Good Food Institute | accenture

Precision fermentation nomenclature and messaging

A consumer research project looking at France, Germany, Spain, the United Kingdom, and the United States

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Executive summary

Photo: Formo

What is precision fermentation, and why is it important?

Precision fermentation offers the opportunity to produce the animal proteins people want to eat but without the scale and type of emissions and waste generated by conventional protein production.

It uses organisms such as yeast to produce egg or dairy proteins, which enable cheese to melt and stretch and give eggs their binding capabilities, without using animals.

Greenhouse gas emissions from the global dairy industry increased by 18% between 2005 and 2015 because overall milk production grew substantially by 30%. Although this indicates that dairy farming has become more efficient, until soaring demand is addressed, the sector's emissions will continue to increase.

That's where precision fermentation comes in – increasing production while reducing emissions drastically. Perfect Day's whey protein made using precision fermentation causes up to 97% less greenhouse gas emissions and uses up to 99% less fresh water than protein from cow's milk.

The egg industry is dominated by intensive indoor farming, which contributes to the overuse of antibiotics and causes significant air, water, and soil pollution.

Onego Bio, who specialise in precision fermentation egg, published a life cycle analysis in Nature Food that found their precision fermentation albumin (an egg white protein) caused 35-55% less emissions and used 87-89% less land than conventional albumin from chicken eggs.

Precision fermentation has been used for decades to produce ingredients such as rennet for cheesemaking, citric acid, and vitamins – but its use in the alternative protein sector is relatively new.

To deliver on its potential to help build a better food system, the precision fermentation industry needs significant public investment to support research, development, and scale-up, and must adopt effective messaging and marketing strategies to maximise consumer adoption.

How does precision fermentation work?

Precision fermentation uses organisms such as yeast to produce egg or dairy proteins (like whey and casein) and other ingredients that deliver the familiar flavour and texture of foods like meat, cheese and eggs, without using animals.

First, gene sequences for the proteins found in cow's milk or chicken's eggs are introduced into the yeast. These tell the yeast how to produce proteins such as whey and casein, which give dairy cheese its distinctive flavour and texture.

Next, the yeast is fed simple sugars and converts them into the desired protein, in the same way it would turn sugar into alcohol during beer production.

Finally, the proteins are mixed with other ingredients like plant-based fats to create a finished product that is indistinguishable from an animal product, such as cow's milk or cheese.

Precision fermentation (PF) technology has the potential to significantly contribute to feeding nine billion people while protecting the Earth's ecosystems.

There are some applications where ingredients made via precision fermentation would simply "drop in" (eg, egg proteins as functional ingredients). Yet there is also an opportunity for ingredients made in this way to be the "hero" of a given end product (eg, whey protein powder). When the consumer is making an active choice, they will need to understand what to expect from precision fermentation products and recognise their benefits.

Understanding consumer perceptions and behaviours is key to clearing the way for mass adoption of precision fermentation-enabled foods.

Although many within the PF industry are united around its potential to become a crucial component of more sustainable modes of food production, there is a lack of common agreement on how PF should be communicated to consumers.

GFI partnered with Accenture to further consolidate efforts by researching consumer preferences around the nomenclature and messaging of PF dairy and egg. The specific focus on PF dairy and egg was a result of industry momentum around these products in several markets and their explicit potential for animal welfare and environmental benefits.

Aims and objectives

This research aimed to arrive at a deep understanding of consumers' behaviour around existing categories of dairy and egg and provide perspectives on how to position PF dairy and egg within this landscape.

More specifically, the research intended to uncover, analyse, and understand what naming, benefits, and process messaging was most likely to drive mass consumer interest and appeal for PF dairy and egg across five target markets: France, Germany, Spain, the UK and the United States.

Methodology used

A four-phase mixed method approach was adopted, using qualitative and quantitative techniques. The structure and content of the quantitative survey (the final research phase) was based on key insights from initial qualitative phases. The final considerations put forward in this report result from a consolidated analysis of findings from all research phases.

Top takeaways

Background information is key

- A simple explanation of what PF products *are* created clarity for participants. Stakeholders can consider how best to socialise such explanations across social media, news media, and on-pack messaging. Lengthy scientific explanations were not appealing to participants and did not help them understand what PF products were.

"Without using animals" was the most appealing component of PF process descriptions presented

- In four of the five markets, "without using animals" was the most appealing element of the PF process explanations provided.
- The second most appealing component of the explanation was "produces the same proteins you'd find in cow's milk or chicken eggs".

"Animal-free" was the top naming option in terms of appeal and differentiation, but more options may be necessary

- Once participants were informed about the PF process, "animal-free" was found to be the most appealing nomenclature option tested and the most effective term for differentiating PF from plant-based and conventional foods.
- There may be a need for a variety of names and marketing propositions across various markets to account for different cultural meanings, motivations for consumption, and consumer expectations from products.

