

INSIGHTS REPORT

Dairy to be different: Plant-based dairy formulation



Driven by a growing consumer passion for balanced nutrition, sustainability and animal welfare, the market for plant-based dairy alternatives is expanding rapidly.

Gone are the days when dairy alternatives were relegated to the niche consumer domains, warranting little shelf space on grocery aisles. Today, companies are racing to create new products and brands that appeal to a broader, more mindful consumer.

But product developers be warned: this mainstream appeal comes with higher expectations around taste, texture and appearance – and an increasingly competitive landscape vying for a place in shoppers' grocery carts. INFUSE by Cargill™ can help you create high quality plant-based products that your customers can enjoy without having to sacrifice on texture or taste.



THE MARKET FOR DAIRY ALTERNATIVES

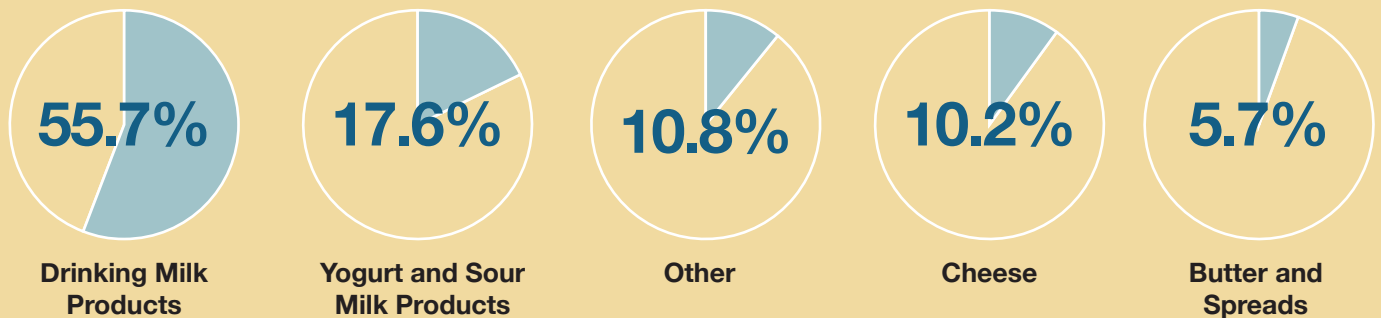
As plant-based eating moves into the mainstream, plant proteins are in the spotlight benefitting from the health halo of both plants and proteins.

The dairy & alternatives category remains one of the largest packaged food & beverage categories, accounting for ~72 mio tons in 2020 in Europe according to Euromonitor, representing 34% of all packaged food volumes.

As per most other food & beverage categories, the dairy category has been impacted due to the pandemic, showing a -3,9% decline. The category is expected to bounce back in 2021 to volumes before the pandemic, and show further growth at an expected CAGR of 1.5% (20-25).

Drinking milk products remains the biggest subcategory (56%), followed by yogurt & sour milk products, other dairy, cheese and butter & spreads.

Dairy total volumes (Europe, 2020)

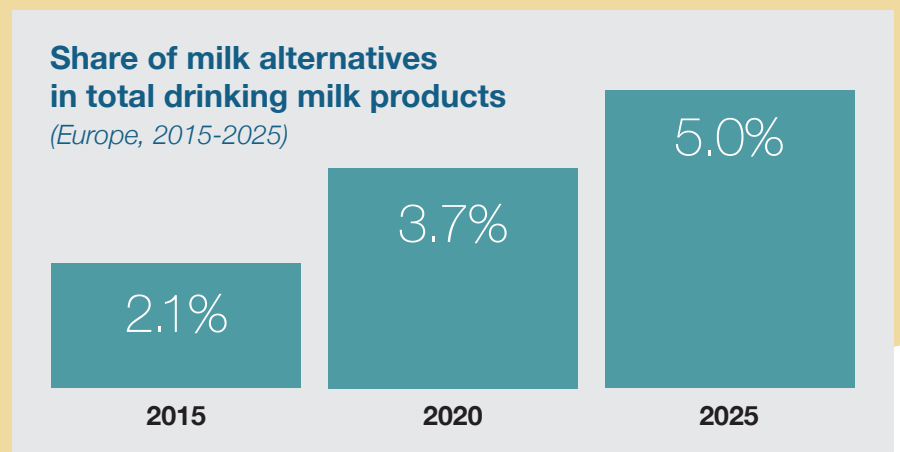


Plant Popularity features strongly among Cargill's TrendTracker™ trends list.

Consumers are increasingly interested in **plant-based foods & beverages**. In fact, 55% of global consumers now state that their diet includes meals without meat or fish, even though they are not vegetarian or vegan per se.

