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Plant-Based Dairy Overview 2023

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Part I

Overview - Plant-Based Dairy Market

The Global Plant-Based Dairy Market

The global plant-based dairy market was estimated at USD 24.4 billion in 2022 and is projected to more than double to USD 50.2 billion by 2028, according to research by Polaris.
On a retail level, plant-based milk is the most consumed plant-based product globally. For example, plant-based milk had a market share of 35% of plant-based product sales in the United States (US) in 2022. Plant-based milk also has a comparatively higher market penetration and made up 15% of all milk sales in the US in 2022, based on retail value.

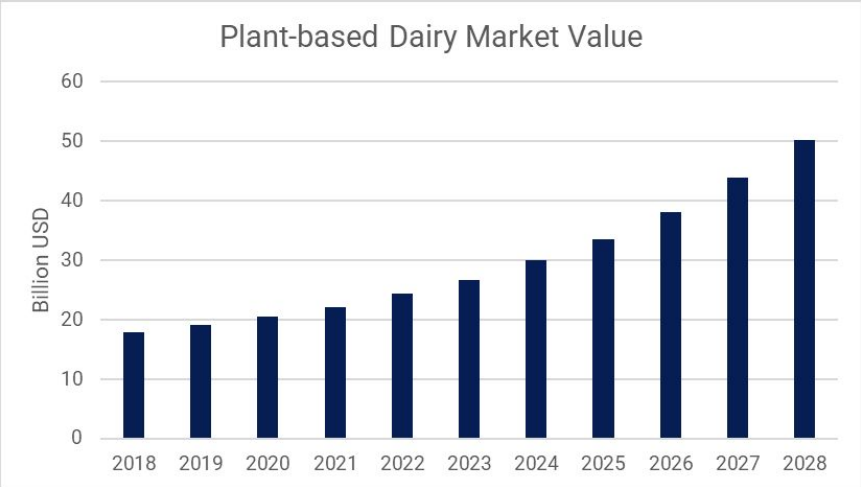

Figure 1: Plant-based Dairy Market Size
Source: Polaris Market Research

Plant-Based Dairy's Position in the Market

Compared to the dairy market, which is estimated to be worth USD 893 billion, the plant-based dairy market's value of USD 24 billion in 2022 is relatively small. Although the plant-based dairy market is expected to reach approximately USD 50 billion by 2028, it will still be significantly smaller than the dairy market, which is projected to reach USD 1,234 billion in the same year.

Part I

Overview - Plant-Based Dairy Market

According to the Food and Agriculture Organization (FAO), the per capita consumption of dairy products worldwide is projected to rise from 56.5kg in 2021 to 64.9kg by 2028, indicating a 15% growth. In comparison, plant-based dairy consumption is expected to increase from 0.9kg to 1.83kg during the same time frame. These figures suggest that both plant-based dairy and traditional dairy consumption are anticipated to grow globally. However, despite the double-digit annual growth, the continued rise in global dairy consumption implies that the market for plant-based dairy products will likely remain limited to specific regions and not achieve widespread adoption in the very near future.

	2021		2028		Growth in Value (2021-2028)
	Value in 2021 (million USD)	Market Penetration	Proj. Value in 2028 (million USD)	Market Penetration	
Dairy	871	98%	1243	96%	43%
Plant-based Dairy	22	2%	50	4%	128%
Dairy and Plant-based Dairy	893		1293		45%
	Consumption (kg/capita)	Market Penetration	Consumption (kg/capita)	Market Penetration	Growth in Consumption (2021-2028)
Fresh Dairy	56.5	98%	64.9	97%	15%
Plant-based Dairy	0.9	2%	1.8	3%	106%
Dairy and Plant-based Dairy	57.4		66.7		16%

Table 1: Global Dairy and Plant-based Dairy Values and Consumption
Source: FAO, The Vegan Society, Statista

Regional Estimates

Asia-Pacific is the largest market for plant-based dairy, with a market value of more than USD 11 billion in 2022. On a value basis, plant-based dairy in the Asia-Pacific region is forecast to double to more than USD 23 billion by 2028.

Part I

Overview - Plant-Based Dairy Market

Regional Estimates

Asia has a long tradition of consuming plant-based drinks, which have been historically consumed without considering them as alternatives to dairy or replacements for dairy products. The recent categorization of these drinks as "plant-based dairy" accounts for the region's significant consumer base for such products.

Plant-based dairy expenditures in the US and Europe are also expected to nearly double to USD 13.6 billion and USD 9.1 billion, respectively, by 2028. Latin America and the Middle East and Africa are small markets, but their growth is expected to reach USD 2.2 billion and USD 1.5 billion respectively by 2028.

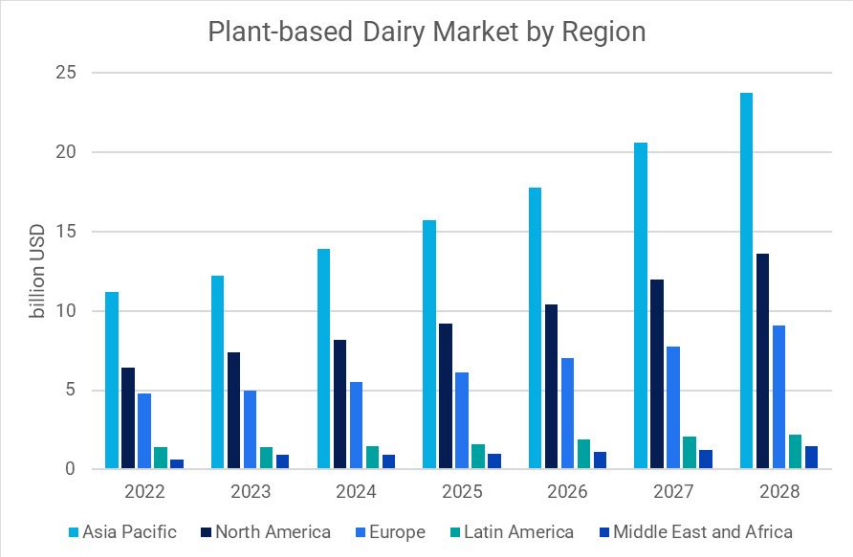

Figure 2: Plant-based Dairy Market by Region
Source: Dairy Global, Polaris

Drivers Behind Plant-Based Dairy Consumption

The drivers behind the consumption of plant-based dairy differ by region. Generally, in developed and high-income countries, the observed growth in plant-based dairy sales is primarily driven by consumers seeking direct substitutes for traditional dairy products.