PF products appeal to consumers, and appeal increases after they receive messaging about their benefits

- The net appeal of PF products was positive, even before benefit statements were shown to participants.
- Knowledge of the PF products' benefits significantly increased the appeal of PF products to participants.
- "Free from hormones or antibiotics" was found to be the most appealing statement among the potential benefits of PF tested (as compared to environmental and animal welfare benefits).

Consumers are open to trying food made with PF, and appeal may be strongest when it is used as an ingredient in an end product (rather than as a standalone product)

More than half of participants indicated they would try PF dairy and egg products if given a free sample or if someone else prepared it for them.

- Our research indicated that PF acceptance may be stronger for "convenience" products such as egg pasta rather than whole foods such as milk.
- The functionality of egg means consumer acceptance of PF egg may be stronger where it is used as an ingredient in a processed product, rather than in a standalone product such as liquid egg whites.

Project overview

Photo: Perfect Day

Our objectives

Using an evidence-based, mixed-method approach to naming, messaging, and consumer adoption, we aimed to understand the most effective nomenclature and messaging for driving mass consumer interest in and appeal for PF dairy and egg across the five target markets. Our objectives were:

- To develop nomenclature for PF dairy and egg for use on front-of-pack labels, ingredient lists, and in social contexts. Most consumers in France, Germany, Spain, the UK and the United States should find the resulting nomenclature understandable, appealing and differentiating from plant-based and conventional dairy and egg.
- To develop short descriptions of how PF dairy and egg are produced that consumers find understandable, appealing, and differentiating from plant-based and conventional dairy and egg.
- To develop messages about the benefits of PF dairy and egg that consumers in each market find compelling.

Key definitions

Nomenclature/naming

A brief one-to-four-word phrase that broadly identifies the product (eg, “animal-free”, “made with precision brewing”, etc) and may appear on the front of the pack. This may be alternatively referred to as a modifier, terminology, or term.

Process descriptions/explanations

A description of the product or process that has greater detail and may be provided to research participants in an interview or in a survey. They range from one sentence to a few paragraphs that outline what precision fermentation is, how it can be used to produce foods like dairy and egg, and additional context for understanding the product.

This report’s recommendations evaluate both nomenclature and explanations based on how effective, appealing, clear, etc, they were with respondents. Both nomenclature and explanations could influence the content that brands include on product labels, as well as in consumer education campaigns that help establish awareness of the category prior to purchase.

Target markets

France
Germany
Spain
United Kingdom
United States

Methodology

1. Landscape review
2. In-depth exploration
3. Consumer co-creation
4. Definition

Key challenges

The new realm

Consumers do not instinctively recognise that there is a “new realm” of food that isn’t animal- or plant-based.

Information paradox

Consumers want to understand PF, but longer, unfamiliar names and descriptions are perceived as too scientific and unappealing.

Mismatched benefits

The top perceived benefits of these products aren’t aligned to the top purchase drivers.

Approaches to consider

1. Building trust through clarity around PF-made foods
2. Communicating the health benefits via the “free from” logic
3. Communicating the environmental benefits
4. Taking advantage of curiosity about new foods

Questions for further exploration

? **Products and ingredients**

Which categories are best primed to introduce PF ingredients to consumers?

? **Communications strategies**

How should the industry structure consumers’ journeys of awareness and understanding?

? **Product and category messaging variation**

How might the industry tailor language and positioning within and across product categories?

Methodology

1 Phase one: landscape review

Key activities

- Reviewed the existing landscape around dairy and egg, including conventional dairy and egg, cultivated meat, and plant-based options.
- This covered consumer and media discourse, product and brand communication, and industry and partner perspectives.
- It led to the initial textual communication archetypes that were introduced in phase two.

Methods used

- Desk research
- Netnography
- Industry and partner co-creation
- Semiotics

2 Phase two: in-depth exploration

Key activities

- Explored consumer sentiments, feelings, associations, and preferences regarding conventional dairy, plant-based options, and PF dairy and egg products.
- Explored meta-level textual stimuli focusing on words and phrases.
- Creative development of textual and visual communication concepts for further exploration in group discussions in phase three in the five markets.

Methods used

- One-to-one interviews of one hour each with 31 participants across five markets.
- Participants were aged between 20 and 62, recruited with an even gender split, and had at least partial purchasing responsibility for their household.
- Six participants were vegan and 25 were flexitarian, omnivore, or vegetarian.

3 Phase three: consumer co-creation

Key activities

- Stimuli (textual and visual) developed from phase two were explored with groups.
- Round one explored participants' perceptions of the initial communication archetypes for PF dairy and egg.
- Round two developed the communication archetypes further and reworked them according to inputs from round one. These were shown to the same participants and their reactions were recorded.
- Explained the PF process to participants at the end of round two and recorded further reactions to archetypes.

Methods used

- Two rounds of 90-minute co-creation groups, with 60 total participants across markets.
- Participants were aged 18-65 and recruited with an even gender split; 10 were vegan and 50 were flexitarian, omnivore, or vegetarian.

4 Phase four: definition

Key activities

- Used insights from the three qualitative phases to inform and develop the survey questionnaire.
- Conducted a robust and representative five-market survey with 5,128 respondents across the five markets. The survey contained 20 questions and was roughly 15 minutes long.

