Dare Not to Dairy

What the Rise of Dairy-Free Means for Dairy… and How the Industry Can Respond

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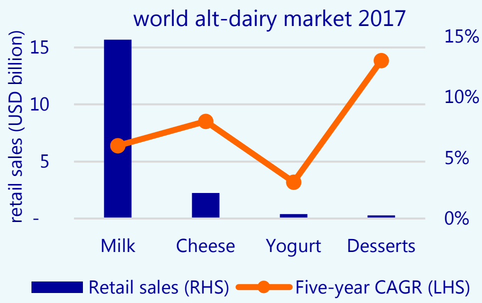
Summary

- Dairy alternatives are on a tear as consumers are increasingly going dairy-free, particularly when it comes to fluid 'milk' used on things like cereal or in coffees. Global retail sales growth for dairy alternatives has soared at a rate of 8 percent annually over the last ten years. With retail sales valued at USD 15.6bn, dairy-free 'milk' represented 12 percent of total fluid milk and alternative sales globally in 2017, according to Euromonitor.
- Nutrition, price, and flavor tend to favor dairy, but changing consumer perceptions around health, lifestyle choices, curiosity, and perceived sustainability are increasingly drawing more people to select 'dairy-free' products.
- The challenge for dairy lies mostly in fluid milk, where retail sales in western Europe (USD 18.6bn) and the US (USD 12.5bn) declined at an annual rate of 5 percent and 3 percent, respectively, in the five years to 2017, according to Euromonitor.
- The results over the last five years have favored dairy players who have invested in milk alternatives across the supply chain – from planting almond trees to buying brands. The investments in dairy alternatives have shown returns above standalone dairy. General Mills' USD 18m investment in the U.S. nut yogurt and cheese company Kite Hill came amid that company's impressive 400 percent annual sales growth rate since 2015. Meanwhile, Yoplait's sales in the U.S. have fallen at a CAGR of 12 percent.
- Global demand for dairy is expected to grow by 2.5 percent for years to come, with demand for non-fluid categories offsetting weak fluid milk sales. While it's not essential to diversify into dairy alternatives, it would be wise to at least learn one thing from the success of dairy alternatives, which may be putting the consumer first and trading in the old 'grass-to-glass' model for 'glass-to-grass.'

USD 18bn Today, USD 22bn by 2022

- Global retail sales of dairy alternative products were USD 18bn in 2017 and had a ten-year CAGR of 8.4 percent.
- With the CAGR of dairy alternatives expected to slow to 5 percent over the next five years, dairy alternatives will be worth USD 22bn by 2022.

Product Breakdown: Fluid Dominates



Losing Share: Alt-Dairy at 3 Percent

- According to Euromonitor, the total global dairy retail market is valued at around USD 600bn, while the alternative dairy market is now USD 18bn.
- The dairy alternative category is 3 percent of the total dairy category.
- Global demand for dairy is expected to grow by 2.5 percent CAGR.

Soy Remains Largest, at 39 Percent

- Soy accounted for 39 percent of sales of all dairy-free 'milk' globally in 2017.
- Globally, soy is losing share to competing dairy-free 'milk' – growing 3.2 percent since 2012 vs. others, which grew at 13.2 percent.
- Almond 'milk' sales accounted for 68 percent of sales in the U.S. in 2017.

It's Been a Long Time Coming

Dairy alternatives have competed in the dairy space for decades, but competition has intensified as dairy alternatives broaden in types, styles, and categories of product. More recently, biotechnology has entered the arena, brewing milk proteins through biofermentation – watch out for Perfect Day.

There is cause for concern for the dairy industry, as sales of fluid milk globally have fallen 3.5 percent in the five years to 2017 vs. dairy alternatives, which have grown 4 percent over the same time. This is somewhat baffling, and the dairy industry rightly points to the nutritional and flavor superiority of dairy compared to plant-based beverages. However, according to our research, brands in this space get more traction by connecting emotionally, rather than through facts and figures. The marketers of dairy alternatives generally appear to be doing a better job of connecting emotionally with consumers who favor more dairy-free options to meet their own perceptions about health and lifestyle.

