The evolving dynamics of dairy alternatives

Proprietary Research

Plant-based eating is no longer niche, and plant-based consumers are now shaping food and beverage product development by not only embracing plant-based, but also demanding health-conscious products with label-friendly, familiar ingredients that support overall health and wellness of people and planet.

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About the white paper

IN ORDER TO STAY AT THE FOREFRONT of the innovative and quickly evolving market for plant-based proteins and the shoppers who consume them, Cargill conducts ongoing proprietary research.

Based on its most recent research, this white paper will explore the drivers of consumer interest in plant-based dairy alternatives by taking a deep dive into the broadening consumer base for these products, with information on purchase criteria, consumption, attitudes and demographics of the three key segments of plant-based dairy purchasers. It will look at how trends in the fast-paced segment have changed over a 12-month period, with a glimpse at evolving consumer attitudes and how they impact purchase choice and consumption. The report will also delve into the latest attitudes about ingredients and how these trends may impact future product development.

Sample screening qualifications

The online survey was conducted in two waves, the first in January/February 2021, and the second in July 2022. Both waves used a nationally representative sample of U.S. consumers who conduct at least half of their household's grocery shopping.

Respondents were screened for purchase of plant-based products

301

WAVE 1: 301 purchased a plant-based dairy alternative product in the past 3 months

302

WAVE 2: 302 purchased a plant-based dairy alternative product in the past 3 months

Executive summary

PLANT-BASED CONSUMERS NOW RUN THE GAMUT: from the ultra-faithful, to those who really prefer their traditional animal-based dairy but are giving the occasional plant-based product a try. What is notable is that plant-based eating is no longer niche, and these consumers are now shaping product development by not only embracing plant-based, but also demanding health-conscious products with label-friendly, familiar ingredients that support overall health and wellness of people and planet. These emerging ideas were further reinforced during the 2020 pandemic, when many consumers leaned into the concept of plant-based eating for overall health, as well as weight management, immune and digestive support.

KEY FINDINGS

A motivated mainstream

It is increasingly clear that interest in plant-based eating has become mainstream. This research underscores that finding, with about half of the general population now saying they have purchased plant-based dairy alternative products and one-third reporting they have done so within the last three months.

That said, many plant-based eaters favor a flexitarian approach. This is evident in the fact that nearly half of plant-based dairy alternative consumers split their consumption between plant-based and animal-based products. Indications are that the greatest opportunity to increase plant-based dairy alternative consumption is not among strict animal-based avoiders, but rather those open to flexing between the two product types.

Plant-based milk alternatives—a gateway product

Plant-based milk alternatives tend to open the door for many consumers, as opposed to other plant-based sub-categories. These alternative milk products generate higher purchase incidence and stronger likelihood of future purchase, especially among younger shoppers and those with kids in the household.

Discerning decision makers

Plant-based dairy alternative consumers tend to be health-conscious, which means they are educated and savvy about what they want from the products they purchase. They are checking ingredient lists before they buy, and are also more likely than typical consumers to seek specific ingredients while avoiding those they view as undesirable.

A stable, but developing, market

While purchase of plant-based dairy alternatives remained stable over the roughly one-year period between study Waves 1 and 2, the market has seen some significant shifts—with noticeably fewer plant-based purchasers reporting that they are vegan or vegetarian, fewer restricting animal-based products or making an effort to avoid conventional dairy, and smaller numbers noting they consume a majority of plant-based overall.

Some of these changes in behavior and motivations may be due to the waning impact of COVID-19 on people's lives, such as lowering concern about immune health and product availability on store shelves. But the findings further suggest that consumers have become increasingly open to flexitarianism in their consumption of plant-based dairy alternatives and conventional dairy, which will likely intensify the importance of top attributes like taste and texture.