Part I

Overview - Plant-Based Dairy Market

Drivers Behind Plant-Based Dairy Consumption

Health concerns, ethical considerations, environmental awareness, and lactose intolerance play significant roles in motivating individuals to choose plant-based alternatives in these regions. This trend is observed particularly in Europe and North America, where dairy consumption is stagnant, but plant-based dairy consumption is increasing.

Conversely, in regions where dairy consumption is not as prevalent, plant-based options are often selected as standalone products by consumers who appreciate the nutrition, texture, and taste. Factors such as lactose intolerance and health consciousness also contribute to the demand for these products, although they may not necessarily be viewed as direct replacements for dairy. In these regions, the choice to consume plant-based dairy is motivated by the product's appeal as a distinctive and enjoyable product and not solely as a dairy replacement. In these regions, consumption of dairy and plant-based dairy product is projected to grow significantly.

In the latter case, the term "dairy alternatives" and even "plant-based dairy" used to describe plant-based dairy products can be misleading. For example, in China, a popular breakfast combination consists of warm soy milk (豆浆/dòujiāng) with deep-fried twisted dough sticks (油条/yóutiáo). Almond milk consumption in India dates back at least two centuries, while coconut milk has been consumed for millennia across the globe. These examples highlight that in regions like Asia, the consumption of "plant-based dairy" products is deeply rooted in cultural practices and traditions. They are not perceived as alternatives to dairy but as regular and common food and beverage choices.

Part I

Overview - Plant-Based Dairy Market

Drivers Behind Plant-Based Dairy Consumption

Figure 3: Chinese Breakfast consisting of Soy Milk and Fried Dough. Source: Madaboutshanghai

The availability of a wide range of plant-based dairy products, coupled with their accessibility and novelty, has contributed to increased consumption. A consumer walking into a retail store where they encounter a display of various flavored almond milk options in the beverage section may choose to purchase almond milk due to its novelty, unique flavors, or perceived health benefits instead of opting for traditional soft drinks. Their decision is not necessarily driven by the intention to replace a dairy product but rather by its appeal at that particular moment.

The marketing strategy of positioning plant-based dairy products as healthy and environmentally and animal friendly has been successful, particularly among young consumers in developed countries. Plant-based milk often showcases health benefits, with packaging usually containing phrases like “cholesterol-free, gluten-free, organic.”

Part I

Overview - Plant-Based Dairy Market

Drivers Behind Plant-Based Dairy Consumption

However, some consumers are not convinced that plant-based dairy offers a sustainable long-term solution, as the environmental impacts of the main plant-based dairy ingredients are questioned. Consumers also consider some aspects of dairy as more healthy, such as the protein and amino acid profile, and do not consider plant-based dairy a complete nutritional replacement for dairy. For consumers that opted to substitute dairy directly with plant-based dairy, the top concerns are taste, texture, and the higher price of plant-based dairy.

According to the OECD-FAO Agricultural Outlook 2022-2031, plant-based replacements for dairy products are growing, but from a low base. However, the evidence regarding their environmental impact and relative health benefits are contested. The sustainability of popular substitutes such as almond and soya drinks has been questioned as more consumers consider other environmental issues in addition to greenhouse gas emissions, such as water usage and deforestation.

Part II

Supply Chain

Ingredients for Plant Based Dairy

The most common ingredients used to make plant-based milk are:

- Soy
- Almond
- Rice
- Oat
- Coconut
- Others

On a revenue basis, soybean and almond milk held 40% respectively of the global dairy alternatives market, rice milk held 5%, and the other 16%, according to the Vegan Society. Growth is expected in all main ingredients, with almond milk experiencing the fastest growth. By 2028, soybean milk could hold a 37% market share, almond milk 43%, while rice milk and others maintain their market share. Oat milk is also gaining popularity, as it is perceived as the most sustainable. There is an expansion into more products, such as pea, chickpea, and hemp milk.

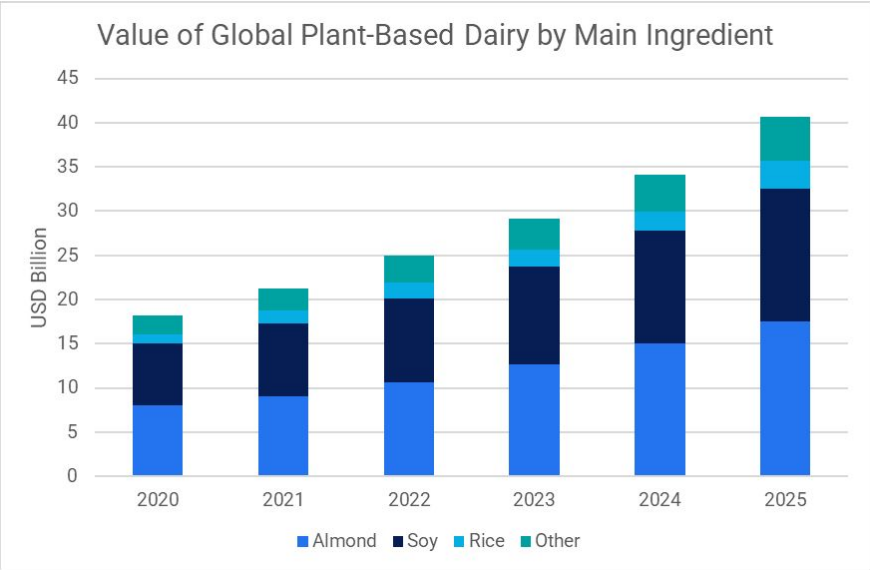

Figure 4: Value of Global Plant-based Dairy by Main Ingredient. Source: The Vegan Society

Part II

Supply Chain

Production of Plant-Based Dairy

Plant-based Milk

The process of making plant-based milk is simple, but replicating the properties of milk is not.