Why Dairy-Free?

The single largest factor driving consumers to choose dairy-free is a shift in perception of consumers who believe dairy-free is better for them. These same consumers trust their peers and other influencers over professionals, according to multiple studies. (RaboResearch also recently released a report, *'Online Food Communities: Joining the Conversation,'* which covers this topic.)

The largest segment of consumers choosing dairy-free beverages consists of – no surprises here – millennials and Generation Z. Their perceptions of health and sustainability (including animal welfare and environmental footprint) are core motivators for their choice to limit dairy consumption.

Somewhat baffling is the finding that price and taste are not found to be incentives for consumers to leave dairy. However, they are the leading variables among purchasing decisions within dairy alternative categories.

According to a study by Comax Flavors, the largest dietary practice driving dairy-free sales has been flexitarian. These consumers are described as those who try to eat fewer animal products, but are also happy to occasionally deviate and consume animal products. Because there are degrees of flexitarianism, this is a difficult category to quantify, but some studies have shown up to 38 percent of Americans try to eat a meatless meal once a week – and in Germany, that number is 68 percent.

More specific health-related concerns such as lactose intolerance and milk allergies also play a role in the growth of dairy alternatives. Genuine lactose intolerance plays a significant role in limiting demand in the Asia-Pacific region, where, according to the American Journal of Clinical Nutrition, around 80 percent of consumers have intolerance to variable degrees. However, western markets' lactose intolerance is closer to 5 percent to 10 percent, and the degree of intolerance is often lower.

In the U.S., misperceptions of intolerance, allergies, and other food issues, can have downstream effects on product selection. The number of U.S. consumers who follow a gluten-free diet has tripled since 2009 – yet the rate of celiac disease (an auto immune disorder) has remained steady, at around 1 percent to 2 percent. This trend continues in the face of advice from the Mayo Clinic to avoid gluten-free diets unless you have celiac disease.

Dairy is facing a similar challenge, in which rates of milk allergies are on a par with gluten, and consumers are forming a negative association with milk because of lactose intolerance, as well as the allergen (primarily casein). Perhaps this explains some of the success of A2 milk, where emphasis is put on A2 beta casein found in milk from certain cows. Nevertheless, switching from milk to an alternative such as almond 'milk' is just exchanging one allergen for another, as tree nut allergies affect a similar rate of Americans as milk and gluten. It appears that science falls short as a motivator for dairy here too.

Dairy alternatives are also seeing success beget success, as traction and growth exhibited for dairy alternatives is driving market innovations and marketing efforts. This success supports further capital infusions for R&D, line extensions, and marketing campaigns – which, in turn, leads to more sales. Compare this with traditional fluid milk, which has seen limited innovation for nearly two decades – even in the face of falling sales. Fairlife and other premium fluid milk brands promise any number of improvements – from higher protein, less sugar, and new packaging. Such milks have been a market breakthrough, proving dairy milk still has plenty of life left in it. Granted these products represent a small share of the 'milk' beverage category. If the dairy industry doesn't respond to changing consumer preferences, others will capitalize on the opportunities until the cows come home.

The Flock of Investments

Preliminary research on company performance shows that, from 2012 to 2016, the return on capital employed (ROCE) for dairy alternatives was 6 percent higher than conventional dairy. The strong growth rate and improved margin opportunity have caught the attention of food companies, start-ups, and investors alike, which has provided a ripe space for capital investment opportunities. Due to the consistent success of the category, the risk profile of dairy alternatives has decreased, making the decision to join the party easier for investors.