Methods used

- Survey
- Analysis and validation
- Ranking and prioritisation
- Participants were aged 18-75 with an even gender split; omnivores, flexitarians, and vegetarians constituted 99% of the recruited sample.

Research design

The methodology consisted of four phases of qualitative and quantitative techniques to understand the relevance and value of dairy and egg for the everyday consumer.

It was designed to uncover the complexity of factors and influences on decisions, existing preferences, habits, and culturally-mediated mindsets around dairy and egg, and explore where and how precision fermentation-made foods could sit within this landscape. With this aim, consumer "co-creation" or iteration was at the heart of the approach.

Avoiding bias

The landscape review found that the current popular and media discourse around food in general is charged with social and cultural biases around food choices. As much as possible, we sought to explore the participants' context around dairy and egg without invoking these biases, especially during the initial rounds of consumer conversations, which focused on habits around conventional and plant-based dairy and egg.

Details about the precision fermentation process

While introducing stimuli on naming and messaging to participants, the methodology was designed to gradually introduce more information about the process to approximate how consumers learn about new foods in the real world. The qualitative phases – ie, the one-to-one interviews and the consumer co-creation groups – began by exploring ways of describing PF-made foods without explaining the PF process.

Participants were then provided a detailed explanation of the PF process at the end of the second round of focus groups. This allowed us to compare reactions around naming and messaging from participants before and after knowledge of the PF process.

In the quantitative survey (phase four), respondents were gradually introduced to more information around the PF process before they were asked to answer questions around appeal and benefit messaging. This allowed us to form a consolidated view of how knowledge of the PF process influenced reactions around the appeal and understandability of nomenclature and benefits messaging.

Recruitment and sampling

Recruitment demographics

- Even gender split
- Aged between 18-75
- Represented a range of political beliefs
- Evenly represented from urban/rural areas
- Had at least partial purchasing responsibility for the household

Recruitment screener

- Bearing in mind representation across different levels of consumption of and openness to alternative protein products, participants were recruited across the following three segments:
    - High consumption/openness
    - Medium consumption/openness
    - Low consumption/openness

Dietary preferences

- Since the aim of the project was to explore adoption for the everyday consumer, omnivores, flexitarians, and vegetarians constituted more than 90% of the sample and vegans less than 10% of the sample.

Recruitment and sampling

Qualitative: phases two and three

- Participants for the one-to-one interviews, as well as for the co-creation groups, were recruited with an even gender split, without dairy or egg allergies, from a mix of political affiliations, and a mix of urban, suburban and rural living.
- All participants consumed conventional and/or plant-based dairy regularly, occasionally, or rarely and had at least partial purchasing responsibility for dairy and egg products.
- Participants were also recruited to ensure flexitarians and omnivores made up the majority (more than 90%) and vegans represented less than 10%.

Quantitative: phase four

- Respondents for the five-market survey were recruited in line with nationally representative distributions of demographics such as age and gender.
- 5,128 respondents completed the survey, split evenly across France, Germany, Spain, the UK and the United States.
- Key terms were translated from English into French, German and Spanish with the help of native-speaking colleagues and allies of GFI.
- In four of the five markets, there was a relatively even natural split between the three segments (high, medium and low consumption of/openness to alternative proteins), so no boosting was required. In Spain, there was high proportion of consumers with “high consumption/openness”, so boosting of the other two segments and reweighting of the sample was carried out.

Phase one methods

Foundational netnography	Analysed online data to uncover consumer conversation and published media discourse in each of the five key markets – including linguistic nuances and terminology around conventional and alternative meat, dairy and egg.
Desk research	Reviewed existing consumer and market research studies focusing on messaging around benefits and limitations (ie, motivations vs barriers) and nomenclature and messaging regarding conventional and alternative dairy and egg products (including PF dairy and egg).
Industry partner co-creation	Collaboratively explored existing and potential consumer positioning (including nomenclature and messaging) regarding PF dairy and egg through co-creation sessions with Accenture, the Good Food Institute, relevant sector organisations (e.g., Precision Fermentation Alliance members, Food Fermentation Europe members), and industry stakeholders in food consumer goods and retail.
Semiotic analysis	Mapped dominant brand terminology, signs, and communication archetypes around conventional dairy, plant-based options, and alternative proteins more generally (including cultivated meat) to consider the branding and communication spaces that could be occupied by PF dairy and egg products.

Phase two methods

One-to-one consumer interviews

Sampling

- A total of 31 one-to-one in-depth interviews were conducted across the five markets.
- Each interview had an average duration of one hour.
- Four interviews per market were conducted with a specific focus on participants' attitudes and behaviour relating to conventional and alternative dairy and dairy products.
- Two interviews per market[1] were conducted with a specific focus on participants' attitudes and behaviour relating to conventional and alternative egg and egg products.