The steps in producing almond milk are given below. The production of other plant-based milks is similar.

- Almonds are soaked in hot water (90°C), then passed through a blanching machine.
- Still wet blanched almonds are then mixed with water and ground in a colloid mill.
- After that, solids are filtered out. This is done by running the mixture through a sieve or using a centrifugal separator.
- Next, the liquid or almond milk moves to a mixing tank, where it is often fortified with vitamins, protein, and minerals. At this stage, any flavoring is also added.
- Next, the almond milk is homogenized using emulsifiers and homogenizing equipment.
- The mixture is then passed through a sterilization process, normally through ultra-high temperature (UHT) or pasteurization.
- Finally, the almond milk passes to a filling tank, from where it is packaged into the desired containers.
- Several ingredients are added to the final steps of the process to give almond milk the taste and texture of milk. These ingredients differ from one brand to another.

Part II

Supply Chain

Production of Plant-Based Dairy

Plant-based Cheese and Yoghurt

Plant-based milk is the most commonly consumed plant-based dairy product, making up 90% of retail sales. Other plant-based dairy, like cheese, yogurt, and ice cream, also use plant-based milk as a base, while it is also an important ingredient in plant-based butter.

Plant-based milk is used to produce other plant-based products like plant-based cheese and plant-based yogurt. Plant-based cheese and yogurt follow a process similar to making dairy cheese and yogurt using a fermentation process. For example, Switzerland-based New Roots' Soft White is made from cashew milk in a similar process as camembert cheese.

Figure 5: New Roots' Soft White Replicates the Production Process of Camembert Cheese. Source: New Roots

Part II

Supply Chain

Major Suppliers of Plant Based Dairy

There is a broad spectrum of plant-based dairy suppliers, but it can be broadly classified into three categories:

Traditional Dairy Companies: Several dairy companies have expanded their range of products to include plant-based dairy. Prominent examples are Nestlé and Danone, who have expanded their products to offer a variety of plant-based dairy.

Plant-based Food Producers: Companies specializing in plant-based products or plant-based dairy products. Examples include Chile-based NotCo and Sweden-based Oatley.

Companies with Established Supplies of Ingredients: Several companies offer products that are also common ingredients for plant-based products. Blue Diamond, the globe's largest almond processing company, offers almond dairy through their Almond Breeze brand. Cargill, well-established in the trade of grains, oils, and oilseeds, offer product-specific solutions targeting plant-based dairy.

There is often overlap among these categories, and research and development efforts significantly advance plant-based product innovation. Additionally, the market sees an influx of startups entering the plant-based dairy industry.

Part II

Supply Chain

Barriers to Entry

There are multiple obstacles to entering the plant-based dairy industry, both from the supply chain and consumer preferences perspectives.

One barrier is the sourcing of raw materials. The primary ingredient for producing plant-based dairy, such as soybeans, oats, rice, and almonds, is generally easy to obtain through well-established supply chains. However, to replicate the taste of traditional dairy products, more specialized inputs are required. These niche ingredients are more difficult to source, with only a few suppliers available, and they often come with a higher price tag. Despite the relatively low cost of field crops, including these niche inputs makes raw materials the most significant cost component in the supply chain.

Another barrier is achieving price-quality parity. The projected growth of the plant-based dairy industry has attracted numerous new players to the market. There is a wide range of prices and quality levels among plant-based dairy products, particularly plant-based milk. Plant-based milk products that closely resemble traditional milk are priced higher than those that do not. Consumer taste preferences and pricing are the two primary factors influencing their decision to try or continue purchasing plant-based milk. When consumers try plant-based dairy for the first time, they often opt for a cheaper option to minimize spending on an unfamiliar product. However, lower-priced products often come with a less desirable taste, reducing the likelihood of repeat purchases.

Brand awareness poses a notable obstacle to entering the plant-based dairy industry, particularly in the case of milk. Consumers tend to switch between milk brands effortlessly due to limited taste and price differences. With numerous brands offering plant-based milk options varying in taste and price, consumers may default to familiar brands. However, brand loyalty plays a role as committed plant-based dairy consumers will stick to products that align with their taste preferences.

Part II

Supply Chain

Barriers to Entry

Quality and consistency are other considerations, especially for entry into partnerships. Plant-based dairy companies have partnered with multinational corporations, extending beyond retail to cater to the restaurant and hospitality industry. Renowned conglomerates like Starbucks, Luckin Coffee, and Burger King have joined forces with plant-based dairy producers to incorporate plant-based options into their menus. In 2022, the Kraft Heinz Company partnered with NotCo to introduce plant-based cheese. Partnering with multinational companies poses challenges in maintaining stringent quality control and ensuring consistent product standards worldwide. These challenges arise due to variations in raw material availability and pricing and the logistical complexities of distributing products to different points of sale across the globe.