European dairy companies are rapidly becoming leaders in the dairy alternative market, with dairy players accounting for 35 percent of western Europe's alternative milk market in 2017, according to Euromonitor. Much of this is driven by acquisitions. On April 12, 2017, Danone completed a cross-continental acquisition of WhiteWave, a leading company in the dairy alternative space. Danone paid USD 12.5bn for WhiteWave, 21.2 times the 2016 estimated EBITDA. Danone justified the steep price through expected synergies, combining Danone's global supply chain and dairy protein fermentation technology with WhiteWave's plant-based and organic milk and product brands. Danone plans to shake up the alternative dairy markets by developing cost-competitive product lines and enhancing taste – two areas in which dairy alternatives have struggled to compete with traditional dairy.

In addition, Valio, the largest dairy cooperative in Finland, recently launched Oddlygood, a range of primarily oat-based products, in Finland and Sweden. The choice for oat-based dairy alternatives in northern Europe is also crossing the Atlantic, along with Swedish company Oatly, which entered the U.S. market in 2017. Oatly made headlines in early 2018, when a supply shortage left baristas scrambling for more supply – a result of increased demand because of its functional characteristics for coffee art.

In North America, dairy companies' interest in the dairy alternative space is not new. Dean Foods acquired WhiteWave in 2002, before spinning it off in 2012. But the rate of activity appears to be picking up. In 2017, Dean acquired a minority stake in Good Karma Foods, a producer of flaxseed-based dairy alternatives. Saputo, Canada's largest dairy company, recently announced its interest in stepping further into the dairy alternatives space, perhaps via another acquisition. In 2012, Saputo acquired Morningstar Foods, a leader in non-dairy extended shelf-life products, from Dean Foods.

Investment interest is growing in the Asia-Pacific region, the world's largest dairy alternative market. On April 18, 2011, Nestlé announced it had signed an agreement with Yinlu, a manufacturer of peanut-based beverages in China. Inner Mongolia Yili, China's largest dairy manufacturer, also entered the plant beverage market with its brand 'Yili Walnut Milk' Drink in 2013. In 2014, WhiteWave made its foray into the Asian-Pacific dairy alternative market by way of a joint venture with China Mengniu Dairy Co. Ltd. At the end of 2015, Coca-Cola bought the Chinese firm Culiangwang for an estimated value of USD 400m.

Rising interest in dairy alternatives is also exhibited in funding raised by start-ups. Ripple Foods, Perfect Day, Kite Hill, Rhythm Superfoods, No Cow, Yofix Probiotics, Miyoko's Kitchen, Califia Farms, and NadaMoo! represent a number of start-ups that developed plant and other dairy alternatives, raising a combined total of USD 210m from 2016 to 2017. Investors included commodity traders, technology firms, food companies, and venture capitalists.

To tackle the competition from dairy alternatives, and remain at the forefront of technology and innovation, a number of dairy companies have developed incubator programs. U.S. dairy cooperative Land O'Lakes launched an incubator program in June 2016, to invest in dairy product start-ups. In 2018, Canadian dairy cooperative Agropur launched its second innovation challenge, Inno Challenge, seeking dynamic new start-ups. Chobani, the largest yogurt manufacturer in the U.S., announced the company's third incubator class in 2018. The hope is that these incubators will bring early-stage ideas and technology, enabling the incubator insight and the opportunity to effectively outsource early-stage development of a broad range of technologies.

As the dairy alternative market continues to attract new investment, there are anticipated economies of scale to be gained as the industry boosts its infrastructure. This is likely to make dairy alternatives more cost-competitive and, ultimately, drive market growth, attract capital, and boost overall competitiveness with traditional dairy products.

They're Milking Everything

According to Merriam-Webster, milk is "a fluid secreted by the mammary glands of females for the nourishment of their young." There is also a secondary definition: "a liquid resembling milk in appearance."

Companies are running with the second definition these days and milking just about everything. Almonds, peas, oats, barley, hemp, flax… all boast their competitive angle. Barley is sustainable, flax is back with no allergens, pea is protein-rich, quinoa is high in fiber. No matter what type of alternative milk we are talking about, there are several characteristics which are key to market positioning, according to multiple studies. In order of importance, consumers look for flavor and sensory quality, price point, health and nutritional quality, and sustainability.

