



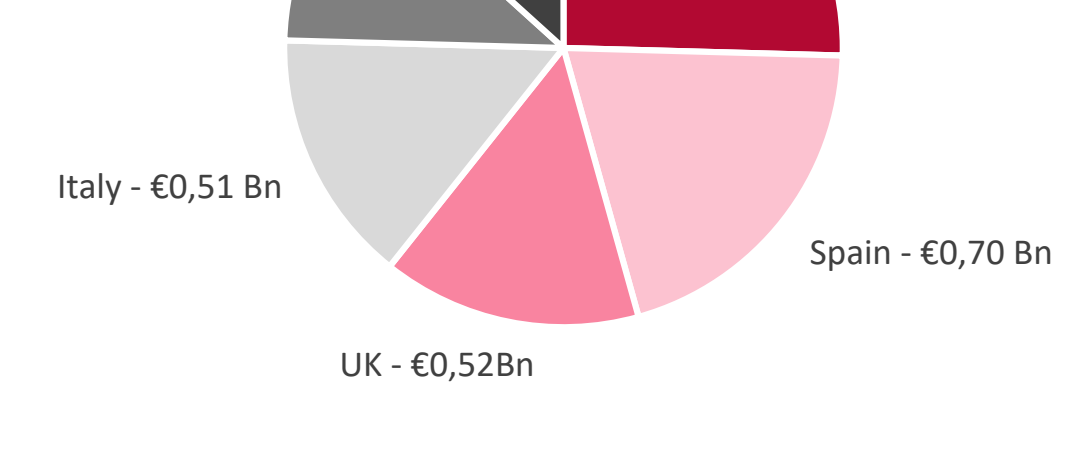
DAIRY MILK ALTERNATIVE – A PLANT-BASED OPTION

Over the past few years, plant-based food and beverages have seen a rise due to the exponential growth of the veganism lifestyle. The latest statistics show that 1% of the population worldwide has turned to veganism – approximately 80 million people. In Europe, vegans doubled in numbers to 2.6 million in 2020 from 1.3 million in 2016. Therefore, the market for vegan products, including plant-based beverage, has developed significantly in recent times.

“Vegan milk” as a term refers to a plant-based substitute for milk obtained from animals. Plant-based milk is marketed as the more sustainable, healthier alternative to animal dairy products. In the truest sense, vegan milk is a beverage derived from legumes, nuts, or cereals; therefore, calling it “milk” would be misleading. Plant-based milk involves plant-based beverages such as tea, coffee, shakes and smoothies while plant-based dairy products include yogurt, cheese, butter, ice cream, creamers, spreads, dips, sour cream and sauces.

The global plant-based milk market stood at €21,32 billion in 2021. It is estimated to grow from €24,14 billion in 2022 to €58,87 billion by 2029, implying a CAGR of 13.58%. The largest markets worldwide are North America and Europe, which are also the biggest markets for plant-based foods. The North American plant-based food and beverages market is dominated by the US and driven by the increase in the distribution and expansion of retail sales. The category is also the most developed in plant-based beverage, accounting for ~35% of sales. The total US market is worth €2,47 billion.

In Europe, growth in the plant-based milk market is mainly led by West European countries. Countries like Italy, Germany, Spain and France have recorded a 20–25% CAGR in their plant-based milk markets over the past three years as their lactose-intolerant populations increase. Consequently, the Europe market grew from €1.51 billion in 2017 to €3.5 billion in 2021. The market share of some key countries are:



MARKET SHARE OF KEY EUROPEAN COUNTRIES

The plant-based milk market hosts 30+ players, including global names such as Danone, Hain Celestial and Blue Diamond Growers. The regional markets in North America and Europe are fragmented with the presence of various large players and start-ups.

Plant-based milk has the following options available on the market currently:

- **Soy milk:** Made from soybean or soy-protein isolates, soy milk has a mild, creamy flavour. It usually contains thickeners and vegetable oil for consistency and taste. Soy accounts for the major product base in North America, whereas oat and other nut-based milks are popular in Europe.
- **Almond milk:** Derived from almonds and water, almond milk has a light texture and nutty flavour. It is the milk alternative with the least calories, currently available in the market. The US leads international almond production, accounting for more than 80% of the global yield.
- **Coconut milk:** Made with water and the white, fleshy part of the coconut, this milk is a more diluted version of the coconut milk sold for culinary purposes. The milk is sweet and has a subtle flavour of coconut but does not carry much nutritional value.
- **Oat milk:** Oat milk is made from a mixture of oats and water. Sometimes, gum, oil, or salt are also added to improve the taste and texture. Naturally sweet and mild, oat milk is cheap and easily available. In Europe, oat milk is the fastest growing category in milk alternatives as it is widely used in restaurants and coffee shops as a base to prepare coffee, tea and smoothies. In 2020, the EU led in terms of oat production and accounted for 36% of total production worldwide.
- **Rice milk:** Rice milk is made by combining milled rice or brown rice with water. It has a thin consistency, so thickeners may be added to improve taste and texture. This milk is mild to taste and naturally sweet. It is also a safe option for those allergic to nuts, gluten or soy.
- **Cashew milk:** Cashew nuts or cashew butter is mixed with water to make cashew milk. It has a rich, creamy texture with a sweet, nutty flavour.
- **Macadamia milk:** A new entry in this segment, macadamia milk is made from macadamia nuts. It has a rich, smooth, creamy flavour. This milk is also low in calories and carbohydrates and hence considered a healthy option.
- **Quinoa milk:** Quinoa, an edible seed, can also be used to make plant-based milk. Quinoa has gained the status of ‘superfood’ and is known to be nutritious and rich in protein. As this milk alternative is new to the market, it is difficult to find and slightly expensive versus the other options.