Figure 6: NotCheese by the Kraft Heinz Not Company
Source: The Kraft Heinz Not Company

Part III

Regional Cases

The US

The US Plant-Based Dairy Market

The plant-based milk industry in the US racked up retail sales to the value of USD 2.8 billion in 2022. According to the Good Food Institute (GFI), on a value basis, plant-based milk sales made up around 15% of all milk sales in the US in 2022. In terms of value, retail sales increased 9% YoY in 2022, but it dropped by 2% on a volume basis.
Plant-based yogurts (with a three-year compound annual growth rate of 12%), cheeses (15%), ice cream (8%), and creamer (30%) have also shown significant growth, albeit from a lower base. Plant-based creamer sales reached USD 645 million in 2022 and made up 12% of all creamer sales on a retail value basis. Since 2021, it has been the second-largest plant-based dairy category in terms of retail sales value in the US.

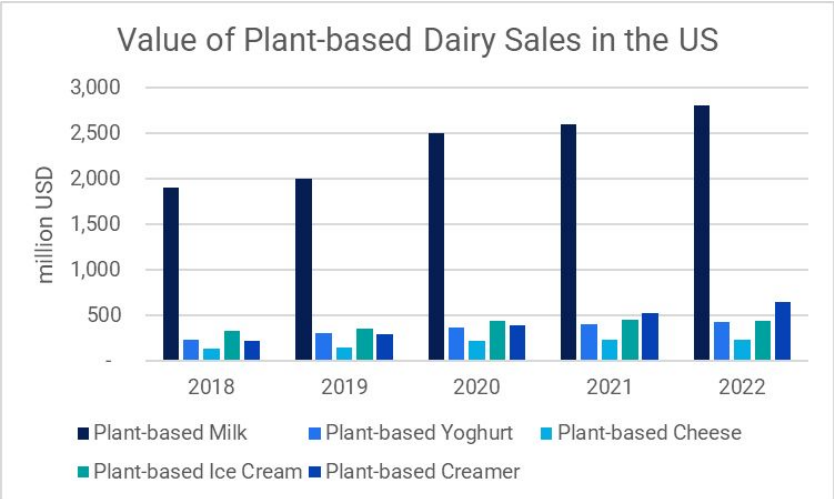

Figure 7: Value of Plant-based Dairy Sales in the US
Source: GFI, Plant Based Food Association

Part III

Regional Cases

The US

Dairy and Plant-based Dairy Comparison
Per capita consumption of fresh dairy products in the US averaged 65.5kg annually for the three years ending 2022. The FAO projects that consumption will decrease to 59.2kg/capita over the next decade.
Plant-based milk consumption in the US was estimated at 2.4kg/capita from 2019 to 2021 and is projected to grow to 3.0kg/capita in 2025.

Almond milk remains comparatively far more expensive than regular milk. In California, where 80% of the world's almonds are grown, almond milk retails for around USD 3.79/64 oz, compared to USD 1.90/64 oz for generic brand whole milk. However, the cost of milk can vary considerably depending on its production type, especially those targeting health conscious consumers. For example, milk labeled "organic" and "grass-fed" could retail for more than USD 6.00/64 oz and lactose-free milk at around USD 4.75/64 oz. In comparison, plant-based milk is more competitively priced in relation to these health-oriented milk varieties than it is in comparison to regular milk.

Plant-based milk is usually sold in the same section as milk in major retail outlets in the US, which has boosted sales over the past decade. The large variety of products on offer, with considerable price variations, has also contributed to increased plant-based milk sales.

The price of almond milk will not reach parity with milk in the foreseeable future, as almonds are a comparatively more expensive product. Plant-based milk produced from field crops, like soy, oats, wheat, and rice, could move closer to milk prices, as is the case in Europe. However, these products are less popular than almond milk. This will keep plant-based dairy products out of reach of lower-income groups, who could continue to opt for milk.

Part III

Regional Cases

The US

Entering the US Plant-based Dairy Industry

Almond milk makes up the largest component of plant-based milk sales in the US, having a market share of nearly 57% in 2022. Almond milk is expected to remain the largest subcategory in the plant-based milk market, as the US remains the world's largest producer and supply chains are well developed.

Oat milk's market share soared from 4% in 2019 to 22% in 2022 and is the fastest-growing subcategory. Boosting the sales of oat milk is the perception that it is more environmentally-friendly compared to the high-water use of almond production. Meeting the growing consumer demand for oat milk can be more challenging. The US produces only about 871,000 metric tons (mt) of oats annually, which accounts for a mere 4% of the world's oat production. Additionally, health-conscious consumers, who are often the target market for plant-based dairy, tend to prefer organically produced oats. Retail prices of oat milk is similar to that of almond milk

Despite the US being a major producer of soybeans, soymilk is less popular, with a market share of around 15% in 2019. US consumers, often exhibit a bias against using soybeans, as their environmental impact and health benefits are contested, and soybeans are commonly associated with GMO production. To illustrate, the US' leading almond milk brand market their product as "soy-free." The Vegan Society expects soybean milk consumption in the US to stagnate going towards 2025.

There's a small niche market for cashew, coconut, and other plant-based dairy products, which are often imported.

Thickeners, emulsifiers, and gums have established supply chains, but their availability is contingent upon the specific products preferred by each brand. However, certain ingredients used to replicate the taste of milk have a limited supply base, resulting in higher costs for raw materials.

Part III

Regional Cases

The US

Consumer Demand and Behaviour

The US plant-based industry found support through plant-based products offered in the same section of retail stores. In the case of plant-based milk, 89% of plant-based milk is bought as refrigerated milk, and is often sold alongside milk in the refrigerated dairy section. Shelf-stable plant-based milk sales were only 11% of plant-based milk sales.