In terms of how these various dairy alternatives are consumed, a study conducted in the U.S. by Comax Flavors demonstrated that 76 percent of dairy alternative consumers use their alternative milk on their cereal, 54 percent in smoothies, 43 percent in coffee, and 25 percent in protein shakes. Of the dairy alternative ingredients, globally, soy remains the most prominent, according to RaboResearch. Worldwide, this is the case in 64 percent of brands, followed by almond and coconut, with a combined 25 percent. Oats, rice, hazelnut, and cashew were used in fewer than 15 percent of dairy alternative brands.

However, soy is losing ground, particularly in the U.S. according to IRI data, market penetration of soy in the U.S. has slipped, from 25 percent in 2014 to 13 percent in early 2018. Meanwhile, almond 'milk' has taken over in the U.S., comprising 76 percent of all retail sales of dairy alternative beverages in early 2018.

Looking to the Asia-Pacific region, the share of soy-based dairy alternatives remains strong – at 42 percent in 2017, up from 35 percent in 2014, according to Euromonitor. At the same time, walnut-based dairy alternatives have increased in popularity. While still small in terms of market share, walnut-based products are currently capturing the strongest brand positioning for dairy alternatives in the Asia-Pacific region.

In western Europe, soy still commands the majority share for dairy alternatives. However, according to Euromonitor, its market share declined, from 76 in 2014 to 62 percent in 2017, with oat-based products on the rise.

Soy faces the toughest battle for shelf space among dairy alternatives. In 2017, the U.S. Food and Drug Administration (FDA) revoked soy's health claim that soy 'milk' could reduce the risk of heart disease. This added an additional marketing challenge for soy-based beverages, which were already struggling, as:

- they contain high concentrations of isoflavones – often regarded as unhealthy
- they are regularly perceived as genetically modified
- their sensory aspects are ranked lower, compared to other plant-based ingredients.

The dairy alternative space is bound to continue to develop and move in response to rapidly changing consumer demands. This, in itself, can be costly, as today's winner may be tomorrow's loser – as we have seen with soy in the U.S.

It's Not All Creamy for Dairy Alternatives

The dairy alternative market is challenged in several ways, which could make the sector vulnerable over the coming decade. According to multiple studies, plant-based dairy alternatives do not perform as well as conventional dairy products in taste tests – hence alternatives seek to match the taste of milk. They are also less nutrient-dense; cost more than conventional dairy products; and are highly processed, with lengthy comparative ingredient lists.

In terms of nutritional value, an important determinant is protein concentration and quality. Conventional milk has a protein content of over 3 percent. Only soy-based alternatives have comparable protein content, while other alternatives have a relatively lower protein content (*see Table 1*). The amino acid composition of dairy protein is also regarded as superior by scientists when compared to plant-based protein.

Table 1: Nutritional Comparison

	Calories	*Total fat (grams)*	*Protein (grams)*	*Calcium (% daily value)*
Cow, whole	147	8.1	7.9	33
Cow, skim	86	0	8	50
Goat	169	10	9	33
Almond	60	2.5	1	20
Soy	132	4	7	25
Rice	120	2	0.4	2
Coconut	467	50.5	4.8	4

Source: USDA National Nutrient Database 2018

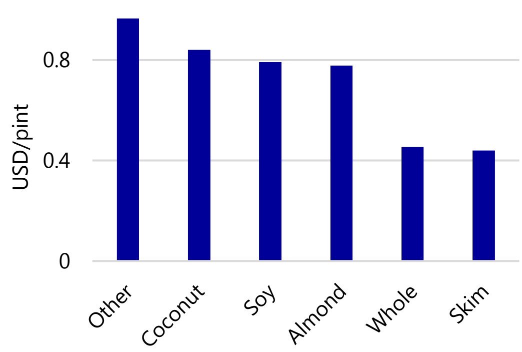
Improving protein quality and quantity is a major challenge, as increasing plant protein tends to negatively impact taste. According to RaboResearch, the consumer awareness of the protein quality of dairy alternatives remains relatively low, but it is gaining traction. To date, nutrition has not been a major challenge for dairy alternatives, but as consumers increasingly consider nutritional content on labels, the weakness in dairy alternatives may come to light.