Description

The interviews were guided by open-ended questions across five themes:

- The role of conventional and alternative dairy in daily life (including cognitive, sensory and cultural influences).
- Apprehensions and benefits around conventional and alternative dairy and egg.
- Perceived benefits and apprehensions around PF dairy (without explanations of the PF process).
- Perceptions of initial, work-in-progress PF dairy communication archetypes.
- Potential paths towards acceptance of PF dairy.

Since linguistic nuances were a key factor in this project, the stimuli[2] used in this phase were purely textual.

1 We conducted fewer interviews focused on egg because they followed the interviews for dairy, which also included discussion of perceptions of PF at a high, non-category-specific level. This allowed the second round, egg-focused interviews to be more category specific and therefore permitted for a smaller sample size.

2 For the complete list of stimuli used in all markets, refer to the Appendix (p3 onwards).

Phase three methods

Co-creation groups round one

Creative development

Co-creation groups round two

Sampling

- Four 90-minute co-creation groups were conducted per market totalling 12 participants per market.
- Each round consisted of two groups – one consisting of omnivores and flexitarians and the second consisting of vegans, vegetarians, and flexitarians. This was done to control for extreme differences of opinion around dietary philosophies in the same group.
- Based on participants' reactions and insights, the archetypes were revised after round one, allowing for creative, messaging, nomenclature, and visual development.
- All archetypes were in the local language of the market.

Exploration

Messaging/nomenclature archetypes were explored with two participant groups in each of the five markets. The archetypes were assessed for appeal, understandability, and differentiation from conventional and plant-based dairy and egg.

Reiteration

Results from the first co-creation session were used to inform and adjust further creative development of the archetypes through a collaborative and iterative development approach – creating a refined set of options based on feedback from the groups.

Re-assessment

The revised archetypes were taken back to the same participant groups for prioritisation to evaluate perceptions and reactions to the revised stimuli. This process of re-iteration led to a defined set of prioritised options for nomenclature and messaging prior to the quantitative survey.

Phase four methods

Bespoke quantitative survey

Sampling

- 5,128 respondents completed the survey, split evenly across France, Germany, Spain, the UK and the United States.
- Participants were recruited in line with nationally-representative distributions of demographics such as age and gender.
- Key terms were translated from English into French, German and Spanish with the help of native-speaking colleagues and allies of GFI.
- Some variations of terms were only tested in the UK and the United States, as variation was lost when translated into the other languages.
- Where boosting was applied to ensure robust respondent volumes at a segment level, samples were reweighted to provide nationally-representative results by market.

Nomenclature

- Seven names were tested in all five markets.
- Four variations were only tested in the UK and the United States as there was less tangible difference when translated into the other languages.
- Two terms were tested in Germany only.
- All terms were also tested for “net positivity” (see Appendix for details).

Prioritisation of messaging and benefits

Participants ranked:

- Nomenclature and messaging variations on appeal.
- The most appealing components of the explanation.
- The most effective names at differentiation from conventional and plant-based dairy and egg.
- The names most likely to be used in social contexts.
- The benefits most likely to influence appeal.
- The likelihood of motivations for trial, purchase, and paying a higher price.

Kinds of stimuli used[3]

Phase one: landscape review

No stimuli used.

Phase two: one-to-one consumer interviews

A first set of text-only communication archetypes based on findings from phase one.

Phase three: co-creation groups round one

These archetypes were more specific with details around product types and ingredient names and some neutral visuals, but without using storytelling.

Example stimuli used in phase three, round one:

Phase three: co-creation groups round two

Based on consumer insights from stimuli introduced in part one, the stimuli used in part two used storytelling to craft specific details around naming and benefit messaging, going into detail about benefits and explainers to give more details of the PF product, ingredients, and process.

Example stimuli used in phase three, round two:

Phase four: quantitative survey

We combined learnings from phases one, two, and three to inform the questions and the framing of the quantitative survey.

3 For the complete list of stimuli used in all markets, refer to p93 onwards in the Appendix.

Archetype example

To explore the deep-rooted cultural, personal and social contexts around conventional, plant-based and PF dairy and egg, we relied on communication archetypes – defined as spaces or themes within a communication landscape (example below).

Phase three of the research was designed around consumer co-creation, and the learnings from each phase were used to inform the communication archetypes. These evolved in more detail through our participant discussions and informed the final stimuli that were used in the quantitative survey.

Nomenclature

“Animal-free”

“Non-animal”

“Without animal rearing”

Messaging

“Classic ice cream with an animal-free twist.”

“We use milk protein made from fermentation – just like what you get from cows, but without ever touching an animal.”

“No matter what you eat (or what you don’t), you’re free to love it.”

Visualisation

Setting the context

The industry perspective

A fragmented view

One of the aims of the research was to provide more evidence to support the sector in aligning on appropriate communications and marketing approaches – aligning nomenclature and explanations, as well as identifying marketable benefits that these products can offer.

We spoke to 15 key stakeholders representing the precision fermentation industry, including researchers, trade associations, startup owners, and opinion leaders in the field.

