward plant-based dairy alternatives. Nearly 40% say they follow diets that restrict animal-based dairy consumption. Concerns about health and nutrition are driving this decision, although social and environmental issues are also important to young shoppers.

Despite the success, there is still plenty of opportunity in the space, as about half of consumers have not yet tried plant-based dairy alternative products. About one third note they aren't interested in trying any plant-based dairy alternatives because they prefer animal-based dairy and they don't like the taste of dairy alternatives. But this still leaves plenty of room for additional growth, especially for brands that meet expectations for taste and texture.

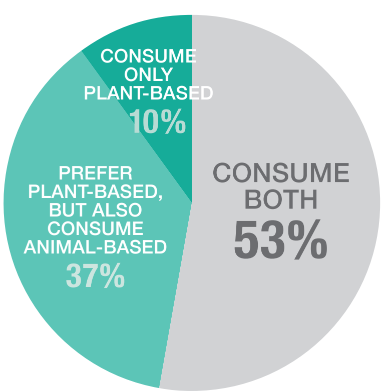
Defining plant-based dairy alternative consumers

As consumers increasingly embrace the plant-based eating lifestyle, it is important to understand who these consumers are and what they want from their alternative dairy products.

Plant-based dairy alternative consumer profile



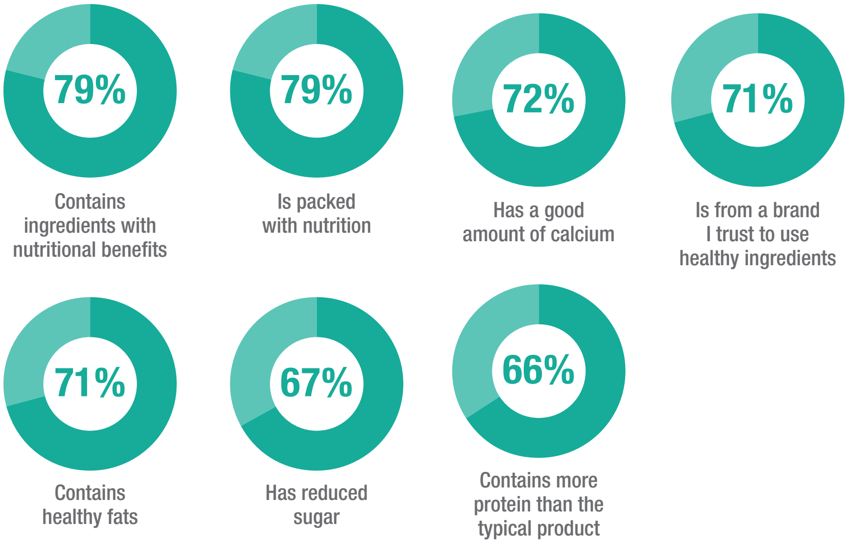
On average, these shoppers consume dairy almost 14 times per week, and half of these occasions are plant-based. But consuming plant-based dairy alternatives is not an either/or proposition, with more than half of respondents saying they consume both.



Health and nutrition considerations are driving the shift to plant-based

When purchasing plant-based dairy alternatives, shoppers most typically seek products with nutritional benefits, but they are also concerned about fat, protein and sugar content.

Attributes they are seeking...



Respondents most typically avoid products with chemical-sounding ingredients, those that are highly processed or that contain artificial sweeteners and artificial ingredients.

Animal vs. plant sources

Overall, plant-based dairy alternatives are seen by respondents to have important benefits compared to their animal-based counterparts. The biggest advantages perceived are on humane treatment of animals, as well as stays fresh longer.

PLANT-BASED DAIRY ALTERNATIVE IS PERCEIVED AS BETTER FOR	ANIMAL-BASED DAIRY IS PERCEIVED AS BETTER FOR
Humane treatment of animals	Amount of calcium
Stays fresh longer	
Contains healthy ingredients	
Nutritional value	
Amount of total sugar	
Whether it contains GMOs	

Respondents do tend to show a preference for plant-based alternatives over animal-based products, especially in formats like milk, creamer and cheese, with 40% saying they now follow a restricted animal-based diet, and 42% noting they avoid or limit animal-based products.