Plant-based dairy alternative dynamics

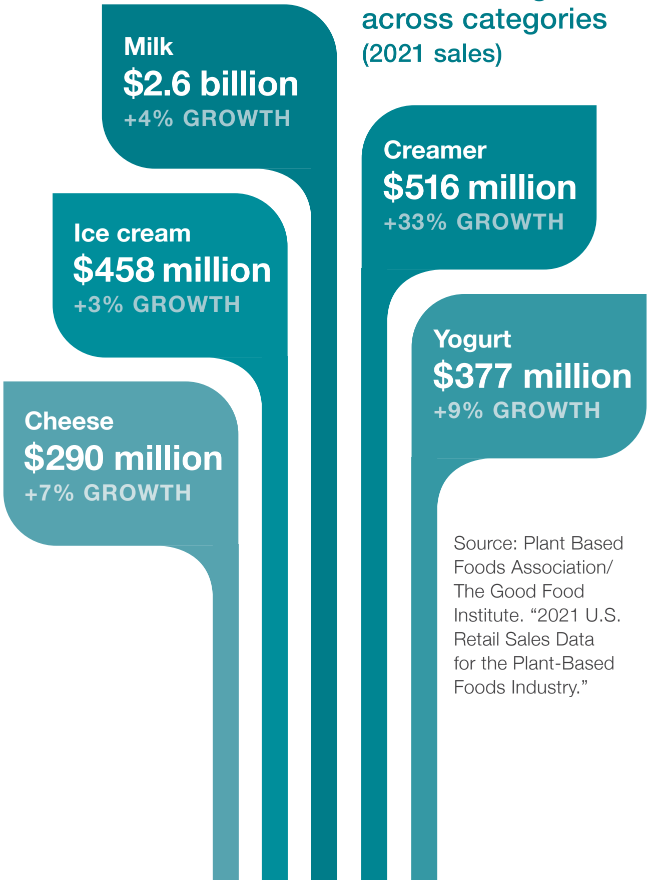
FEW FOOD AND BEVERAGE SEGMENTS have seen the fast-paced rise that plant-based products have enjoyed, and trends suggest that the rise in plant-based eating is anything but over. The overall category has seen spectacular growth in the United States in recent years, with data from the Plant Based Foods Association and The Good Food Institute citing 54% growth over three years, to reach $7.4 billion in sales and household penetration of 62%.[1]

Plant-based dairy alternatives—particularly milk alternatives—have been at the forefront of these developments, having adapted to serve consumer needs from the early health-based shoppers to today's more wellness-oriented, plant-based eater. Plant-based milk alternatives are by far the largest category, and have been instrumental in helping to drive consumers toward other plant-based alternatives. Creamer was a particular winner in 2021, becoming the second-largest segment within plant-based dairy alternatives.

However, the growing success of plant-based dairy alternatives has also prompted increasing competition from traditional dairy and emerging alternatives, which means players in the plant-based dairy alternative space will have to be buttoned up on the broader attributes that consumers now expect, such as clean label, transparency and reduced sugar.[2]

As these products target wider audiences, taste and texture will continue to be high priority, despite recent improvements in sensory and nutritional qualities. The next few years will also be pivotal, as both conventional dairy and new alternatives raise the bar for function, nutrition, taste and affordability.

Plant-based dairy alternatives grew across categories (2021 sales)



Source: Plant Based Foods Association/ The Good Food Institute. "2021 U.S. Retail Sales Data for the Plant-Based Foods Industry."

The plant-based dairy alternative consumer

PLANT-BASED EATING has moved well beyond the tipping point, regardless of how consumers choose to use these products—whether they decide to consume mostly plant-based foods, or simply use plant-based milk alternatives. As more shoppers accept these products, the typical profile of a plant-based eater has gotten more diverse. A recent study from *Nutrition Business Journal*/NEXT New Hope Network suggests that brands should disabuse themselves of the idea that plant-based products only apply to affluent and highly educated females, noting that appeal of these products is now both broad and diverse.

But how does that look in the plant-based dairy alternative segment? The demographic profile of these shoppers is expanding, as more consumers across genders, generations and socio-economic categories show interest in these products.