Fat is back – and alternative dairy beverages do not have much of it. The lower fat percentages in dairy alternatives do not bode well for them. Alternative dairy product offerings typically have 50 percent to 80 percent less fat than whole milk. However, alternatives tend to have a favorable saturated/unsaturated fat ratio compared with milk, which is important. There is one exception – coconut 'milk', which has a higher share of fat and less preferable fat ratio than milk. As fat remains a desirable component of products, consumers may pass on low-fat alternatives.

Other nutritional characteristics of dairy alternatives are more or less comparable with conventional dairy, because dairy alternatives are often fortified with the mineral calcium, and the vitamins B2 and B12. For consumers, fortification is currently not a concern, but the question is whether this may become an issue in the future – particularly as the consumer trend toward cleaner labels continues.

The retail price of dairy alternatives is another hurdle to overcome. Alternative dairy beverage prices are typically nearly two times higher than dairy in the U.S. and Europe (*see Figure 1*). The driver of these higher prices tends to be processing costs. Dairy alternative processors generally have not yet reached economies of scale, resulting in higher production costs. The fortification of other components also adds costs. Finally, the alternative dairy industry positioning itself as premium compared to conventional dairy keeps the retail price higher. But we expect costs to be reduced as scale is developed, private label offerings improve, and competition increases.

Figure 1: 2017 U.S. Retail Prices for Milk Beverages



Source: IRI 2018

Plant-based beverages are by most traditional definitions not milk – and the usage of dairy terminology such as milk, cheese, and yogurt stands to change, which could be detrimental to their consumer appeal. In June 2017, the European Court of Justice determined that dairy alternatives in Europe cannot be marketed under dairy-style names such as milk, yogurt, cheese, cream, or butter. However, on December 20, 2017, a court in the Netherlands judged that dairy alternatives were allowed to use names such as 'variation on dairy,' 'variation on milk,' or 'yogurt variation.' You don't have to be a marketing expert to understand that these names are unlikely to draw much love from consumers.

In the U.S., the National Milk Producers Federation (NMPF) requested that the FDA take action to limit the use of dairy-associated names in 2000, but this had had little traction. The NMPF says it is developing a case to support the FDA's enforcement of the federal standard. After years of fighting dairy alternatives, the dairy industry must consider that it may still lose the battle of public opinion… even if it wins the legal battle.

After considering these market dynamics, we estimate that the annual CAGR demand growth for dairy alternatives will adjust lower, to near 5 percent, through the next decade. This is a considerable departure from the 8 percent CAGR over the last ten years. Maintaining recent growth rates will be difficult, considering the headwinds we have highlighted and ever-increasing year-on-year comparables. Nevertheless, the projected 5 percent CAGR in demand over the next ten years for dairy alternatives is enviable compared to the global demand for traditional dairy, which is expected to grow at a CAGR of around 2.5 percent.

Better Late Than Never

Hoping for the best and waiting for the tide to turn is not an advisable strategy for the dairy industry. Consumers have spoken. They want new and innovative quality products – dairy-based or otherwise – and they are willing to pay for them. Global dairy companies like Danone, Nestlé, Dean, Lactalis, and countless start-ups are already leveraging opportunities in the alternative dairy markets. Despite recent investments, entering the alternative market could still be a profitable investment for dairy companies currently sitting on the sidelines. The margin obtained in dairy alternatives remains high – for now – and the growth rate remains more rapid than for dairy. Traditional dairy players have many ways in which they may respond to the rise of dairy alternatives, and there are some key considerations to be made.