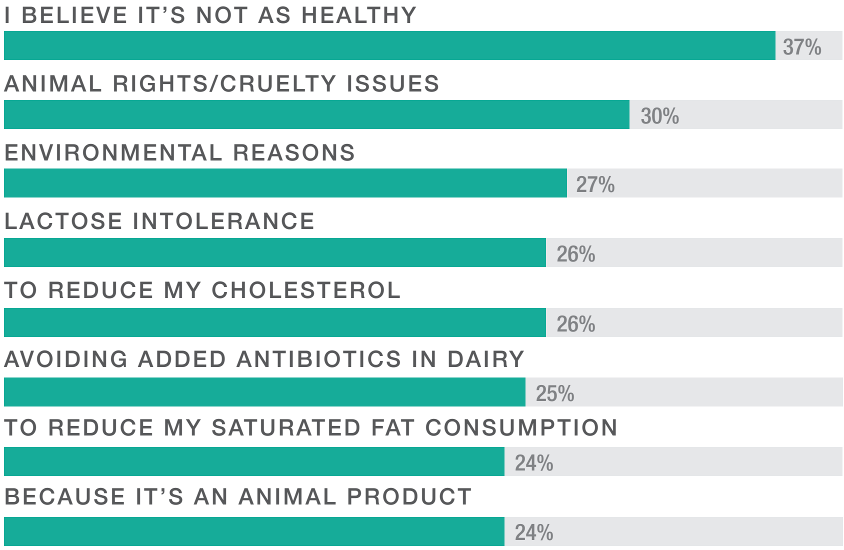
Consumption share

PLANT-BASED		ANIMAL-BASED
50%	Dairy overall	50%
62%	Milk	38%
62%	Creamer	38%
55%	Cheese	45%
54%	Ice cream	46%
53%	Yogurt	47%

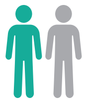
Plant-based creamer and milk alternatives have the highest share of consumption at 62%, with each of these categories having a higher share compared to dairy overall (50%).

Respondents' reasons for limiting animal-based dairy are multi-fold:

Reasons for limiting animal-based dairy

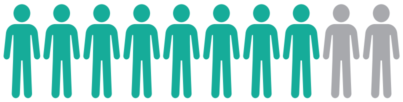


These shoppers clearly have other values in mind beyond nutrition when purchasing plant-based dairy.



One in two say they are "clean-label seekers"

60% say they seek sustainability



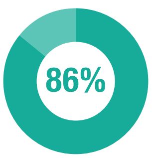
More than **8 in 10** check the ingredient list on plant-based dairy alternative products

Generational perspectives

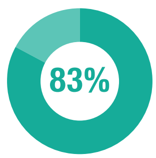
It's no secret that younger generations tend to be more receptive to plant-based products, but at the same time, consumers of all ages have high expectations for these products, with some variation by age.

Top attributes by generation

GEN Z

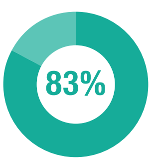


From a brand I trust to use healthy ingredients

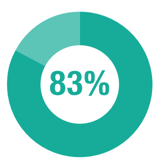


Contains ingredients with nutritional benefits

GEN Y (MILLENNIALS)

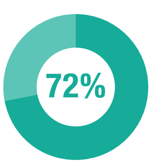


Contains ingredients with nutritional benefits



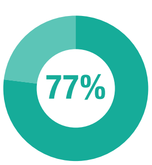
Is packed with nutrition

GEN X



Contains healthy fats

BABY BOOMERS



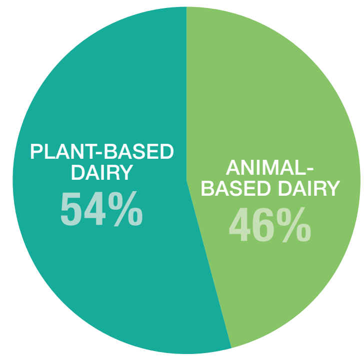
Contains ingredients with nutritional benefits

While nutritional benefits ranked highly for all age demographics, Gen Z tended to rate many attributes higher than other age groups, including the importance of brands they trust, use of organic ingredients, and products with probiotics and digestive benefits. Both Gens Z and Y ranked environmentally sustainable ingredients higher than older generations.