A snapshot of the plant-based dairy alternative consumer in 2022

BY GENDER

MALE **44%**

FEMALE **55%**

HOUSEHOLDS WITH KIDS UNDER 18 **34%**

BY GENERATION

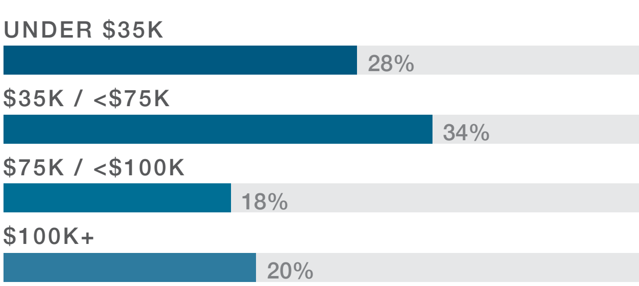
GEN Z (18–24) **12%**

GEN Y (25–40) **38%**

GEN X (41–55) **25%**

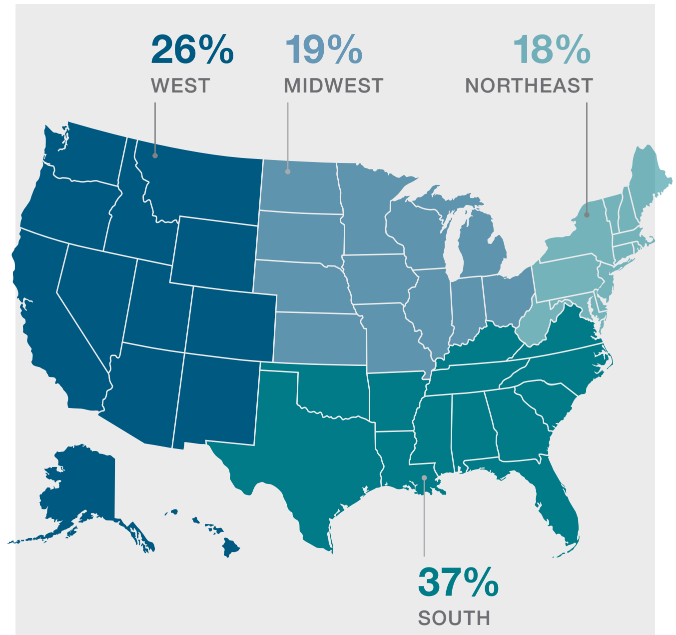
BABY BOOMERS (56–74) **23%**

Income



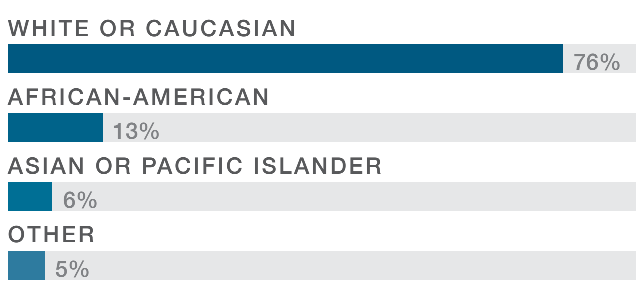
Interestingly, the South now contains the highest percentage of plant-based dairy consumers.

Plant-based shoppers by region



While plant-based shoppers are still disproportionately white; African-Americans, in particular, are starting to embrace plant-based dairy alternatives.

Ethnicity (respondent selected all that apply)



There were no statistically relevant demographic changes from Wave 1 to Wave 2, but there were small increases among female purchasers, African-American shoppers and those within the lowest income level.

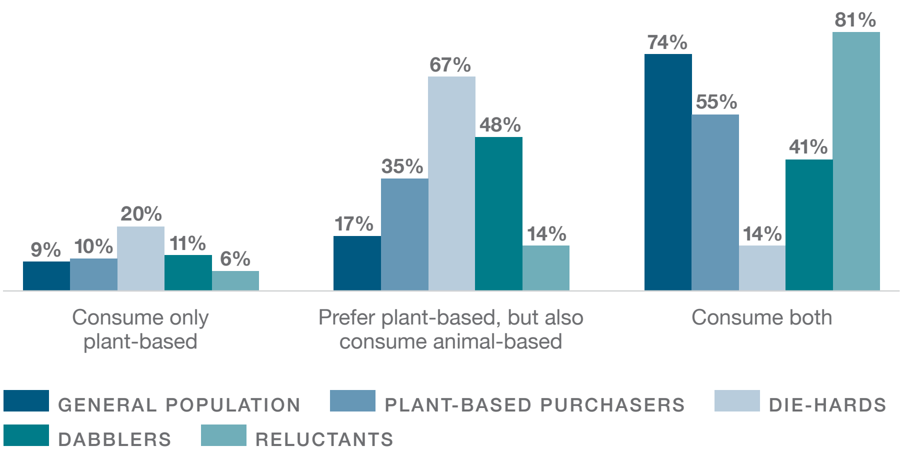
Plant-based consumer segmentation

As plant-based dairy alternative consumers become more diverse and multi-dimensional, their needs and priorities for these products will expand. To understand this dynamic picture, this proprietary research identifies three plant-based purchaser segments: Die-Hards, Dabblers and Reluctants. As the name suggests, Die-Hards are the most committed plant-based consumers, while Dabblers do just that. Reluctants test the waters with plant-based milk alternatives, but don't generally venture beyond that.

Overall, a majority of the consumers in all three segments purchase plant-based milk or dairy alternatives, but Die-Hards are most likely to be vegan, and Dabblers more often say they follow a vegetarian lifestyle. Flexitarianism is high among all segments.

While less than one in five in any segment say they consume only plant-based foods, Die-Hards are most likely to prefer plant-based, which is about 50 points higher than the general population.