Source: HealthFocus International, 2020

Zooming in on this big 'drinking milk products' category, the plant-based evolution is becoming apparent. With a past CAGR (15-20) of 11%, and a forecasted CAGR of 8% (20-25), the plant-based milk alternatives show no sign of slowing down, with especially Spain, UK and Germany leading in this category. Representing only 2.1% in 2015, their share is forecasted to grow to 5.0% in 2025, with a volume growth of 240%.



Source: All market data above is Euromonitor, 2015-2025, Europe

THE MARKET FOR DAIRY ALTERNATIVES (cont.)

In the total dairy category (including non-dairy), the highest innovation activity is witnessed in the dairy alternative categories of non-dairy cheese (18% CAGR 15-20), spoonable non-dairy yogurt (14.6% CAGR 15-20) and dairy alternative drinks (11.3% CAGR 15-20). These three dairy alternatives increase their share in the total dairy NPD from 6.8% in 2015 to 11.1% in 2020, with dairy alternative drinks remaining the biggest alternative category.

The focus for plant-based dairy on packaging is clearly first to communicate on the vegan offer, with lower incidences of plant-based and/or vegetarian claims being made. Lactose- and gluten-free claims are also widespread.

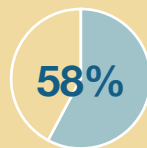
Whereas 10% of all new dairy products come with a high/source of protein claim, this incidence is higher for 2 of the 3 dairy alternatives categories (drinks & yogurts).

Dairy alternatives: Top 5 claims (Europe, 2015-2025)

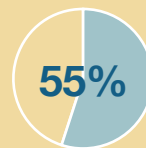
DAIRY ALTERNATIVE DRINKS



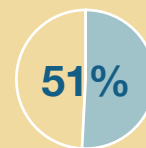
Vegan



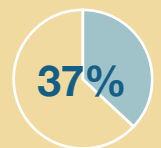
Lactose Free



Gluten Free



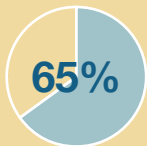
Organic



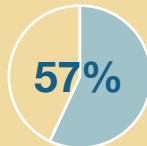
Plant-Based

High/source of protein is higher vs avg dairy category with 18% of launches making this claim.

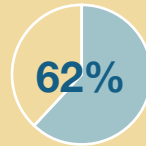
SPOONABLE NON-DAIRY YOGURT



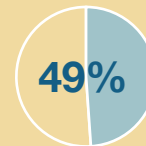
Vegan



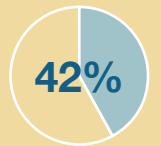
Lactose Free



Gluten Free



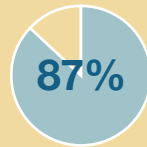
Plant-Based



High/Source of Protein

High/source of protein is higher vs avg dairy category with 42% of launches making this claim.

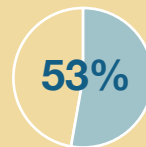
NON-DAIRY CHEESE



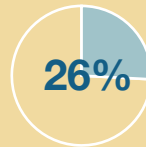
Vegan



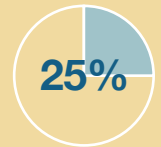
Gluten Free



Lactose Free



No Additives/Preservatives



Vegetarian

High/source of protein is lower vs the other non- dairy categories with 8% of launches making this claim.

However, the activity in plant-based alternatives goes even broader. Launches of any product making a claim pertaining to vegetarian, vegan or plant-based has grown by 14% CAGR (2015-2020) in Europe, with the incidence of these claims growing from 15% in 2015 to 26% in 2020.

Source: All launch data above is Innova, 2015-2020YTD, Europe

WHAT'S NEXT



Creating a dairy alternative product that offers the organoleptic properties that consumers expect is easier said than done. This is because dairy proteins fulfill several functionalities within a product.

“When you make a yogurt, you typically take a milk, and acidify it through fermentation,” Philippe Barey, Dairy Technical Support Leader at Baupite, explains. “If you do the same thing with a plant-based protein, you will not get the same result because the proteins do not react in the same way. In order to be able to translate dairy into plant-based dairy, you really need to understand the proteins,” he stresses.

Within the field of dairy alternatives, Cargill is currently doing a lot of work in translating dairy applications into plant-based applications. This is achieved through the use of pea proteins, which were recently added to our portfolio for Europe. Since pea proteins do not bring a lot of texture in themselves, achieving a similar product and consistency (often) requires a mix of texturizing ingredients and broad functional knowledge.

This is where INFUSE by Cargill™ tailored ingredient blends come in! Let us help you design great-tasting dairy alternatives, without having to compromise on taste or texture!



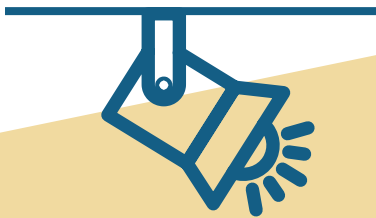
MEET INFUSE by Cargill™



Addressing consumers’ organoleptic and texture expectations for dairy alternatives is a major challenge.