Kids are also a part of the equation

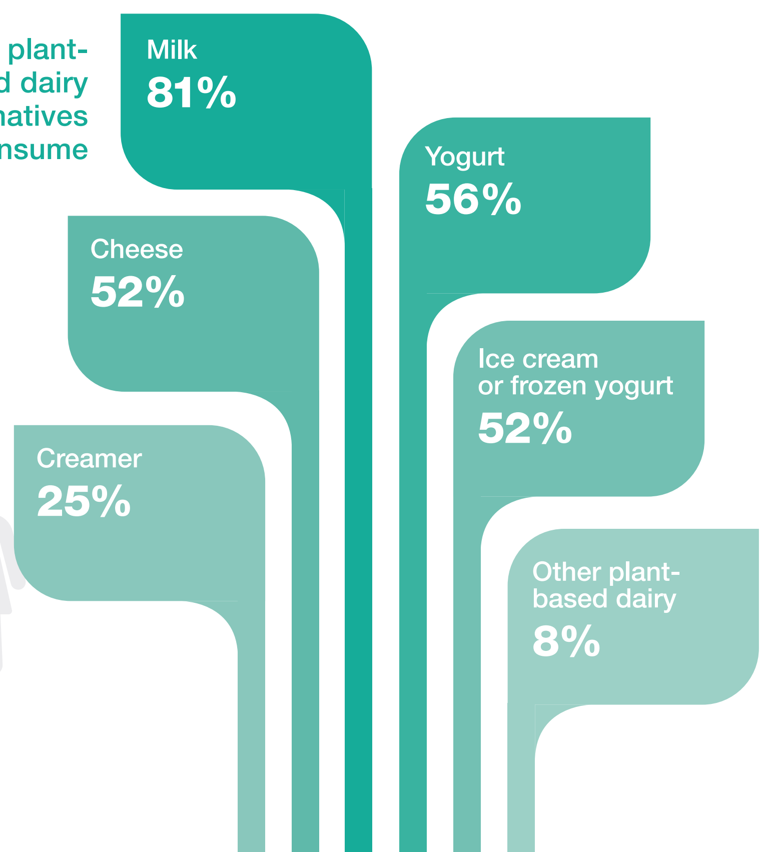
One in five total households now have a child who consumes plant-based dairy alternatives. Specifically looking at households with children, the share increases to 65% whose children consume plant-based dairy. Kids consume a slightly higher share of plant-based dairy alternatives weekly (54%) compared to adults (50%), with plant-based milk alternatives being a top choice.

Kids' weekly share of dairy by type



Plant-based dairy alternatives have particular appeal for parents. While they feel fine about serving animal-based dairy to their kids, many more have positive feelings about serving plant-based dairy alternatives to their children. Sugar and protein content are also important attributes to parents in plant-based dairy alternatives, with 47% agreeing completely that they check sugar content, and 39% reporting they check protein content.

Types of plant-based dairy alternatives kids consume

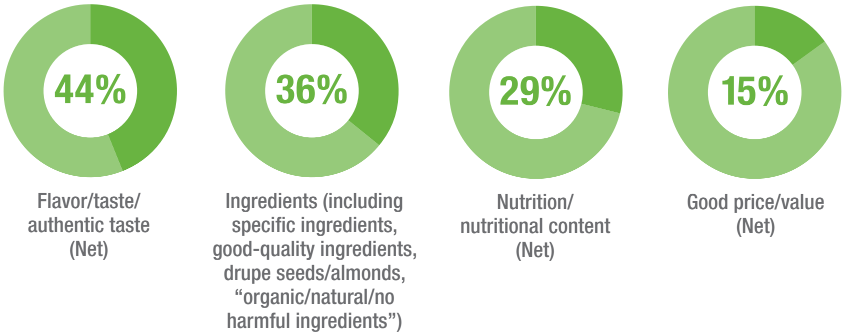


The appeal of plant-based

While nutritional content is certainly a major factor, first and foremost, shoppers are looking for plant-based dairy alternative products that deliver on good taste. They are also looking for particular ingredients, like almonds, as well as third-party certifications.

Top plant-based dairy attributes

What do you look for when selecting plant-based dairy products? (Open-ended)

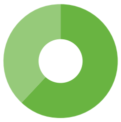


Perceived top nutritional benefits reported include being "packed with nutrition" and "containing ingredients with nutritional benefits." A large share (71%) also say they always or mostly seek out brands that they trust to use "healthy" ingredients.

Sugar and protein are also high on the radar for plant-based dairy alternative shoppers overall.

Ingredients are also important in determining what respondents don't want. Products that are processed and contain non-organic ingredients are reportedly avoided by those who identify as vegans/vegetarians/flexitarians, clean-label seekers and sustainability-seekers. Undesirable nutritional content (especially too much sugar) and products that don't taste good are in the next tier of avoidance.

