

INSIGHTS REPORT:

Burger Sensations

How INFUSE is building better plant-based meat alternatives



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

Gone are the days when meat alternatives were only marketed to a niche group of consumers. Today, companies are racing to create new products and brands that appeal to a whole new mainstream group of flexible vegetarians (“flexitarians”).

But just because there is a large potential market, doesn’t mean there is room for everyone on the shelf. After all, flexitarians are highly demanding when it comes to the products they are seeking out. INFUSE by Cargill™ can help you deliver the high-quality plant-based alternatives to burgers consumers can enjoy without compromising on the eating and cooking experience.

THE MARKET FOR PLANT-BASED MEAT ALTERNATIVES



Plant Popularity features highly in Cargill's TrendTracker™

Consumers are globally increasingly interested in **plant-based foods & beverages** with 55% of global consumers now stating that their diet includes meals without meat or fish, although they're not vegetarian or vegan.

Source: HealthFocus International, 2020

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

The total Meat & Seafood Substitutes market accounted for 239k tons in 2021 in Europe, which is a doubling of the volume from 2015. **Chilled substitutes take up 60% of the total, frozen represents 34%** and **shelf stable makes up the final 6%** of the total category.¹

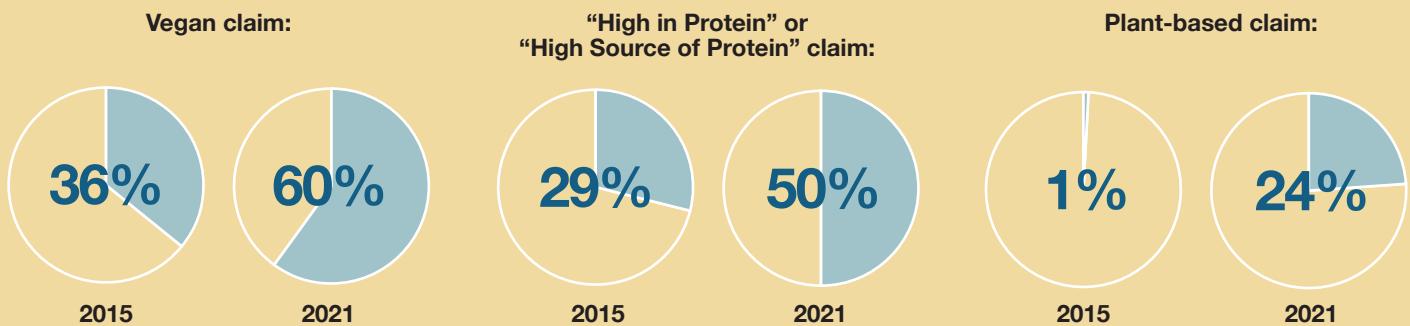


European consumers are furthest ahead in the consumption of plant-based beef products, on par with plant-based milks. **72% has consumed any of these plant-based products in the past 12 months.** The frequency lags a bit behind the consumption of plant-based milks though.

Plant-based consumption behavior of Europeans²

	Never	Less than once a month	1-3 times a month	1-3 times a week	4-6 times a week	Once a day	2 or more times a day
Plant-based beef	28%	20%	25%	17%	7%	2%	1%
Plant-based milk	28%	19%	17%	16%	9%	8%	3%

The focus for meat alternatives on packaging³



Vegan and plant-based claims have taken over vegetarian claims, which have been diminishing over the years.

¹ Source: Euromonitor, Meat & Seafood Substitutes, total volumes, Europe, 2016-2026

² Source: The smart protein plant based food sector report EU, 2021

³ Source: Innova Market Insights

PRODUCT LAUNCHES FOR PLANT-BASED MEAT ALTERNATIVES

Western Europe is leading new product development, accounting for over half of NPD over the past 5 years. Eastern Europe is posting the strongest growth and is a region to watch.

Burgers and ground meat is the biggest subcategory, representing 43% of all meat & seafood substitute launches. Sausages are the second biggest category in terms of launch activity.