Although there is excitement about the potential of PF technology to help address some of the key issues of our time, we found that the industry itself has a fragmented view of how to communicate about it.

Questions were often posed around the best ways to frame, explain, and market PF products and their benefits – such as taste parity, the absence of animal use, the lower carbon footprint, their functionality, the technology used, the ingredients, and the process detail when introducing and marketing them to consumers.

Complexities arose around the balance between educating consumers about the technologies and science behind the process without overburdening them with technical details.

PF technology is already used in the manufacture of enzymes such as rennet as well as certain vitamins and minerals. However, different regions have different requirements for the regulation and legal approvals needed for these products to be sold commercially.

These varying requirements for regulatory approvals, differing levels of consumer familiarity in regions and effectively positioning them within the existing market of conventional and plant-based foods made a unified view even more challenging to achieve.

The consumer perspective

A promising solution with challenges

From the consumer perspective, we found that participants held deep-rooted cultural, social, and functional expectations around food. Notions around what is considered healthy, tasty, affordable, safe, and nutritious, and the habits that are formed around these notions, greatly influence consumer choices around food.

When it came to PF, participants tended to find it challenging to understand a new category that did not fit into the familiar categories of plant- or animal-based foods. Many participants expressed genuine interest in understanding how PF foods were made.

Concerns around animal welfare and environmental impact were often mentioned as compelling reasons that might influence their food choices, but we found these arguments did not always translate into shifting participants' purchasing decisions. This challenge isn't unique to PF and is well-documented across the food sector.

Within this context, finding ways of introducing consumers to these products in a way that stokes curiosity, generates interest, and inspires confidence among consumers could be crucial to its early success.

The strategic development of product names, brief and effective explanations of PF the process, and an array of messages that can work for consumers who come to the category from different motivations could play a key role in spurring broader innovation for the category and eventually achieving long-term adoption.

Dairy and egg: how are they perceived?

Dairy has strong, deep-rooted associations with goodness, comfort, growth, and nutrition.

Dairy – particularly milk – is the base for a variety of product types, and participants largely saw it as a fundamental part of a nutritious, well-rounded diet.

Egg is thought of as the perfect product on its own.

Participants viewed egg as a complete product in and of itself. Most perceived egg more as a cornerstone product rather than a nutritional requirement in a well-rounded diet.

Dairy and egg: How are they perceived?

Dairy

Strong, deep-rooted associations with goodness, comfort, growth, and nutrition.

Dairy is perceived as fundamental to health

Overall, participants viewed dairy as a quintessential part of basic nutrition going back to their childhoods, from ads and Public Service Announcements to memories of being served or eating dairy for "health" or nutrition.

Dairy is a symbol of wholesomeness and comfort

For many participants, dairy evoked both wholesome images of happy cows, mother and baby, and bright pastures, as well as memories involving comforting meals or times of prosperity and simplicity.

Dairy is rooted in heritage and tradition

As a time-honoured agricultural practice around the world, dairy evoked deep associations with family or community ties for many participants.

Dairy is associated with strengthening bones

"In primary school we were offered milk each day... You get told about the strong bones and everything. So, growing up I had a lot of milk every day."

– Male, 24, omnivore, UK

Colostrum given as a gift

"We are born feeding only on milk... I associate milk with the evolution of human beings. In my village, to bring a cup of colostrum to someone is the highest sign of respect... so I have very positive memories."

– Male, 55, omnivore, Spain

Dairy evokes personal heritage

"I think of comfort, of community, of a France of grandparents and great grandparents, of prosperity even."

– Male, 25, vegan, France

Dairy and egg: How are they perceived?

Egg

Thought of as the perfect product on its own.

Simple, perfected by built-in packaging

Eggs were perceived as inherently well-designed by participants. For some, there was little room to interfere with the essence of what eggs are.

A wide range of versatile applications

Participants following a range of dietary restrictions or philosophies noted that eggs can fulfill a variety of needs for them like adding richness to a dish, acting as an adequate substitute for meat, being used functionally as an ingredient, or increasing the potential of "getting full" from a meal.

Perfectly packaged and portioned

"Eggs are wonderful. The are perfectly packaged and practically portioned. You can take them with you in a hard-boiled manner and they make the perfect snack on the go."

– Female, 42, flexitarian, Germany

Can be used for all kinds of dishes

"Eggs. I find them relevant precisely because they are highly versatile. You can make a carbonara sauce one day and the next day you can make a tartare that also includes egg yolk. You can make an omelette. In baking, you can make... cakes. It's probably one of the most versatile ingredients in common food products."

– Male, 22, omnivore, Spain

Dairy and egg: How are they perceived? | Market perspectives

France: Dairy is part of the staple diet

The culture and heritage around dairy is very strong in France. It is recommended that dairy be part of every meal in the form of "laitage" or a dairy "course".

"I have a slogan in mind that says 'dairy products are our friends for life!' I really grew up with this idea that you should really eat yoghurt or drink milk three times a day."