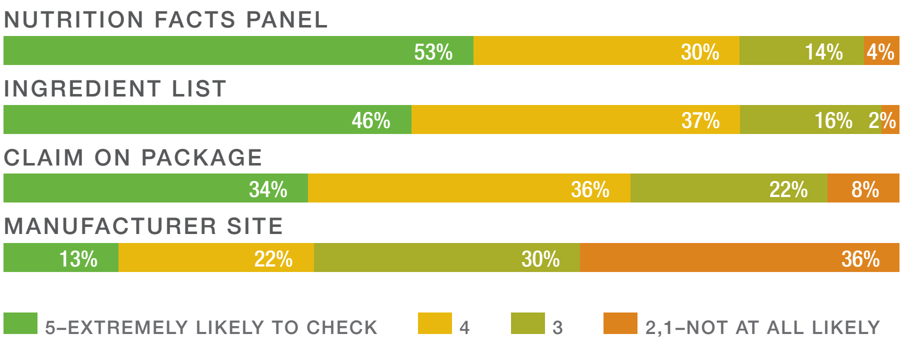
Nearly **7 in 10** of respondents say they look for the specific number of grams of sugar per serving in plant-based dairy alternatives. Among this group, the average preferred amount is 3.4 grams.



Slightly fewer **(62%)** say they look for specific protein grams per serving. On average, respondents favor 9.2 grams of protein. Baby Boomers seek the most, at an average of 10.7 grams.

Purchase considerations

Because ingredients are important to them, plant-based dairy alternative purchasers tend to be label readers, with more than 80% saying they are extremely likely/very likely to check the Nutrition Facts Panel and just as many noting they are extremely or very likely to read the ingredient list.



Interestingly, although checking the Nutrition Facts Panel is most common among respondents, there are some demographic differences. Gen Z and non-college grads are less likely to do this, while Gen X and Baby Boomers more often say they check the ingredient list.

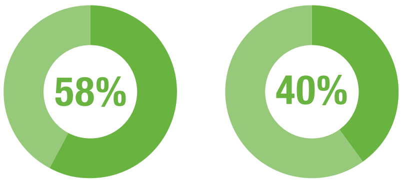
Several attributes are particularly important in plant-based dairy alternatives when respondents are considering a first-time purchase:

	EXTREMELY IMPORTANT	VERY IMPORTANT
Contains healthy ingredients	45%	44%
Nutritional value	44%	39%
Amount of total sugar	40%	36%
Plant source used	38%	42%

High expectations: Plant-based dairy alternative attitudes

As with other alternative products, consumer expectations are high for these products with respect to overall experience, ingredients, taste and health. If those expectations are met, at least one in two respondents indicates they will pay more for these products.

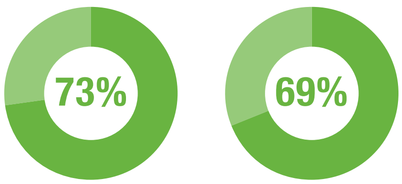
EXPERIENCE
(Completely agree/agree)



I expect plant-based to provide the same experience as animal-based

Animal-based is more satisfying

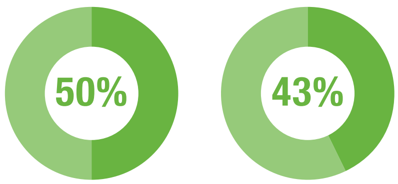
INGREDIENTS
(Completely agree/agree)



Ingredients help me determine if plant-based is healthy

I am trying to get more plants in my diet

TASTE
(Completely agree/agree)



I prefer taste of animal-based dairy over plant-based

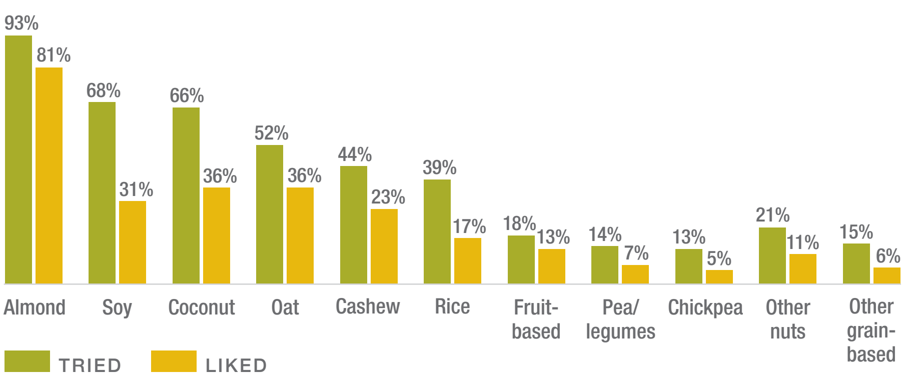
I prefer the taste of plant-based over animal-based

Undoubtedly, these responses indicate that when it comes to taste and experience, there are still some hurdles to overcome.