European NPD Meat substitutes, 2016-2021



Burgers, Ground Meat & Meatballs Substitutes	2,953 (43.0%)
Sausage Substitutes	740 (10.8%)
Poultry Substitutes	728 (10.6%)
Blocks, Cubes & Chunks Substitutes	713 (10.4%)
Red Meat & Pork Substitutes	629 (9.2%)
Deli Substitutes	516 (7.5%)
Other Meat Substitutes	392 (5.7%)
Fish & Seafood Substitutes	192 (2.8%)

Source: Innova Market Insights



NEW MARKET INNOVATION IN PLANT-BASED MEAT ALTERNATIVES TO BURGERS

Garden Gourmet Sensational Burger

CLAIMS: 100% plant-based. Source of fiber. Source of protein. 100% European soy. Nutriscore A. Suitable for vegans.

INGREDIENTS: Rehydrated soy protein, water, vegetable oils, alcohol vinegar, flavorings, methylcellulose, cornstarch, fruit and vegetable concentrates, salt, barley malt extract.

Den Gronne Slagter Veggie BBQ Burger with Pea Protein

CLAIMS: 100% plant based. High in protein. Source of fiber.

INGREDIENTS: Water, pea protein, rapeseed oil, fava bean protein, methylcellulose, potato fibers, salt, preservatives, cornstarch, vegetable broth, caramelized sugar, white wine vinegar extract, ascorbic acid.

Beyond Meat Beyond Burger Plant-Based Patties

CLAIMS: 100% plant-based protein. 19g of plant protein per burger. No soy. No gluten. No GMOs. Suitable for vegans.

INGREDIENTS: Water, pea protein, rapeseed oil, coconut oil, rice protein, flavoring, methylcellulose, potato starch, maltodextrin, salt, potassium chloride, concentrated lemon juice, maize vinegar, sunflower lecithin.

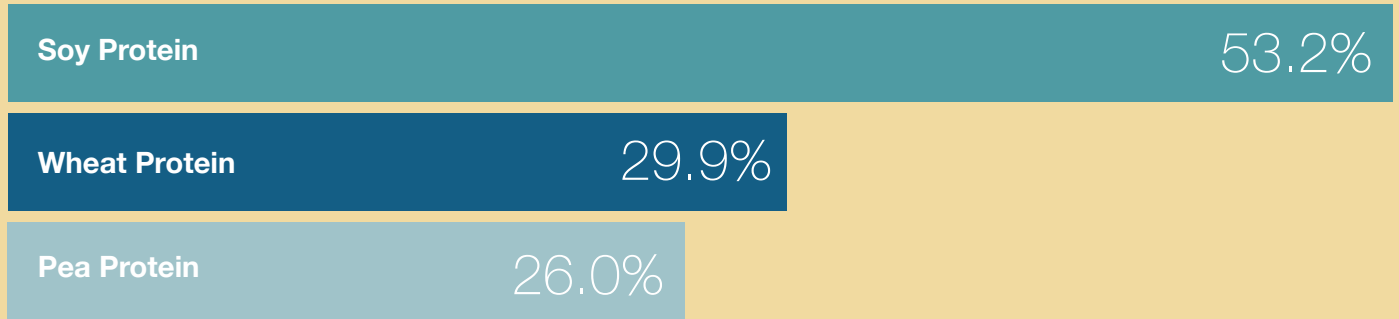
Source: Innova Market Insights database, 2022

PROTEINS INSIGHTS

In Western-Europe, plant-based proteins are forefront, with soy, wheat and pea still leading the pack. Pea is the fastest growing botanical.

Top plant proteins in meat substitutes in West Europe

Plant protein as percentages (%) of meat substitute product launches tracked with plant protein ingredients (West Europe, 2019-2021)



Source: Innova Market Insights

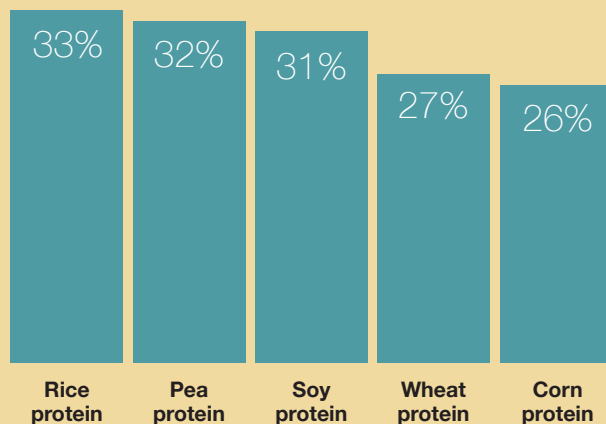
From Cargill's proprietary IngredienTracker study on consumer perception, we see further evidence that wheat and especially pea protein are considered healthy by consumers, and are positively impacting the purchase impact.