Plant-based consumption among the segments



About Die-Hards

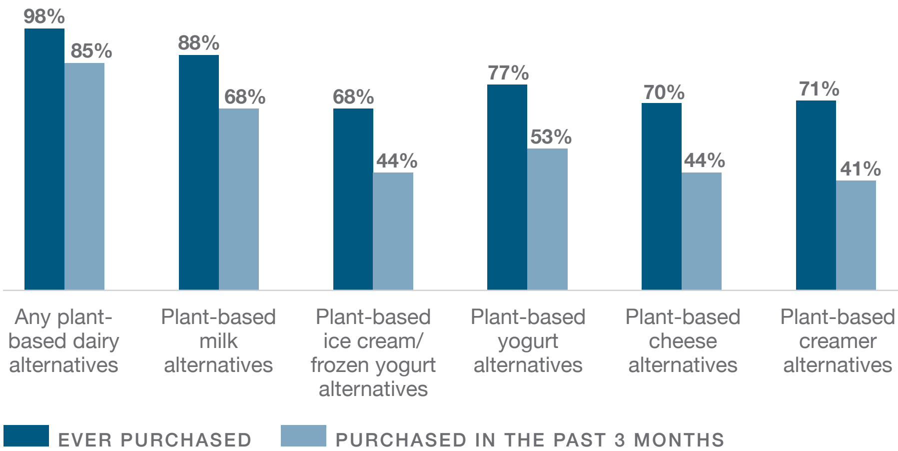
These shoppers are fully committed to the plant-based lifestyle. They are most likely to be female, vegan or vegetarian; they also note a higher willingness to pay more for plant-based products. They demonstrate a high purchase incidence across all plant-based dairy alternative sub-categories.

Predominantly female, Die-Hards are less likely to have high incomes. They are most often Caucasian, but African-Americans are disproportionately represented in the category. Nine in 10 are Clean-Label Seekers, and nearly all (95%) are Ingredient Checkers.

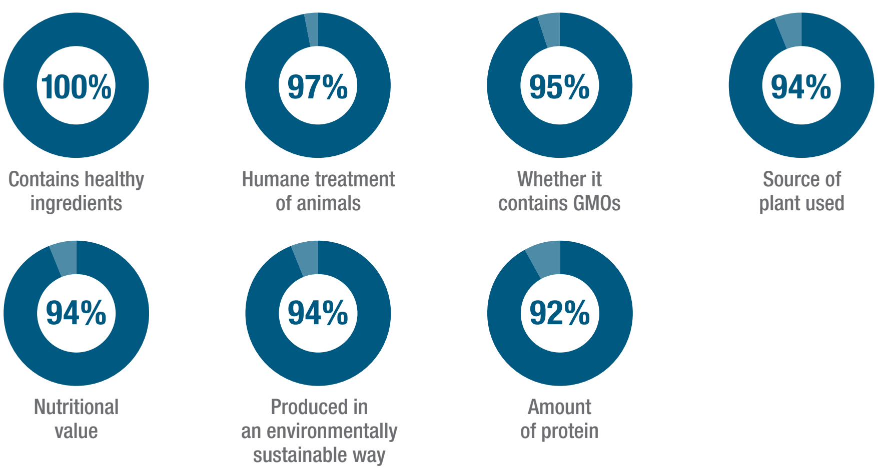
Although these shoppers do consume both conventional dairy and their plant-based alternatives, their weekly consumption skews a bit higher toward plant-based.

Not surprisingly, Die-Hards pay close attention to product attributes, especially for first-time purchases, with more than 90% noting numerous qualities as important.

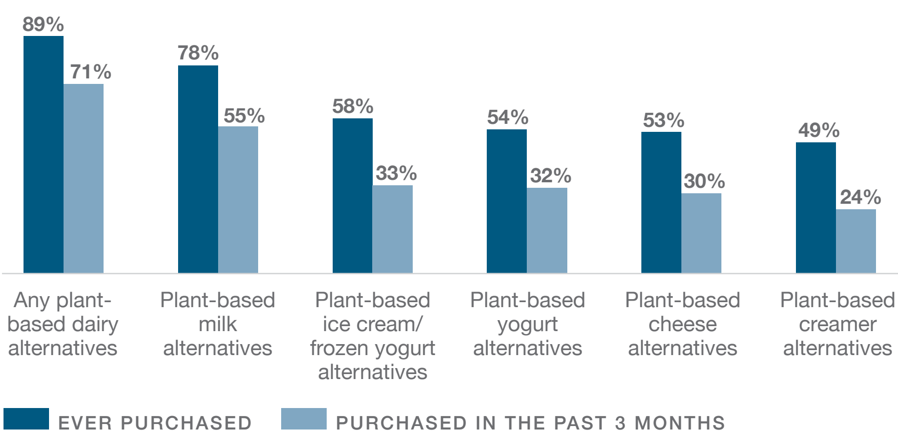
Purchase incidence of plant-based dairy alternatives among Die-Hards



Important first-time purchase considerations of plant-based dairy alternatives among Die-Hards (top-2 boxes; selections indicate top 3 most important considerations)



Purchase incidence of plant-based dairy alternatives among Dabblers



About Dabblers

Dabblers aren't as committed as Die-Hards, but they are closer to these steadfast consumers than they are to those in the Reluctants category. They tend to be younger and stick to plant-based milk alternatives when they purchase plant-based products.

While plant-based milk alternatives are most popular among these shoppers, they are almost as likely to purchase all types of plant-based dairy alternatives.