– Female, 41, flexitarian, France

Spain: Eggs are an essential staple used in a variety of dishes

Eggs are a part of the cultural fabric around food in Spain. Egg-based dishes are consumed across the country and several regional specialities exist. "Huevina", or liquid pasteurised egg, is used widely.

"[When I think about eggs, I think about] the tortilla de patatas, because that is already a national dish... Huevos rotos [broken eggs] are also quite common in the bars around here in Madrid."

– Female, 40, omnivore, Spain

France: Eggs are seen as easy, convenient, and healthy

In France, eggs are eaten in several forms and were a part of participants' childhood memories. They are eaten in salads, hard or soft boiled ("à la coque"), or as an omelette.

"We had a ritual around eating eggs – as kids we ate them every Friday because my mum only went shopping on Saturday and the only ingredient left in the fridge on a Friday night were eggs."

– Female, 42, flexitarian, France

US: Systemic messaging that dairy is healthy

In the United States, dairy is given to children en masse in schools and the message that it's crucial to a healthy diet is reinforced by many channels (including health organisation recommendations and popular "Got Milk" ads).

"[I remember] seeing a lot of kind of advertisements and messaging around how it's good for you... and just having people with milk mustaches that were like our idols."

– Male, 39, vegan, United States

Dairy and egg: What is appealing about them, and what matters most?

For dairy, health presented as the underlying motivator for most participants, with taste serving as an entryway.

Participants indicated that taste is what initially guides them to make choices between dairy products and try new ones. It leads them to enjoy a variety of types of dairy products, if they align with health and dietary concerns.

For egg, health was assumed by most participants, while tactile experience, taste, and convenience were all motivators for consumption.

Participants tended to examine the health benefits of eggs less closely, leaving room for them to index on what mattered more to them between convenience and the pleasure they get from eggs.

Dairy and egg: What is appealing about them, and what matters most?

Dairy

Health presented as the underlying motivator for most participants, with taste serving as an entryway.

Different products have different meanings

Participants perceived cheese as the indulgent option, with trade-offs made on price and/or nutritive value. They largely saw milk and yoghurt as functional and bought for the home with less experimentation and higher expectations around nutrition and health.

Priorities change based on the occasion

Participants' concerns around "processed" or "unhealthy" foods were diminished when dining in restaurants or when out of the home. In these situations, taste, pleasure, and convenience took precedence for most.

Consumers are driven to explore new tastes and textures

Diversifying the food sources, tastes, and textures they experience were all motivators for participants to try new foods, especially plant-based options.

Cheese means pleasure

"When it comes to cheese, there is a big aspect of pleasure, it makes my mouth water... I used to eat a lot of it."

– Male, 25, vegan, France

Convenience and taste trump health on some occasions

"It's just important to me that it's natural, it hasn't been mucked around with. Saying that, I do sometimes buy the milkshakes and things like that on the go."

– Female, 62, flexitarian, UK

Regularly trying new things

"If something did stand out to me, a certain type of packaging or a promotional offer, I'd definitely look, and often I buy... Each week I'm buying at least one new thing to try."

– Male, 24, omnivore, UK

Dairy and egg: What is appealing about them, and what matters most?

Egg

Health was assumed by most participants, while tactile experience, taste, and convenience were all motivators for consumption.

Presumed to be healthy

Cholesterol was no longer a concern for most participants globally, and most saw eggs as an adequate form of protein.

Packs a protein punch

"When you exercise, you appreciate eggs even more. You realise how much protein they contain."

– Male, 22, omnivore, Spain

A symbol of convenience

Most participants felt cooking an egg is easier and quicker than cooking meat, especially since it can be prepared ahead of time to make a quick snack or on-the-go meal.

Cooking eggs faster than cooking meat

"It's fast to cook if I don't feel like going to the market or going to the meat market."

– Male, 32, omnivore, United States

Can spur a sensual or emotional experience

Many participants viewed yolks as the enjoyable part of eggs and the whites as functional but mostly unenjoyable. Together, the yolk and white produce a gestalt, epicurean experience for many, even playing a role in how love is expressed (eg, asking family "how do you want your eggs cooked?").

The taste of egg is important

"I'm picky about eggs... I buy eggs because I want the yolks to be rich and you know, the chickens to have eaten crickets or whatever it is, I like eggs and I want to have a good egg."

– Female, 41, omnivore, United States

Dairy and egg: What is appealing about them, and what matters most? | Market perspectives

France: Indulgent options have their place in a healthy meal

A well-balanced diet is important in France, but there is place for indulgence – specifically with butter and cheese.

"Cheese and yoghurt are not the part of the meal that has to respect vegetables and carbs in certain proportions, it comes afterwards, so when it's about a moment of pleasure, taste is very important."

– Female, 39, flexitarian, France

Spain: Diet ensures health while taste drives regular consumption

A varied Mediterranean diet is perceived as essentially healthy, and some participants preferred functional, tasty dairy like yoghurt or cheese.

"I follow a fairly standard diet... the Mediterranean one, albeit with some excesses... I try to maintain a balanced diet. I eat a lot of cheese and eggs and lots of nuts as well."