In the plant-based meat sector, the GFI found that "98% of consumers who purchase plant-based meat also purchase conventional animal meat." Numbers for the plant-based dairy industry is similar, as only 5% of dairy buyers purchase only plant-based dairy, according to a 2022 McKinsey poll. Retailers can boost plant-based sales by not segregating products in a "vegetarian" section, as that would target a very small consumer base.

Figure 8: Dairy and Plant-based Dairy Stacked in the Same Section of a US Supermarket.
Source: New York Times

Part III

Regional Cases

The US

During the Covid-19 pandemic, the retail sales of plant-based milk experienced a significant surge as consumers became more health-conscious. However, as the pandemic situation improved, the consumption of plant-based milk declined. This decline was further intensified by the substantial inflation and rising living costs that prevailed in 2021 and 2022. The relatively higher price of plant-based milk resulted in more consumers distancing themselves from these products. This trend is clearly reflected in the retail sales data by the GFI. In 2020, plant-based milk sales soared by 21% YoY, reaching USD 2.5 billion in value and 745 million units in volume. Although retail sales experienced a slight increase in 2021, with the continued emphasis on healthy eating, reaching USD 2.6 billion and 766 million units, the year 2022 witnessed a 2% drop in retail sales to 749 million units. However, on a value basis, there was a 9% increase, reaching USD 2.8 billion, due to the impact of soaring inflation and high input costs.

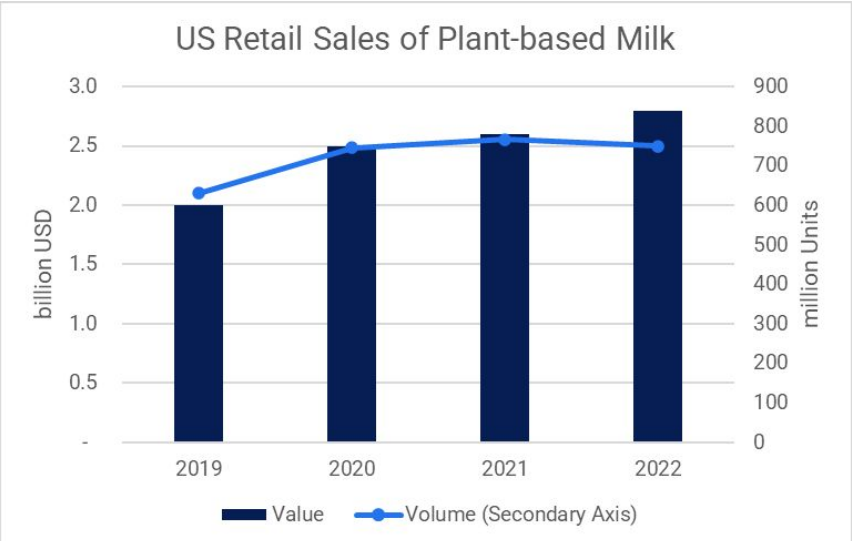

Figure 9: US Retail Sales of Plant-based Milk. Source: GFI

Part III

Regional Cases

The US

The taste and cost factors pose significant challenges to expanding the plant-based dairy industry among consumers. According to the Food Industry Association (FMI), when asked why they haven't tried plant-based dairy products, 49% of consumers cited taste as the primary reason, while 23% mentioned cost as a deterrent.

These factors of taste and cost also play a role in consumers' decision not to make repeated purchases of plant-based dairy products. Among those who have tried plant-based dairy but choose not to repurchase, 50% cited taste as the reason, while 32% mentioned price.

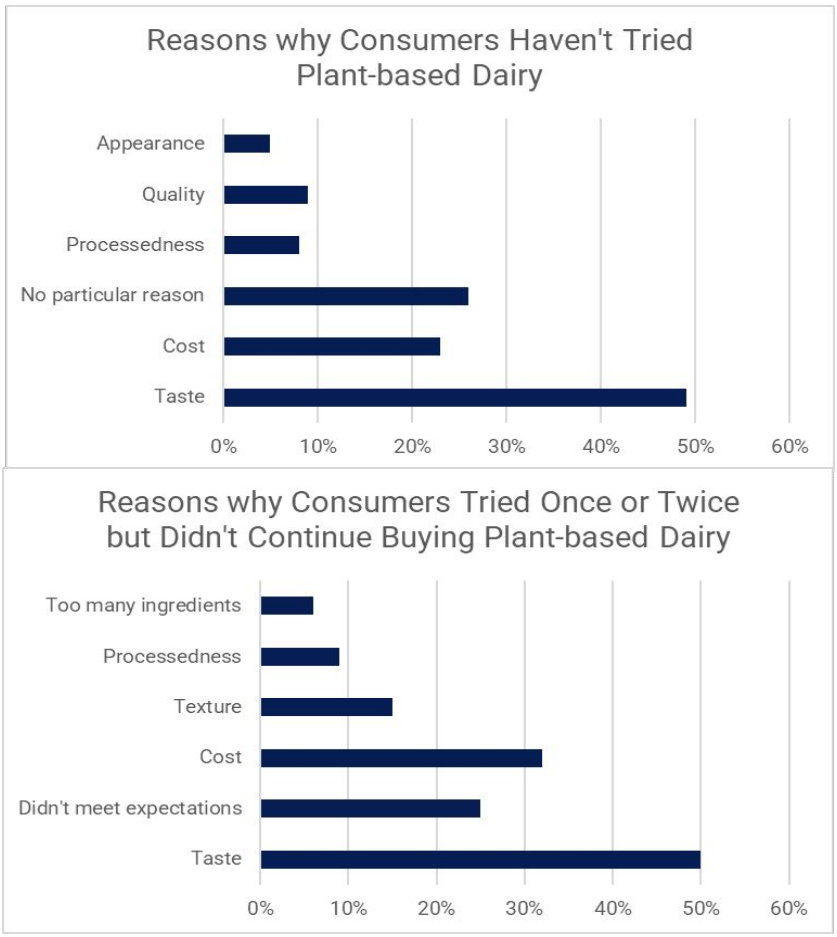

Figure 10: Reasons Consumers Haven’t Tried or Stopped Buying Plant-based Dairy
Source: GFI

Part III

Regional Cases

The US

Plant-based dairy products would have to match dairy in terms of price as well as taste and texture to appeal to more consumers. Progress is being made in replicating the taste of dairy by incorporating modern technology. For example, NotCo has developed an intricate artificial intelligence (AI) algorithm to replicate the taste and texture of dairy and their other products on offer. The algorithm considers the chemical, molecular, physical, and nutritional values to suggest combinations for NotCo's products. The joint venture between Kraft Heinz and NotCo is aimed specifically at targeting North American consumers through a close replication of the taste of dairy.