Demographically speaking, Dabblers have the youngest average age (41), typically higher incomes and education, and are the most ethnically diverse. Six in 10 identify as Clean-Label Seekers.

Dabblers split their consumption of conventional dairy and their plant-based alternatives almost right down the middle, but more than 60% say that plant-based wins out over animal-based with regard to healthy ingredients, nutritional value and environmental sustainability.

Ultimately, these consumers are trying to get more plants in their diets, and they look closely at ingredients to determine whether plant-based dairy alternatives meet their expectations for health.

About Reluctants

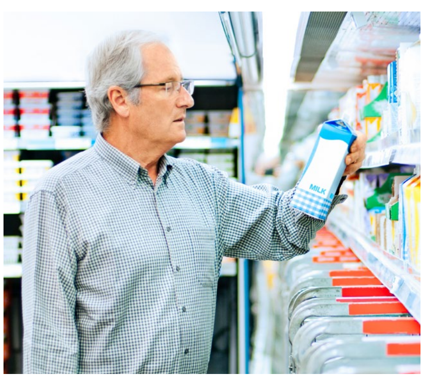
Reluctants are still on the fence about plant-based products, reporting the lowest purchase of plant-based dairy alternatives. They are most interested in plant-based milk alternatives, and do report purchases/purchase likelihood for plant-based milk alternatives at rates higher than the general population.

Reluctants are the oldest segmentation, are most likely to be Caucasian, and a bit more likely to be male. They also more often identify as Clean-Label Seekers.

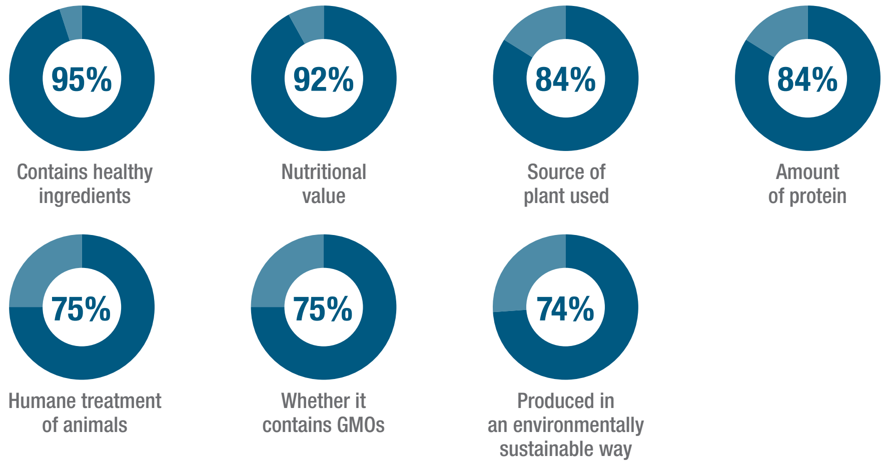
Slightly more than 80% said they consume both plant-based alternatives and animal-based dairy, but they are by far the most likely to consume animal-based products as a regular part of their diets (55%). These shoppers are least likely among the three groups to follow diets that restrict animal-based consumption.

Reluctants have the lowest attitudinal scores across the board, with their purchase criteria being less important than the other segments—purchase considerations are more aligned with the general population.

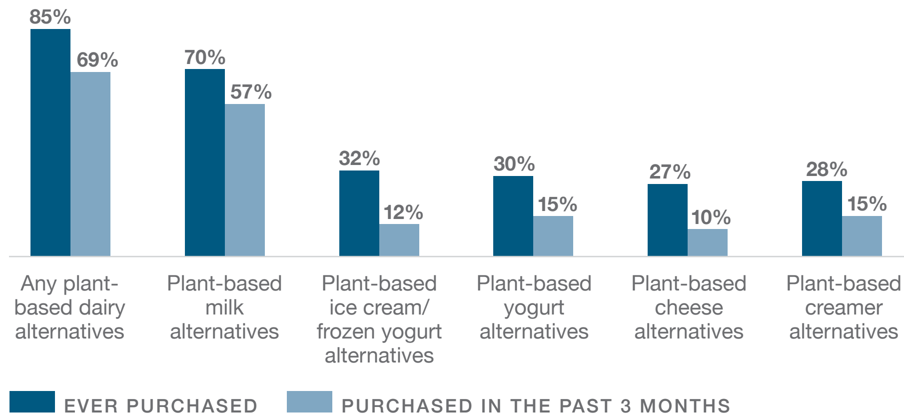
Fundamentally, this segment is most likely to say they prefer animal-based over plant-based, and while they are less worried about specific product attributes, they do note highest importance for nutritional value.