Sr. No.	Plant-based Milk	Nutrients	Disadvantages
1	Soy milk	Fat, proteins and carbo-hydrates	Harmful impact on the body’s hormonal functions
2	Almond milk	Fat, proteins and carbo-hydrates	Low in protein and contains phytic acid, which limits the absorption of nutrients such as zinc, iron and calcium
3	Coconut milk	No protein; very little carbohydrates	Saturated fat
4	Oat milk	High in protein and fibre	High in calories
5	Rice milk	Low in protein and fat	High levels of inorganic arsenic, which could harm the body
6	Cashew milk	Low in protein	Some brands contain added sugars
7	Macadamia milk	Healthy monounsaturated fat, low in protein and carbohydrates	Contains a common food allergen – tree nuts
8	Quinoa milk	Protein, calories and car-bohydrates	Expensive and not easily available



WHY PLANT-BASED MILK?

- **Vegans, flexitarians and vegetarians:** One of the leading reasons for the introduction of plant-based milk is the rise of veganism. A survey conducted by ‘Smart European Report on What Consumers Wants’, 37% Europeans as vegetarians, vegans or flexitarians. Hence, they prefer milk alternatives free from the exploitation of and cruelty to animals. Plant-based milk is also a better option for flexitarians, who have an increased diet of plant-based products, which have little animal-based products. Like vegans, this population is also concerned about animal welfare and environment-friendly products. Vegetarians also prefer plant-based options and would lean towards plant-based milk options.
- **Sustainable:** Animal farming is a water- and land-intensive activity. It is the major source of carbon emissions. Plant-based milk is a more sustainable, environment-friendly option.
- **Lactose intolerance:** The global population of lactose-intolerant people – those who cannot consume milk in any form – has grown and plant-based milk is a great option for such consumers. In Europe, Italy records 50% of its population as lactose-intolerant.
- **Nutritional value:** Plant-based milk is free from hormones and usually low in calories. Most types of plant-based milk are also easy to digest, making these a popular choice among health-conscious consumers.
- **Production cost:** As plant-based milk does not involve maintenance and breeding of animals, its production cost is much lower than that of regular milk.

APPLICATION OF PLANT-BASED MILK

Plant-based milk can easily replace animal milk in every aspect.

- It can be added to coffee, had with a bowl of cereal, or consumed in its original form.
- It can be an alternative to milk in baking. Soy and almond milk are favourites when it comes to creating plant-based baked goods.
- Coconut milk can act as a substitute for heavy cream.
- Plant-based milk, such as cashew and almond milk, can be used to make plant-based ice cream.
- Oat milk and almond milk are preferred when making smoothies.
- Thick yogurt can be made from coconut or cashew milk.
- Coconut milk is widely used in making plant-based cheese.

Therefore, the type of plant-based milk used for plant-based food options depends on its functionality and consistency and consumers’ taste preferences.