Ingredient developments and innovation

Among the sources of plant-based ingredients used in dairy, almonds are the most tried and liked plant-based dairy alternative products, by a large margin. But several emerging ingredients, including coconut, oats, cashews and peas are on the rise from both a recognition and experience perspective.

Experience with plant-based sources



Consumer expectations for dairy alternative products are high with respect to overall experience, ingredients, taste and health. If those expectations are met, **50%** of consumers will pay more for these products.

Creating a product with these plant-based ingredients that offers the sensory qualities that consumers expect is often easier said than done. Dairy proteins fulfill several functions within a product and interact differently with other ingredients. In order to translate dairy into non-dairy, formulators need to have a deep understanding of the alternative ingredients, especially proteins.

Animal proteins, for example, provide numerous functions, from emulsification and mouthfeel to thickening and gelling—all of which have a big impact on product taste, texture and appearance. Choosing the right mix of ingredients that collaborate well and emulate the features in animal-based products is critical.

Capital “pea”—A versatile and sustainable protein

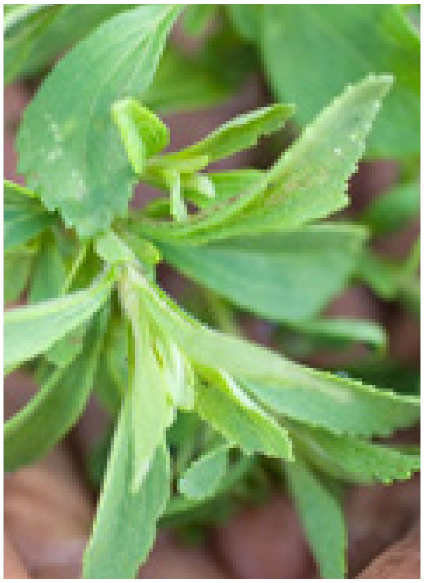
While a number of plant-based proteins, from oats to fava beans, have become popular options in plant-based dairy alternatives, few ingredients work as well as pea-based proteins. Peas provide a good-quality, clean-tasting, plant-based protein source that can fortify a product’s protein content without impacting taste. Ingredients from yellow pea varieties, in particular, work well to provide a creamy, smooth mouthfeel in plant-based dairy alternatives while minimizing the off-notes typical in many pulse-based ingredients.

Furthermore, peas have a strong sustainability story, which has enhanced their label-friendly perception for consumers. As part of the legume family, peas are nitrogen fixers in the soil, making them an important rotational cover crop. This rotational approach is beneficial for both farmers and the soil. Peas convert nitrogen to fertilize the soil for themselves and other crops. This reduces use of fertilizers, which saves costs and minimizes the amount of fertilizer that can wash into waterways and cause other environmental issues. Farmers can also add peas to their crop rotation for an early summer harvest and still plant soybeans for a fall harvest, giving them the potential to yield three crops in two years. This regenerative system also helps produce healthier soil with less erosion, more water-holding capacity and increased organic matter, which helps sequester carbon. Yellow pea varieties are now grown extensively in North America and also are available as non-GMO Verified and USDA Certified ingredients.

Natural sweetness

As we’ve seen from this study, sugar content (low/no sugar) is vitally important in plant-based dairy alternatives. But replacing sugar’s functionality is always a big ask and often takes more than one ingredient to reproduce its taste and function. Plant-based dairy alternative consumers are also label readers, so they are looking for alternative sweeteners that are naturally sourced and produced.

Stevia-based sweeteners have a positive plant-based appeal. This high-intensity sweetener is excellent for adding sweetness to dairy alternatives while keeping the calories low. But they can sometimes produce a bitter aftertaste in high concentrations. Formulators have learned to blend them with other sweeteners, such as erythritol (a sugar alcohol found naturally in berries and some vegetables) which help to balance these off-notes.