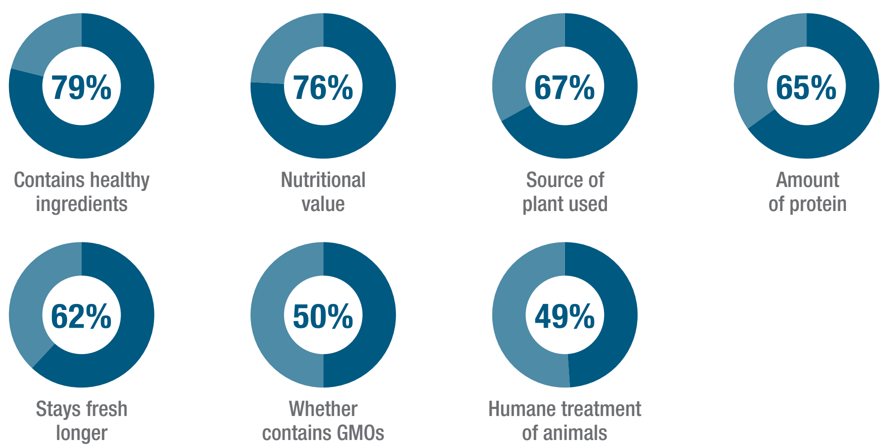
Important first-time purchase considerations among Dabblers (top-2 boxes; selections indicate top 3 most important considerations)



Purchase incidence of plant-based dairy alternatives among Reluctants



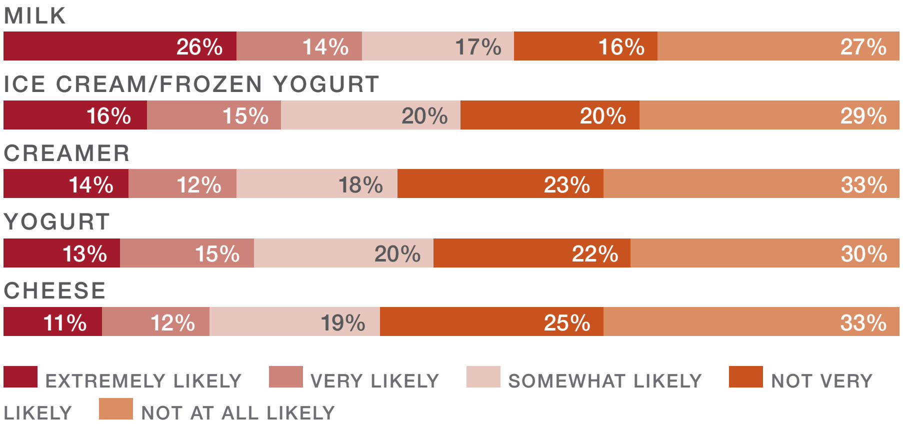
Important first-time purchase considerations among Reluctants (top-2 boxes; selections indicate top 3 most important considerations)



Dairy alternatives rising

WITH ABOUT HALF THE GENERAL POPULATION now saying that they have at least tried some type of plant-based dairy alternative (and just more than one-third reporting they did so recently), the expansion prospects for plant-based dairy sub-categories are strong. Brands have made critical improvements to plant-based dairy alternatives' taste and texture, which provides consumers a more positive experience, encourages trial and even leads consumers to embrace several new plant-based categories.

Purchase likelihood for plant-based dairy alternatives (among Wave 2 general population shoppers)



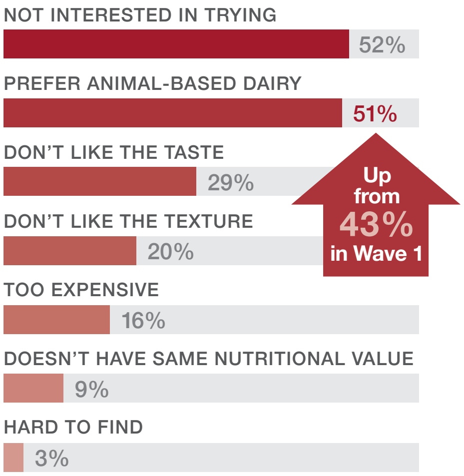
Trial of other categories is on the rise, now nearing one in three among the general population, and more than one in two among existing plant-based dairy alternative purchasers.[1]

Plant-based dairy alternative purchase likelihood (top-two boxes)

	General population shoppers	Plant-based dairy alternative purchasers
PLANT-BASED MILK ALTERNATIVES	40%	79%
PLANT-BASED ICE CREAM/ FROZEN YOGURT ALTERNATIVES	31%	50%
PLANT-BASED CREAMER ALTERNATIVES	26%	48%
PLANT-BASED YOGURT ALTERNATIVES	28%	46%
PLANT-BASED CHEESE ALTERNATIVES	23%	33%

Those who reject plant-based dairy alternatives make up about 35% of the population, with the highest concentration among baby boomers. They do so for a variety of reasons, but given that many cite taste, texture and cost as a reason, it would seem there are opportunities to address these concerns.