Highest health perception for rice, pea & soy protein

NET Health Perceptions for Proteins

NET Scores = Good For You (T2B) minus Bad For You (B2B)

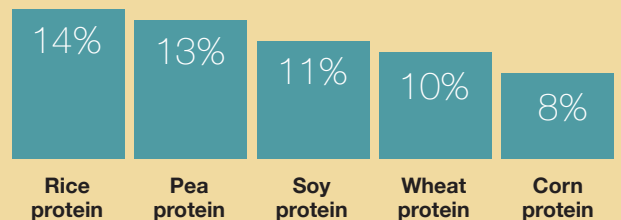
Q: Please indicate how good or bad for you each of these ingredients is, in your opinion.



NET Purchase Impact for Proteins

NET Scores = More likely (T2B) minus Less Likely (B2B)

Q: If you were doing your grocery shopping and noticed the following ingredients on a food or beverage ingredient list, do you think it would make you more likely to purchase the product, less likely to purchase the product, or would it make no difference in your decision?



There is a high correlation between health perception and purchase impact.

Source: Cargill IngredienTracker, 6 European markets, 2021

SPOTLIGHT






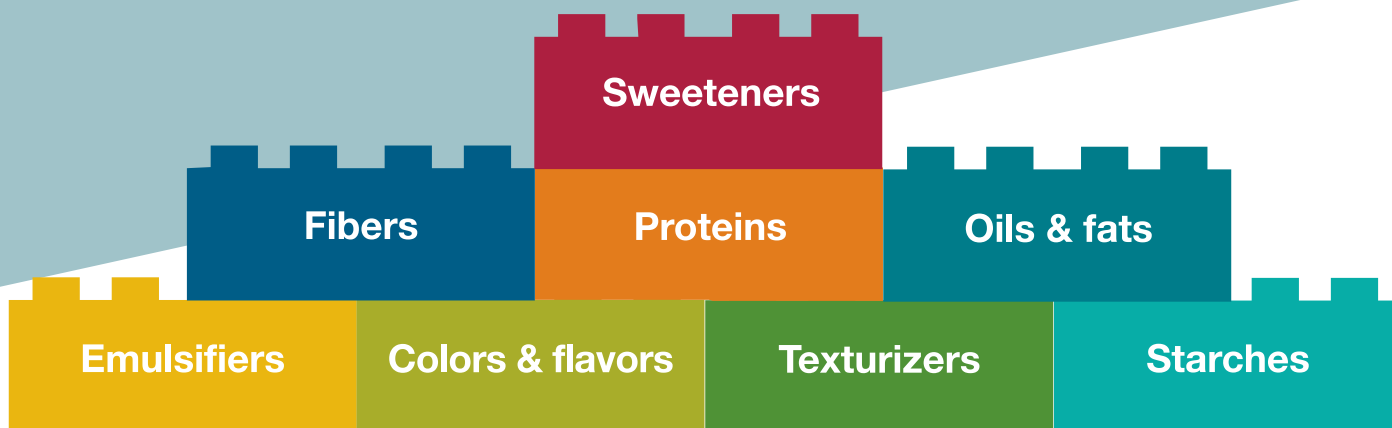
INFUSE by Cargill™ is the service offering model from Cargill Starches, Sweeteners & Texturizers EMEA.

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. Recently, INFUSE expanded into META.

Three pillars serve as the foundation for Cargill’s customer focus in EMEA:

-  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.



CREATING BEST-IN CLASS BURGERS

INFUSE by Cargill™ team has ventured into more plant-based meat alternatives development after successfully developing solutions for plant-based alternatives to hot dogs and cold cuts.

They've set out to create two burger concepts that truly deliver sensorially:



Texture sensation:
a plant-based burger



Veggie sensation:
a vegetable-based burger



There are two main streams within the meat alternative formulations space. Besides the much hyped plant-based meat alternatives, there are certain regions like southern and central Europe, where there has been more of a consumer preference for vegetable-based products, because of the healthy perception that goes with them.”

*Zuzana van Beveren,
Meat Applications Specialist*

Creating a meat-like experience through plant-based formulation requires expertise. As Zuzana explains, there are many consumer expectations involved in creating a perfect plant-based meat alternative:

- **In its raw form, you want to present a burger patty with a pinkish, non-artificial color and a balanced structure,** that comes as close as possible to real meat in terms of look.
- **The “real” sensory aspects need to be maintained when the product is being cooked up.** Think for example of how the burger is changing color from pinkish to brown, how the burger smells during cooking, and how it sizzles.
- **The burgers can’t stick to the frying pan during cooking,** as this makes them very difficult to flip over.