As price remains the number one barrier for consumers, the supply of cheaper plant-based dairy could unlock a large potential market, with oat, rice, and wheat, as potential products that might appeal to those who cannot afford almond dairy.

Part II

Regional Cases

Germany

The European Plant-based Market

Europeans consume an estimated 8.4kg/capita of plant-based milk annually, compared to 82.5kg/capita of dairy milk. This means that on a volume basis, 9% of total milk consumption in Europe is estimated to be plant-based milk. On a value basis, plant-based milk consumption reached EUR 2.21 billion (USD 2.33 billion) in 2022, which was 11% of the market on a value basis, according to GFI Europe.

Plant-based milk's popularity is attributed to lactose intolerance and perceived environmental sustainability, but have also become competitive in terms of price.

Germany is the largest market for plant-based milk, with sales of EUR 552 million. Spain, Italy, the UK, and France followed Germany.

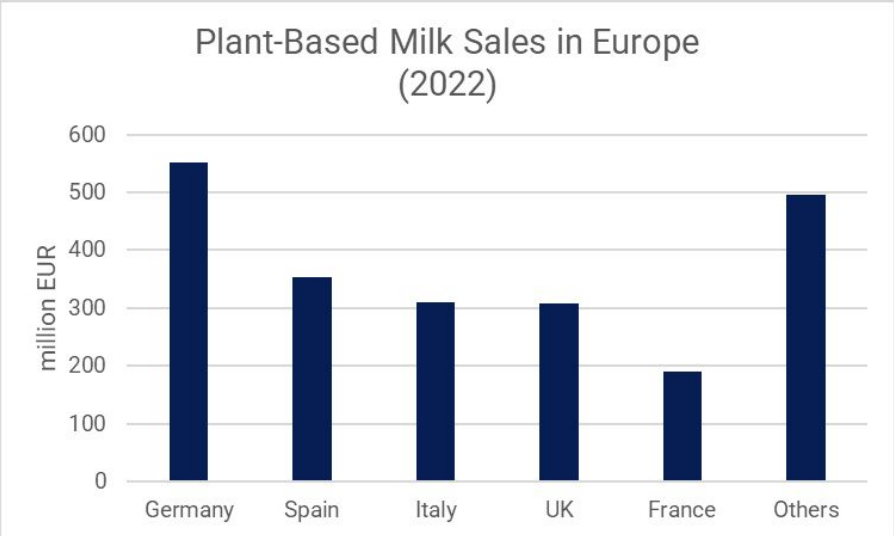

Figure 10: Plant-based Milk Sales in Europe
Source: GFI

Part II

Regional Cases

Germany

The German Plant-based Dairy Market

Germany is Europe's largest market for plant-based dairy, and in 2022 had a market share of 25% of plant-based milk sales in Europe. The growth in plant-based dairy consumption is attributed to increasing lactose intolerance and concerns about environmental sustainability and animal welfare.

During and after the COVID-19 pandemic, the demand for plant-based dairy soared, with plant-based milk sales nearly doubling from EUR 279 million in 2019 to EUR 552 million in 2022. The sales of other-dairy products also soared during this time.

During the pandemic and the aftermath, sales were boosted by three important factors.

- Increased focus on health: The pandemic made people more health-conscious. Plant-based milk is perceived to be healthier, containing no cholesterol and fewer calories.
- Availability: During the pandemic and subsequent supply chain disruptions, consumers faced a shortage of certain foods, including fresh dairy. This led to consumers trying plant-based milk as an alternative.
- Affordability: In the aftermath of the pandemic, households faced unprecedented inflation. This led to significant price increases in dairy, whereas the price of plant-based dairy increased comparatively much less.

Part II

Regional Cases

Germany

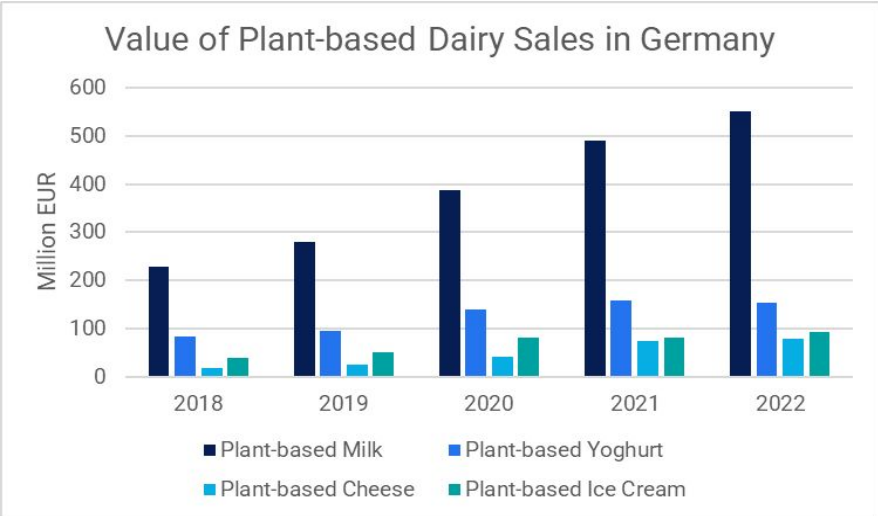

Figure 11: Value of Plant-based Dairy Sales in Germany
Source: The Smart Protein Project

Part II

Regional Cases

Germany

Entering the German Plant-based Dairy Market

In Europe, oat milk is the most popular ingredient for plant-based milk, holding a market share of about 26% as of 2022. Oat milk is regarded as one of the most sustainable options among plant-based milk ingredients. Europe accounts for approximately 32% of global oat production, which is estimated to reach 7.4 million metric tons in 2023. Sourcing oats is relatively straightforward due to well-established supply chains.