By employing a multiple ingredient blending approach and through effective formulation finetuning, INFUSE by Cargill™ ingredient blend solutions can help you create high quality dairy alternatives that your customers can enjoy without having to sacrifice on texture or taste. Blending the best in sweeteners, texturizers, fibers and proteins, INFUSE by Cargill™ features a broad toolbox of ingredient solutions, that are optimized for use in dairy and dairy alternatives.

SPOTLIGHT



INFUSE by Cargill™ is the new service offering model from Cargill Starches, Sweeteners & Texturizers Europe.

It brings together the company's extensive ingredient acumen to rapidly create tailor-made ingredient blends, helping customers speed up innovation and market launch.

Customers in Europe have been using Cargill's functional systems for more than 40 years to achieve custom texturizing ingredient blends. INFUSE by Cargill™ expands on that work, adding sweetness and other specialty ingredients such as proteins and fibers, to address a broader array of customer formulation challenges.

Three pillars serve as the foundation for Cargill's customer focus in Europe:



An unwavering attention to providing on-trend solutions.



A commitment to speed to market.



Access to deep technical expertise to help create tailored ingredient blends.



OUR TOOLBOX OF SOLUTIONS



At Cargill, we truly understand dairy formulations and ingredient interactions.

This is why our dairy application team is capable of producing finished product prototypes as we have the knowhow to control and characterize (rheology, melt down and panel tasting) and design specific ranges of solutions per sub-application, such as milk, cheese, cream, (frozen) desserts, yogurts and dairy powder mixes.

Our main focus at our dairy pilot plant facility is on actively supporting our customers in their product development. Since we are in daily contact with our customers, we are aware of the challenges and recipe concerns they are facing, which makes it easy to translate customer needs into applications. Most of our customer development projects nowadays are centered around one of three topics: cleaner labeling, improved Nutri-score and plant-based formulation. Many of these projects therefore involve the use of the INFUSE by Cargill™ functional blended solutions.

INFUSE has great solutions based on pea proteins and coconut milk and fats. Leveraging our portfolio of pea proteins, which are characterized by high quality protein content and mild flavor profile, we help ensure formulations with consumer desired plant proteins.

However, as pea proteins do not bring a lot of texture in themselves, we leverage our broad functional knowledge in formulating with hydrocolloids such as pectin and carrageenan and texturizers to help achieve a similar product and consistency.

We can help you design plant-based dairy products with creamy texture, indulgent mouthfeel and balanced nutritional profiles that are easy to process.

Important to note is that our comprehensive toolbox of ready-made blends can work in both dairy and dairy alternatives applications. Finetuning based on the protein material can therefore be done rather quickly, to speed up new product development.



SPOTLIGHT: PEA PROTEINS



Label-friendly:

- Produced from label-friendly yellow peas, which need no allergen declaration in Europe
- High quality protein content
- Rated as one of the most healthy plant proteins*

*Cargill *IngredienTracker*™ 2021



Great sensory profile:

- Mild flavor, low off notes
- Suitable for various applications, including plant-based formulations



Great functionality:

- Outstanding solubility, preventing sandy/undesirable mouthfeel
- Combined with our texture portfolio, desired textures can be achieved from liquid, creamy to more gelled textures

#PLANTPROTEIN

OUR SOLUTION



Lygomme® AYS 545 is a functional plant-based ingredient blend, designed to help deliver core processing requirements and shelf-life stability in dairy and dairy alternatives formulations:

- **Modified maize starch** binds the water and brings viscosity, develops indulgent mouthfeel and shininess and avoids syneresis.
- **Pectin** allows for the structuring and stabilizing of the yoghurt and provides short texture.

Suitable for vegans and vegetarians, our solution blends the best functional ingredients to help deliver indulgent plant-based non-dairy “yogurts” with great taste and texture, and an indulgent mouthfeel.

Our blends can be further optimized to the plant-based protein material used, and are designed to help withstand high processing tolerance. They are easy to use, as they are directly transferable from standard yogurt process and no modification or special equipment is needed.

RECIPE & NUTRITIONALS: COCONUTTY DELIGHT

Ingredients	%
Water	Up to 100
Coconut milk (19% fat)	16.00
Sugar	8.00
PURIS™ 870 pea protein	3.70
LYGOMME® AYS 545	3.50
Calcium Phosphate	0.25
Cultures	0.02

	INFUSE recipe
Energy (kcal/100g)	86
Fats	3.0
<i>of which saturated</i>	2.7
Carbohydrates	11.3
<i>of which sugars</i>	8.2
Dietary fibers	0.2
Proteins	3.2
Salt	0.2



IN FUSE

by Cargill™



Let's discuss how
INFUSE by Cargill™ can
enable the success of your
next dairy alternative launch
within the booming but
increasingly crowded
plant-based protein aisle.

Time to get INFUSED

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