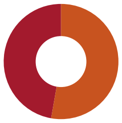
Reasons for plant-based alternative dairy rejection (among wave 2 rejectors)



Flexitarian focus

Plant-based dairy alternative purchasers consume dairy of any kind about 13 times per week (with plant-based products accounting for nearly half of that), although this rate is down slightly from earlier in the year.

Weekly dairy consumption share (among Wave 2 plant-based dairy alternative purchasers)



Creamer and milk have the highest consumption share. Creamer has seen a significant increase in usage since Wave 1, with a higher weekly consumption of plant-based creamer alternative in Wave 2.

Weekly dairy consumption share by product type (among Wave 2 plant-based dairy alternative purchasers)

	Plant-based	Animal-based
CREAMER	70%	30%
MILK	63%	37%
YOGURT	48%	52%
CHEESE	46%	54%
ICE CREAM OR FROZEN YOGURT	46%	54%

It is interesting to note that among the plant-based consumers who have purchased these specific categories, preferences lean toward plant-based products in both milk and creamer alternatives, while the other subcategories see less of a skew toward plant-based.

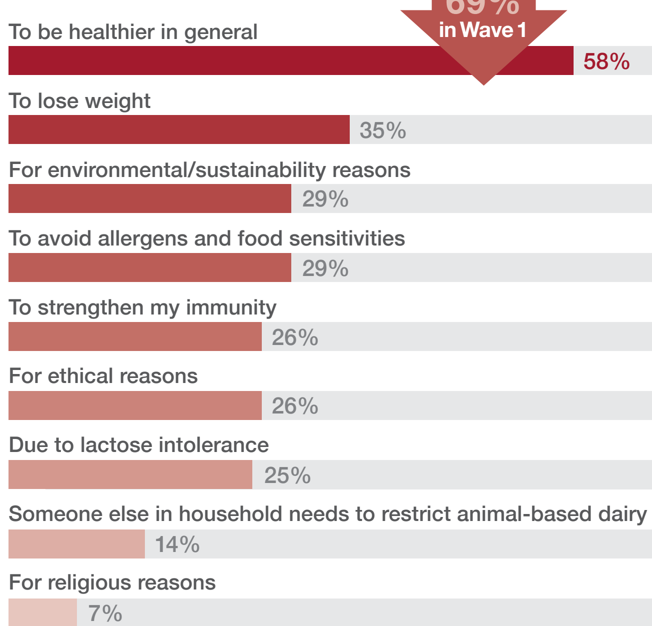
Restricting animal-based dairy

The restriction of animal-based dairy in the diet is one of the interesting shifts in the past 12 months, with fewer consumers in Wave two (32%) now saying they restrict these products (+9 points above the general population), as opposed to 40% who said this in Wave one (+20 points over the general population).

Plant-based and kids

Nearly all parents feel good about serving plant-based dairy alternatives to their kids. Rising numbers of plant-based purchasing parents serve these products to their families; but again, it's flexible. Respondents reported that weekly dairy consumption for children (among those kids who were consuming plant-based) tends to include more plant-based dairy alternatives (54%) compared to animal-based (46%).

Reasons for animal-based dairy restriction



Again, "milk" is still the most commonly consumed plant-based dairy alternative among kids, at 81%, but other plant-based alternatives like yogurt, cheese and ice cream now also see rates of more than 50% among children who are already consuming plant-based products.

Parents already purchasing plant-based dairy alternatives feel best about serving them to their kids and report an especially high incidence (92%) of their kids consuming plant-based milk alternatives (up from 81% in Wave 1). Many parents also look closely at other components in these products, such as sugar levels and protein content.

Parent agreement for kids (top-2 box; among Wave 2 respondents)

	General population	Plant-based purchasers	Plant-based dairy alternative purchasers
I feel good about serving plant-based alternative products to my children	55%	91%	89%
I feel good about serving animal-based products to my children	60%	68%	59%
I especially look at sugar content in products I'll serve to my children	61% (WAVE 1: 73%)	61% (WAVE 1: 75%)	61% (WAVE 1: 75%)
I especially look at protein content in products I'll serve to my children	56%	76%	70% (WAVE 1: 83%)

Ingredient insights

GENERALLY SPEAKING, consumers of plant-based dairy alternatives are ingredient-savvy and peruse ingredient lists more than the general population. They most commonly look at the Nutrition Facts Panel, followed by the ingredient list, with significantly fewer of these consumers now saying they check claims on package or the manufacturer's website.

Because these consumers are more engaged, considerations of ingredients, texture, processing and perception are critical. When asked about some of these attributes, respondents indicated whether conventional dairy or their plant-based alternative had the advantage. Plant-based purchasers gave plant-based products the advantage on most attributes.