Other widely used ingredients for plant-based milk in Europe are almonds, accounting for 21% of plant-based milks, and soybean, accounting for 19%. These ingredients are also easily accessible due to well-developed import channels and domestic production.

Plant-based milk products incorporate emulsifiers, gums, and thickeners to achieve a taste and texture similar to milk. Most of these ingredients can be sourced within Europe. For example, locust bean gum, derived from the pods of carob trees native to the Mediterranean region, is often utilized for thickening and stabilizing. Gellan gum, a carbohydrate produced through the fermentation of sugars, is employed as a gelling agent and stabilizer. Soy lecithin is used as an emulsifier; however, some producers prefer marketing their products as “soy-free,” in which case sunflower lecithin is often used.

Additionally, vegetable fats and proteins are usually added to plant-based milk products, along with vitamin and mineral blends, to approximate the nutritional profiles of milk.

Ingredient sourcing is not a barrier to entry into the European market, as there is wide access to most ingredients. However, in the case where niche products are preferred by specific brands, it could add to higher raw material costs.

Part II

Regional Cases

Germany

Consumer Demand and Behaviour
The initial steps to making oat-milk is relatively simple; however, emulating the taste and texture of milk is a challenge. More specialized products are used to get plant-based milk to taste like milk, including Chicory root extract, pineapple juice, and cabbage juice. However, the use of products to imitate the taste of dairy differs significantly, and so does the taste of plant-based milk from one brand to another.

Due to the simple initial steps in making plant-based dairy products, and the accessibility of ingredients, several companies have entered the market. This development has had both positive and negative effects on the industry.

On the positive side, increased competition has spurred innovation in production methods, leading to more efficient and cost-effective manufacturing processes. This has resulted in lower prices for plant-based dairy products, making them more accessible to consumers.

However, taste variations among different brands pose a challenge. If consumers have a negative experience with one brand, they may hesitate to try other plant-based milk options, even if other brands offer a different sensory experience. This issue of taste variability can potentially impact repeat purchases and brand loyalty among consumers. Taste is a major consideration for consumers when opting for plant-based dairy.

In Germany, plant-based milk is very competitively priced. During 2022, plant-based milk retail prices increased by only 1.5%, compared to a 19% increase in the price of milk. The price of generic brand 1 liter (L) oat-based milk and that of 1L milk in comparable packaging are both EUR 1.59. However, more recognized brands like Oatly retail for around EUR 2.30/L.

Part II

Regional Cases

Germany

As prices of plant-based milk near that of milk, more consumers might try these alternatives. The main ingredients of plant-based products are mass-produced commodities with easy access and comparatively cheap prices per volume. As the production processes of plant-based dairy products become more sophisticated and affordable, plant-based dairy products could eventually become cheaper than dairy, resulting in more regular buyers.

Part III

Case Study - Chinese Coffee Consumption and Plant-based Dairy

China

China's Soaring Coffee Consumption

China produces only small amounts of coffee, less than 2% of domestic consumption, and relies heavily on imports. In 2022, China imported a massive 125 thousand mt of coffee, triple the volumes imported a decade ago. The imports were valued at USD 718 million, quadruple that of a decade ago.

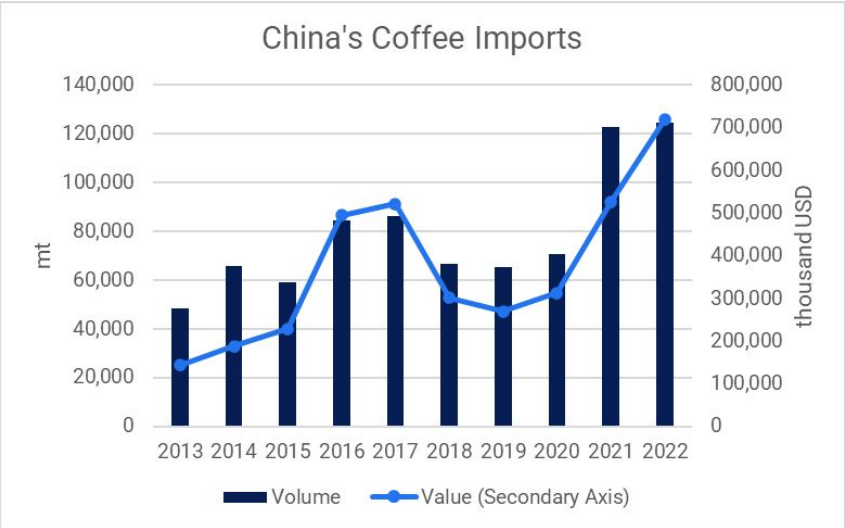

Figure 12: China's Coffee Imports
Source: ITC Trade Map

Demand for coffee soared in large metropolitan areas, under young consumers. Compared to more mature markets like the US, Japan, and Europe, coffee consumption in China is a relatively new trend. However, China's coffee demand is experiencing a significantly higher growth rate. The most sustained coffee consumption growth is observed among consumers in first-tier and second-tier cities. It is anticipated that this trend will persist in the upcoming years. China has over 330 million coffee drinkers (as of 2019), around a quarter of the population.