Conclusion: Plant-based dairy alternative opportunities abound

While mindful consumers are looking for dairy alternative products that are plant-based, vegan, organic and sustainably produced, there are still a sizable number of consumers who have never tried plant-based dairy alternatives. This spells ongoing opportunity for the category.

Following are some insights into strategies that will continue to be important in plant-based dairy alternative development as these mainstream consumers buy in:

Innovation is essential: Protein is an important nutrient that many people are trying to eat more of, so creating dairy alternatives in new formats and using plant-based sources that offer added value is the name of the game. Plant-based proteins have a strong health halo, and consumers have a solid understanding of what they do and perceive them as nutrients that are naturally functional. Consumers will likely become more accepting of a variety of plant-based ingredients as long as they continue to meet growing expectations for functionality, sustainability and "naturalness."[5]

But even as they try new products, these consumers will also be increasingly discriminating about taste and texture. The bar will continue to be raised for products that meet consumer expectations in plant-based dairy alternatives, and the onus will be on brands to innovate and stay ahead of the curve.

Make plants easy: One of the key strategies for plant-based dairy alternatives going forward is to make eating plants more accessible for the average consumer.[6] While not everyone is turning vegan, a growing number of consumers believe that eating a plant-forward diet is better for them, and they are actively following through. Product developers have ongoing opportunities to add more plant-based ingredients to their products, making it easier than ever to incorporate these foods into everyday life.[7] Plant-based dairy alternatives are a great way to accomplish this.

Sustaining sustainability: People are becoming more concerned about environmental issues, and they have rising expectations for ingredients and products with respect to their sourcing and processing. Concern about sustainability in the food supply has only increased in the past year, as consumer awareness heightened around social and environmental issues, as well as their personal health. According to a recent study from GWI, more than 70% of consumers across 20 countries noted that companies behaving sustainably has become more important to them since COVID-19.[8]

This suggests important opportunities for brands to reevaluate their supply chains and operations to make tangible steps toward long-term sustainability. In the booming North American plant-based dairy alternative sector, for example, local supply is becoming critical for ingredients like peas and oats. However, if plant-based dairy alternatives are going to be positioned as better for the environment, brands will also need to increase their efforts around sustainable packaging, and reducing their overall carbon footprint.

In today's evolving market, products that can tout complete solutions offering great taste, high protein, added nutrition and low/reduced sugar—as well as a solid sustainability profile—will be poised for plant-based dairy success.

To learn more about Cargill's growing portfolio of plant-based proteins, visit www.cargill.com/plantproteins.

Methodology

Decision Analyst conducted a nationally representative, online survey in late January/early February 2021 among category purchasers of the two plant-based categories of meat alternatives and dairy alternatives.

- The survey was conducted among 602 nationally representative, adult grocery shoppers in the U.S., including:
  - ✔ 301 who had purchased a plant-based dairy alternative product *in the past 3 months*
  - ✔ 301 who had *ever* purchased a plant-based meat-alternative product
- After answering screening questions, respondents were assigned to one of the two product categories based on their purchasing history. Questions were focused on purchasing for their own consumption.
  - ✔ Those who had children in the household were also asked a few questions about the children's consumption of the plant-based products.
- Additional questions were asked about shopping behaviors in general, their diets, and how COVID-19 has affected their consumption of the assigned category. Additional demographic questions were also asked.
- The questionnaire was co-developed by Decision Analyst and Cargill. The survey took 16 minutes for respondents to complete (median survey length).

References

1 Markets and Markets. "Dairy Alternatives by Source, Application, Distribution Channel, Formulation and Region. Global Forecast to 2026." https://www.marketsandmarkets.com/Market-Reports/dairy-alternative-plant-milk-beverages-market-677.html

2 Plant Based Foods Association (PBFA). Retail Sales Data for the 52-week calendar year ending December 27, 2020. Raw data commissioned by SPINS, powered by IRI and coded by PBFA and the Good Food Institute. https://www.plantbasedfoods.org/marketplace/retail-sales-data-2020/

3 International Food Information Council (IFIC). "2021 Food and Health Survey." https://foodinsight.org/2021-food-health-survey/

4 Ibid. PBFA Retail Sales Data.

5 Mellentin, J. "Ten Key Trends in Food, Nutrition and Health 2021." *New Nutrition Business*. https://www.new-nutrition.com/

6 Ibid.

7 Ibid.

8 Gilsenan, K. "Green Awakening: Making Sustainability Part of the Recovery in 2021." GWI. December 1, 2020. https://blog.gwi.com/trends/sustainability-in-2021/