– Female, 40, flexitarian, Spain

Germany: Labels are important

Free-range eggs are largely the norm in Germany and are also perceived to be equivalent to organic.

"I pay a higher price for free-range eggs but not organic eggs because I don't see, taste, or feel a difference that justifies the nearly double price."

– Female, 40, flexitarian, Germany

US: Dairy is central to southern comfort food

In some US regions in particular, dairy plays a central role in "traditional" cuisine. For example, classic "southern comfort food" dishes contain a lot of dairy.

"Dairy is huge, I would say in the South everything has dairy. Mac and cheese has dairy. The chicken could be breaded in buttermilk."

– Female, 22, omnivore, United States

Dairy and egg: How do environmental and animal welfare concerns come into play?

Dairy isn’t intuitively tied to environmental concerns like meat is.

Participants were less likely to associate dairy with environmental impact as compared to conventional meat, though animal welfare concerns were more prominent.

Egg is even less tied to environmental concerns than dairy.

Some participants seemed to seek out labels promoting environmental benefits or animal welfare more as signals for taste and quality than as a way to align their purchasing decisions with their ethical standards.

Dairy and egg: How do environmental and animal welfare concerns come into play?

Dairy

Isn’t intuitively tied to environmental concerns.

The perceived environmental impact of dairy and meat are not the same

Participants were less likely to associate dairy with environmental impact compared to conventional meat and therefore less likely to think giving up or reducing their dairy consumption will have an impact on the environment.

Animal welfare is of higher concern than climate change when it comes to dairy

More than climate change, animal welfare was mentioned as a concern associated with dairy among all dietary groups that participated (vegans, vegetarians, flexitarians, and omnivores).

Thoughts of cutting out meat but not dairy

“If I was to cut down on red meat in particular, then I feel like I’m doing my part. I don’t want to go full [vegetarian]. I feel like I’m doing my part anyway as it is. It is more a meat aspect, as opposed to dairy.”

– Male, 24, omnivore, UK

Realising that being milked is painful

“Since having my little girl and trying to breastfeed at the beginning, I think that I now just think, gosh, it must be painful for [cows] being milked… That crosses my mind.”

– Female, 33, vegetarian, UK

Dairy and egg: How do environmental and animal welfare concerns come into play?

Egg

Even less tied to environmental concerns than dairy.

Free-range messaging resolves most animal welfare concerns

When participants perceived eggs as being produced by free-range chickens, commonly understood animal welfare issues were largely alleviated. Hen welfare was still important and closely considered by some, but not universally.

Free-range and local eggs are perceived to taste better

Participants reported seeking out rich, tasty eggs. They felt "free-range" and "local" signify good taste because they mean the chickens are living and eating in a way that produces a delicious yolk or there is a level of quality that will improve taste.

Organic is not worth the added cost to most

Some participants distrusted commercial organic products, and some shared a sentiment that organic products are too expensive and don't elevate taste as compared with free-range eggs.

Free-range means more for eggs than meat

"I prefer to choose... the eggs from chickens that have been raised freely in a field. It's clear to me. [Free-range] influences my purchasing decisions more when it comes to eggs compared to meat and dairy products."

– Male, 22, omnivore, Spain

Free-range yolks are seen as tastier

"It must not be a coincidence that the better-looking yolks are from eggs that are free-range or from hens that are kept in better conditions rather than caged eggs that tend to have a duller yolk."

– Female, 27, flexitarian, UK

Many would buy organic if on sale

"I would buy organic if the price difference wasn't significant or when it's on discount. But normally 99% of the time I just go for the free range, whatever brand it is."

– Female, 27, flexitarian, UK

Dairy and egg: How do environmental and animal welfare concerns come into play? | Market perspectives

Germany: Meat reduction is closely tied to climate change; dairy reduction isn't

In Germany, some consumers had reduced their meat consumption to help tackle climate change but had not taken the same approach to dairy or egg consumption.

"I am a flexitarian… because this is an easy way to contribute to prevent climate change. I have not reduced eggs or milk [consumption], however."

– Male, 34, flexitarian, Germany

UK: Animal welfare is a factor when choosing dairy products; brands that have good animal welfare practices are associated with higher-quality dairy and egg

Participants also expressed a need to support British dairy farmers, who are perceived as having higher animal welfare standards.

"Sometimes I think actually, I don't want to buy [dairy products] because of where they're from because I'm worried about the animal welfare elsewhere, and I think the UK has generally good animal welfare standards."

– Female, 62, flexitarian, UK

Dairy and egg: How is the idea of precision fermentation perceived?

With PF dairy, participants expressed feeling at a loss to understand “what is it?”

While knowing what the raw ingredient is in PF dairy was important to many participants, some felt they didn’t even know what questions to ask to address their confusion about it.

With PF egg, participants had a slightly stronger grasp on what questions to ask to gain understanding.

Similarly, participants wanted to know what PF egg is composed of. However, compared to PF dairy, many participants had more concrete questions to guide them towards comprehending it, with many jumping to ask “is it ‘real’ egg?”.