TEXTURE SENSATION BURGER



For illustration purposes we would like to highlight the ‘Texture Sensation burger’ concept.

The building blocks to our concept are:

- The concept is the debut for **Cargill’s texturized plant protein (TEX PW80 M)**. On top, there is an ingredient blend of pea and wheat proteins (**Trilisse® MVP 1201**) that further helps to ensure the right balance in taste and texture.
- **Flanogen® REM 2460** is a specifically designed binding and texturizing system which contributes to firmness, chewiness and succulent mouthfeel. It is specifically developed to deliver on texture authenticity at hot consumption and product stability during the cold storage.
- A carefully selected blend of **Cargill® rapeseed and coconut oils** helps to mimic the look of classic meat burgers, so that you achieve those recognizable white spots of animal fat in the patty. The combination of the fats helps the mouthfeel and the lubrication.
- To achieve the right eating experience, we’ve partnered with our Taste & Color Partner to incorporate carefully balanced and co-developed blend of **natural flavors** that mask the plant protein aftertaste, offer enhancement and add a savory note to the burger. Additionally, by using **natural coloring** foodstuffs we were able to replicate the change in color during the cooking process.

Proteins

Texturizers

Oils & fats

Colors & flavors

TEXTURE

SPOTLIGHT: CARGILL® TEXTURED PLANT PROTEIN



Label-friendly:

- Blend of pea and wheat protein which are familiar ingredients with a positive health perception*
- Good quality protein, high protein content with more complete amino acid profile
- Produced in Europe



Great sensory profile:

- Clean sensory profile: mild flavor, low off notes
- Specifically designed for plant-based meat alternatives such as burgers and meat balls



Great functionality:

- Versatile ingredient blend that offers the functionality required for tasty ground meat products’
- Provides firmness and meat-like bite
- Delivers on chewiness and juiciness

#TEXTUREDPLANTPROTEIN

For more information on Cargill™ textured plant protein, visit our [website](#) and leave your details to be contacted.

* Cargill IngredientTracker™ 2021

RECIPE & NUTRITIONALS: TEXTURE SENSATION BURGER

INGREDIENTS	% on final product
Water	50.73
Cargill™ Plant Protein (TEX PW80 M)	16.60
Cargill® Rapeseed oil	7.40
Cargill® Refined Coconut Oil	5.50
TRILISSE® MVP 1201	4.60
FLANOGEN® REM 2460	4.10
Frozen shallots	3.70
Meat (grilled) flavor*	2.40
Malt Extract	1.85
Vinegar	0.90
Natural colors*	0.83
Garlic	0.75
Salt	0.46
White pepper	0.18

* Flavors and Colors from our Taste & Color Partner

NUTRITIONALS	G/100g
Energy (kcal/100g)	231.80
Fats	14.57
<i>of which saturated</i>	5.95
Carbohydrates	6.48
<i>of which sugars</i>	1.72
Dietary fibers	2.98
Proteins	17.14
Salt	1.76



ONE STOP SHOP FOR COMPLETE SOLUTIONS

We can deliver texturized proteins and texturizing systems, as well as the oils & fats required to make a great plant-based meat alternative burger.

But we go further still, in forming great connections with partner suppliers, such as flavor houses. Then, by combining all of these ingredient component efforts together, we can deliver a truly great product.

The two ingredient blends used in the recipe are very customizable towards specific texture requirements:

By increasing the Trilisse® in the formulation and reducing Flanogen® and oil inclusion, a firmer and dryer burger can be formulated. In turn, by reducing the Trilisse® usage level and increasing the level of Flanogen® and oil in the recipe, a softer and juicier burger can be produced.



Our work into plant-based meat alternatives shows that by using a building blocks approach to your recipe development, you can make a great product that meat lovers will also enjoy. INFUSE by Cargill™ can provide guidance on the optimal usage of the components so that every manufacturer can modify protein content, texture or taste according to their specific requirements.”

Yannick Boulard, INFUSE Business Development Manager

INFUSE

by Cargill™



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

Time to get INFUSED

✉ Infusebycargill_solutions@Cargill.com

📍 www.cargill.com/infuse

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the world
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