First, it is important to consider the legal structure of the firm and the product portfolio. For private and publically traded companies, the decision to enter the dairy alternative market is easier: they are typically driven by profit. In contrast, dairy cooperatives seek to maximize value for their farmers and are responsible for investing in manufacturing to further process their members' milk. There could be a backlash on any deviation from this obligation and long-standing strategy. Tensions are particularly high during times of pricing stress on farm and insufficient processing capacity, as parts of the U.S. have seen recently. Many dairy producers seek to grow milk supply, and it is the responsibility of the cooperative to find a home for their milk. The idea of investing in a non-dairy activity which may cannibalize dairy products is a conundrum for many players in the dairy industry.

It is these challenges, mind-set, and structures which may prevent some in dairy from capitalizing on the growth in the dairy alternative space. Nevertheless, entering the dairy alternative market could provide farmer-members the opportunity to diversify their farming operations and income streams. In California, over the past decade, a growing number of dairy producers have converted land from row crops to tree nuts. In New York, tough competition in the fluid milk space caused Elmhurst Farms to make a full conversion, from traditional dairy into dairy alternative beverages. Today, Elmhurst Farms manufactures a wide range of branded plant-based beverages.

Product innovation offers another, possibly less controversial, opportunity for the dairy sector. Many possibilities in product innovation are available for traditional dairy products, and there is potential in developing products which may use a combination of dairy and plant ingredients. Combining the positive attributes of both the nutrition and flavor of dairy, along with the functionality of plant-based ingredients could strike a balance in achieving nutrient goals while being perceived as more innovative and sustainable for consumers.

Today, most traditional dairy producers and companies are caught in a low-growth segment, limited processing, expanding milk supply, tight margins, and growing global competition. Dairy strategies tend to focus on reducing costs, being more efficient, and conducting dairy-centric R&D. Meanwhile, companies involved in the dairy alternative market use differentiation as a major strategy, and they capitalize on the headwinds facing conventional dairy products. In May 2017, Rabobank published 'Valuing a Good Strategy,' in which we concluded that value-adding strategies are more profitable than volume-based strategies for dairy companies. A value-added strategy pairs well with dairy alternatives, and it can leverage synergies in processing and R&D in the dairy industry.

Final Thoughts

The time is right for the dairy sector to reflect on the success of alternative dairy products and to consider applying those lessons to dairy. The key to this is understanding the consumer. Marketers of dairy alternatives have been far more successful connecting and communicating with consumers on a more emotional level than traditional dairy marketers. A dairy executive described it the following way: "In the dairy industry, we are trying to convince consumers with facts and figures. Consumers don't seem to react to facts anymore. We must have more emotional communication."

It is understandable that the dairy sector is concerned with losing market share and the growth of dairy alternatives. However, instead of fighting emotion with facts, the time has come to seriously consider implementing a new and possibly blended strategy. The outlook for both dairy and alternatives remains bright through 2030 – and perhaps even brighter together. Having ownership in both categories can diversify risk, deliver greater sustainability, and draw a stronger connection to consumers. Instead of seeing the growth of the dairy alternative market as a threat, several opportunities arise for the dairy industry to consider:

- Go glass-to-grass... not the other way around. This starts with listening. Learn consumers' language, understand their wants, and see the medium the conversation is being held on. When it comes time to communicate, dairy will know where to go, what to say, and how to be heard.
- Be open to change; consider diversifying dairy farming operations to incorporate different methods of production; or diversify into alternative ingredients, such as almonds and oats.
- Enhance product innovation – a new type of dairy-based coffee creamer, or a flexitarian product such as an oat-based beverage infused with ghee to boost fat content and improve flavor, marketed to baristas and third-wave coffee enthusiasts.
- Apply differentiation as a major strategy instead of cost leadership. It's OK to be alternative.

Imprint

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Banking for Food