However, even among plant-based purchasers, animal-based dairy has had the advantage on some attributes, such as protein content, calcium and vitamin D, as well as texture appeal.

While plant-based dairy alternatives still have an advantage regarding humane animal treatment and sustainability, it may be losing its edge with regard to ingredient attributes among plant-based purchasers. At the same time, fewer of these respondents indicate that ingredients help them determine the healthfulness of plant-based dairy alternative products.

Perceived advantages of plant-based dairy alternatives (among Wave 2 plant-based dairy alternative purchasers)

	Plant-based is much better	Plant-based is somewhat better	No difference	Animal-based is somewhat better	Animal-based is much better
HUMANE TREATMENT OF ANIMALS	44%	26%	20%	5%	5%
PRODUCED SUSTAINABLY	28%	36%	30%	4%	2%
CONTAINS HEALTHY INGREDIENTS	26%	32%	29%	7%	6%
AMOUNT OF TOTAL SUGAR	19%	31%	34%	11%	5%
NUTRITIONAL VALUE	19%	29%	35%	13%	4%
NUMBER OF INGREDIENTS USED	16%	25%	32%	17%	10%
MADE WITH INGREDIENTS I RECOGNIZE	15%	19%	37%	22%	7%

Perceived advantages of animal-based dairy (among Wave 2 plant-based dairy alternative purchasers)

	Plant-based is much better	Plant-based is somewhat better	No difference	Animal-based is somewhat better	Animal-based is much better
GREAT TASTE	17%	18%	28%	23%	14%
AMOUNT OF PROTEIN	17%	15%	29%	27%	12%
APPEALING TEXTURE	14%	12%	37%	28%	9%
AMOUNT OF CALCIUM	12%	16%	33%	30%	9%
AMOUNT OF VITAMIN D	12%	15%	42%	25%	6%

Protein prioritized

With protein content and taste being top criteria in plant-based dairy alternatives, selection of plant-based protein will be increasingly important, especially as brands attempt to compete with conventional dairy for comparable protein levels. Higher protein can significantly impact taste, causing both off-flavors and gritty texture. However, a new generation of pea-based protein created through a joint venture between Cargill and PURIS™ addresses these issues. PURIS™ pea protein is sourced from yellow pea seed varieties that have been selected to minimize off-flavors common in pulses, while enhancing solubility for a creamy, smooth mouthfeel and also offering 80% protein content.

These pea proteins also offer a solid sustainability story. Yellow peas are often grown as cover crops, helping farmers minimize soil erosion and returning nitrogen to the soil naturally. PURIS™ takes this another step by sourcing all its protein in North America.

Sugar reduction—naturally

Plant-based dairy alternatives may also see increased scrutiny for general healthfulness, including use of label-friendly ingredients. It's clear that sugar content is important to plant-based dairy alternative shoppers, so keeping sugar low with a positively perceived alternative sweetener will be another important choice. Stevia sweeteners, made from components of the stevia plant, provide a high-intensity, label-friendly sweetener. Cargill has again been at the forefront of stevia development. Its EverSweet® stevia sweetener is made using the best-tasting and sweetest components of the stevia leaf (Reb M and Reb D), sustainably produced via a fermentation process. Its newest innovation takes this to a new level, combining EverSweet® stevia sweetener + ClearFlo™ natural flavor in a single ingredient. EverSweet + ClearFlo allows for higher sweetness levels with no aftertaste or off-notes from high protein levels, while maintaining a creamy mouthfeel.

Learn more about the ever-evolving dairy alternatives space with more insights from Cargill here.

Conclusion: Outstanding opportunities

THE COMING YEARS will be pivotal for the plant-based dairy alternatives sector. Consumers want it all—and that now includes good taste, label-friendly ingredients, high nutritional value, variety and affordable pricing. As our research indicates, the segment is changing quickly and presents both challenges and opportunities for brands. An emerging solution for addressing taste and texture issues is in hybrid products that contain both animal- and plant-based proteins, achieving that enhanced sensory experience—as well as a complete protein source. These blended products could have widespread appeal, especially for flexitarians who want to reduce animal protein intake without compromising taste.

Opportunities include targeting new consumer segments with products that offer higher protein content; honing in on specific health benefits such as digestive health or beauty benefits; or exploring new flavors and novel eating experiences.[3]

Plant-based dairy alternatives are already positively perceived with respect to ingredients and nutrition. As long as brands stick to the basic benchmarks of nutrition, health and label-friendliness, sustainable ingredients and products that deliver on their promises, the plant-based dairy alternative segment offers rich growth potential. But companies that hope to achieve success must understand that they are now addressing a much broader audience and highly engaged consumer with a growing list of important criteria. Distinguishing a brand or establishing a new niche will take ongoing investment, knowledge and a nimble strategy.

EverSweet® is a product of Avansya, a joint venture of DSM and Cargill.

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

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