International companies like Nestlé and Starbucks established successful operations in China, while local coffee companies like Luckin Coffee, Pacific Coffee, and Coffee Box have also proven successful.

Part III

Case Study - Chinese Coffee Consumption and Plant-based Dairy

China: Coffee and Plant-based Dairy

Demand for Plant-based Dairy from the Coffee Industry

The growth of coffee consumption has also given rise to an increased demand for plant-based dairy products.

One of the main reasons coffee consumption boosts plant-based dairy consumption is the high level of lactose intolerance among Chinese consumers. Familiarity with plant-based dairy and a comparatively low dairy consumption level also contribute to the increased demand for plant-based dairy in the coffee sector.
According to several sources, including the Chinese Journal of Medical Science, as much as 90% of Chinese adults are lactose malabsorbers. These consumers opt for lactose-free products to add to their coffee brews, with plant-based milk a popular option.

China's long history of plant-based drink consumption also gives a sense of familiarity to plant-based dairy options in the coffee industry. Soymilk production in China dates back as far as the 14th century. It is often consumed as a breakfast drink. Walnut milk (Yangyuan) has also been popular for centuries. Many coffee shops offer soy, almond, walnut, oat, peanut, and rice milk varieties. A wide range of plant-based coffee creamers have also been launched for at-home consumption.

China's comparatively low dairy consumption has also helped the demand for plant-based dairy. In countries with high dairy consumption, one of the highest considerations is that plant-based dairy needs to emulate the taste of dairy. However, since dairy is not so popular in China, consumers are less likely to compare plant-based dairy to the taste of dairy. Per capita dairy consumption is also low compared to global averages, at only 21.8kg/capita in 2022, far below the global average of 58.3kg/capita.

Part III

Case Study - Chinese Coffee Consumption and Plant-based Dairy

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Plant-Based Dairy Products on Offer in the Chinese Coffee Industry

Oatly

Swedish company Oatly entered the Chinese market in 2016, and it achieved success by selling its oat milk in supermarkets and supplying coffee chains such as Pacific Coffee and Starbucks. In 2020, Starbucks collaborated with Oatly and introduced oat milk as a permanent option in their beverage menu across all stores in China. While China has been offering soy milk as a choice in their drinks menu since 2007, oat milk surpassed its popularity as the preferred plant-based option in coffee shops starting in 2019. Oatly's Barista Edition gained significant traction in both coffee shops and home brewing. To further meet the growing demand, Oatly established its first factory in China in 2021, with the capacity to produce 150 million L of oat milk annually.

Figure 12: Oatly Barista Edition Oat Drink. Source: Oatly

Part III

Case Study - Chinese Coffee Consumption and Plant-based Dairy

China: Coffee and Plant-based Dairy

Luckin Coffee

Luckin Coffee, a coffee chain with nearly 8,000 outlets in China, has been offering plant-based drink options since its establishment in 2017. Over time, they have continued to expand their range of plant-based offerings. The Coconut Latte offered by Luckin Coffee has become their top-selling drink, enjoying widespread popularity among their customers. Instead of using dairy, Luckin Coffee uses coconut milk to create their Coconut Latte. To ensure the quality of its ingredients, Luckin Coffee has partnered with a well-known coconut milk brand called Yeshu to provide the necessary ingredients for their Coconut Latte. Luckin Coffee offers plant-based alternatives for all of its core drinks as well as its food menu.

Figure 13: Luckin Coffee's Coconut Latte
Source: Luckin Coffee

Part III

Key Take-Away

1. **Plant-based dairy is poised for double-digit annual growth, projected to reach a retail value of USD 50.2 billion by 2028.** However, this market remains niche, accounting for only 4% of the overall dairy and plant-based dairy industry. While retail sales of both dairy and plant-based dairy are expected to increase in many regions, consumers are incorporating plant-based dairy into their diets without necessarily replacing traditional dairy consumption.
2. **Asia Pacific stands as the leading market for plant-based dairy, holding a significant 46% share of global plant-based dairy retail sales as of 2022**. With a large consumer base and existing familiarity with plant-based dairy drinks, the region holds immense potential for further growth.
3. **The plant-based dairy market in the US experienced significant growth, to USD 2.8 billion in 2022, with almond milk leading in market share.** Taste and cost are major barriers for consumers, and replicating dairy taste using advanced technology, is a focus. Cheaper plant-based options like oat, rice, and wheat could tap into a larger market segment.
4. **Germany is the largest market for plant-based dairy in Europe, with a 25% market share of plant-based milk sales, valued at EUR 552 million.** The price of plant-based milk is competitive with that of milk, but there is significant variation in taste among the many plant-based milk brands.
5. **Barriers to entry in the plant-based dairy industry encompass challenges in the supply chain,** such as raw material sourcing, price-quality parity, brand awareness, and consistency.
6. On the demand side, the main barriers to entry in the plant-based dairy industry revolve around taste and price considerations. The price of plant-based dairy products that closely replicate the taste of traditional dairy is often significantly higher than their counterparts. As a result, **high-income consumers remain the primary target market, while lower-income consumers may find themselves excluded from the market due to affordability constraints.**

About Us

At Tridge we believe in bringing together the power of data, technology, networking, and human expertise - to transform, innovate, and positively impact individuals, businesses, and ultimately the world.

We are pioneers in the agri-food supply chain space, committed to revolutionizing the way intelligence is produced, reshaping the information ecosystem, building trust between businesses, and driving supply chain optimization.

At the heart of it, it is about empowering businesses to make smarter decisions that transform their supply chain network to be more resilient, profitable, and sustainable.

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