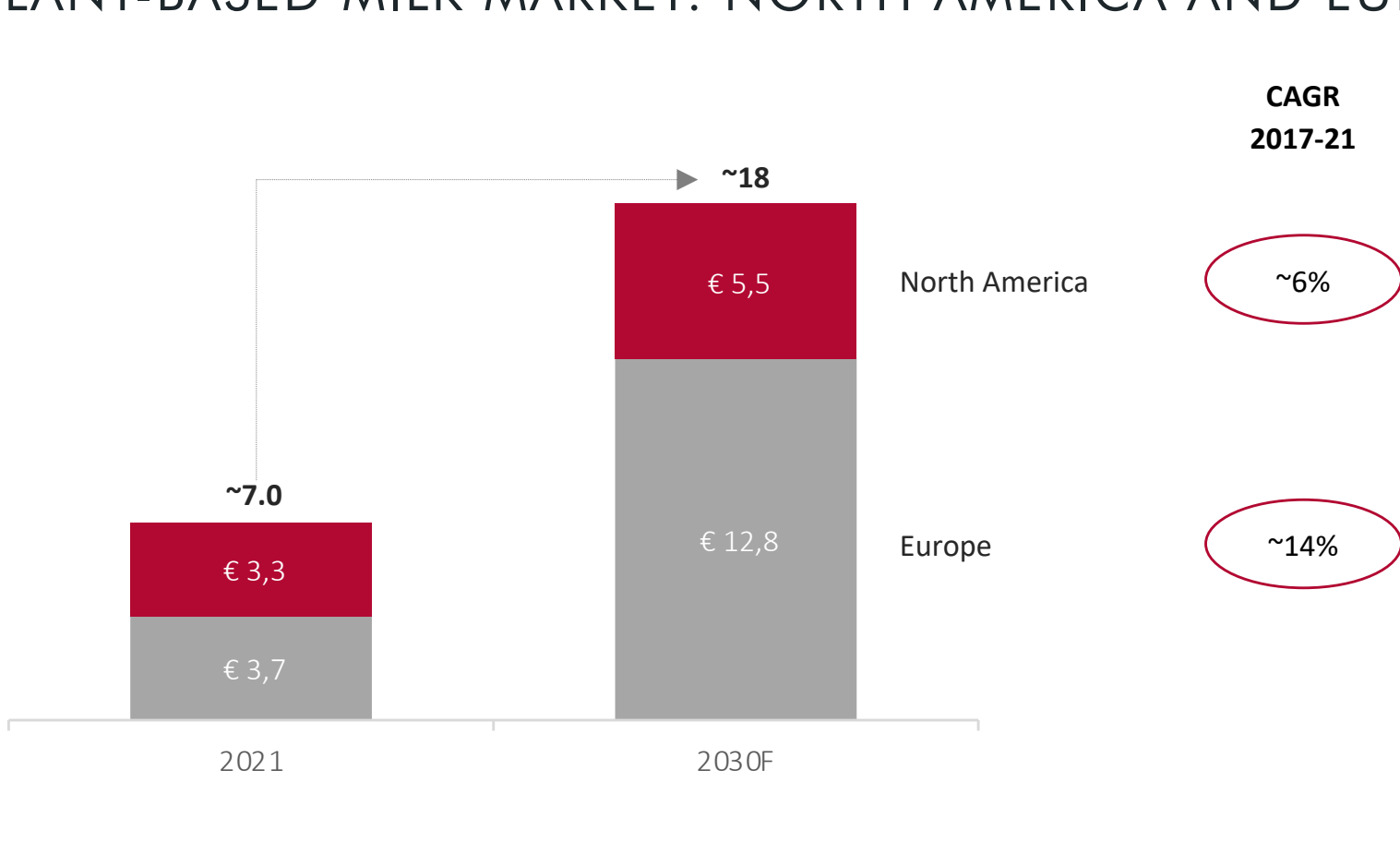
CHALLENGES

One of the main challenges of turning to plant-based milk is its perceived aftertaste. Food manufacturers have to mask this taste; for instance, they manufacture nut-flavoured oat milk or vanilla-flavoured plant-based milk. It is essential to use good quality ingredients such as nature-identical flavours to enhance the taste and make the milk more appetizing.

GROWING ADOPTION IS EXPECTED TO PROPEL GROWTH OVER THE NEXT 10 YEARS

In Europe, growth of the plant-based milk market is mainly led by West European countries. Countries like Italy, Germany, the Spain and France have recorded a 20–25% CAGR in their plant-based milk markets over the past three years as their lactose-intolerant populations increase. Certain governments in Europe have made commitments to fund R&D to enable the diversification of crop-ingredient inputs and encourage further innovation in plant-based products, thus fuelling the industry’s potential.

PLANT-BASED MILK MARKET: NORTH AMERICA AND EUROPE



Source: GFI, Vegan Society, Cargill, ProVeg International, News Articles, Aranca Analysis

IN EUROPE:

- There is a large demographic that favours novelty and are more spontaneous in their purchase decisions millennials. They are responsible for driving market trends.
- Among Europeans, 20–25% have never tried milk alternatives, indicating an even higher opportunity for growth.

IN NORTH AMERICA:

- Consumers are adopting plant-based milk instead of animal-derived milk as the former offers high nutritional value and low-calorie content and is easier to digest. A Cargill Survey reveals that one in two US consumers use plant milk, either by itself or in addition to cow’s milk, thereby inflating the demand for plant-based milk.



CONCLUSION

The negative impact of the dairy industry on the environment and the need for sustainability encourage the trend of plant-based food and beverages. Moreover, changing dietary requirements, an increase in lactose intolerance and the search for healthy food options have led to the emergence of the plant-based milk segment.

However, food manufacturers must ensure that top-notch ingredients such as natural or organic flavours are used for making plant-based milks. The plant-based milk market is likely to continue expanding and has great potential. It has abundant opportunities for innovations and advancement, that food manufacturers can explore.