Dairy and egg: How is the idea of precision fermentation perceived?

Dairy

Participants expressed feeling at a loss to understand “what is it?”

Process questions stem from health concerns

Participants’ questions were frequently associated with a need to understand the manufacturing process, as well as a need to understand the ingredients used, to evaluate products’ potential health impact.

Need to understand the origin

“I struggle with visualising the ‘raw material’. That bothers me… because proteins don’t exist in isolation – meat contains protein, fish contains protein, but just protein, I don’t understand where [the protein] comes from, so I can’t see the source of it. Where will they find this protein? What is the base material?”

– Male, 32, omnivore, France

Different concerns with plant-based vs animal-based

The ethical criteria or health concerns that participants grappled with changed whether the product they were considering was plant- or animal-based. The need to categorise seemed to come from participants’ need to determine whether they should worry about things like factory farming ethics, antibiotics, or even casein (for vegans), over pesticides.

Health concerns over real dairy made without animals

“The whole ‘real dairy that’s animal-free’ confuses me… Is it artificial? With ‘real dairy’, I’d assume it came from an animal, so I’m really confused. If it’s real dairy, how is it made – because if animals were involved, do I really want to put that into my body?”

– Male, 37, vegan, UK

Dairy and egg: How is the idea of precision fermentation perceived?

Egg

Participants had a slightly stronger grasp on what questions to ask to gain understanding.

Real or not?

When reacting to descriptions of PF egg, many participants assumed it could only be either a "real" (ie, conventional, animal-based) egg or artificial. Many did not realise there was a need or an ability to produce eggs in a different way.

Fermentation is more of a turn off with eggs

Consumers typically associate fermentation with beer and other liquids, allowing participants to connect it to dairy more easily. However, many participants struggled to connect what they know about fermented products with eggs, and it therefore was a more obvious turn off to them.

As an ingredient, participants were less likely to think about how it's produced

The considerations that participants cited bringing into purchasing eggs (whether they're free-range or "local") did not apply when making product purchases that contain eggs such as baked goods or mayonnaise. Some admitted to not knowing if the products they purchase contain eggs at all.

PF isn't "authentic", so what's the point?

"I would tend to think that this probably doesn't have the same taste, because it's not authentic. When we already have something good when it's raised in good conditions, I don't see why we would need this."

– Female, 42, flexitarian, France

Fermentation associated with a lab

"It doesn't sound very appealing to me. For me, the word 'fermentation' just doesn't sound like something I'd want to eat … [it reminds me of] a test tube."

– Female, 27, flexitarian, UK

More acceptance in end products

"It's important to see how it's presented. I think that in a processed product I would accept it much more than in a product that I would use to cook with at home."

– Male, 28, omnivore, France

How is the idea of precision fermentation perceived? | Market perspectives

France: Knowledge of the production process can help assess "authenticity"

The "authenticity" of dairy products (seen as pure, tasty, and natural) is important in France and is connected to heritage and traditional ways of making dairy products.

"Is it made in a lab, something chemical? ... I would also be worried whether it might be... something that we discover years later that it's not good for health because it's not natural."

– Female, 41, flexitarian, France

US: Consumers look for specificity in ingredients

Many participants expressed the need to recognise and understand the ingredients to be able to "categorise" the product.

"Telling me this is not from an animal isn't enough. I need to know what kind of milk it is, like almond, oat milk? Adding 'precision fermentation' doesn't change my [understanding]."

– Female, 52, omnivore, United States

Germany: Consumers need to be able to compare and choose

Decision making around new foods is tied to a very individual negotiation process around health, taste, and external impacts like climate change or animal welfare.

"I would like to know what this is. Is it vegan or not? What is the animal part in this?"

– Male, 27, vegan, Germany

Spain: Trust in EU approvals increases trust in novel foods

Trust in the EU approval process influences what consumers consider healthy but does not eliminate concerns around ultra-processed foods and additives. However, concerns around novel foods would largely be resolved if they passed EU approval.

"I think that if it's being sold to the public, it must be for a reason. I don't think they're going to sell something that's not fit for human consumption, come on!"

– Male, 24, omnivore, Spain

Research findings

Research findings
a. key challenges

Photo: Onego Bio

Findings

Our research showed that deep, emotional attachment to food culture underpins consumer behaviours with egg and dairy.

Expectations about animal milk are entrenched, and across markets, they are mostly viewed as healthy, natural and wholesome. Dairy and egg also hold personal significance for most consumers and are associated with fond memories from childhood.

On the cultural level, popular narratives, media and public health slogans around animal milk have shaped attitudes towards it. Plus, consumers are grappling with a noisy, crowded marketplace with several new product categories vying for their attention.

These consumer-lived realities set the context for how perceptions around new products like PF dairy and egg are formed and how habits around them can change. Throughout this project, we asked participants to reimagine how they eat these foods and feed their families.

Our findings revealed four key challenges:

A new realm

Participants tended to categorise food into plant- or animal-based and didn't instinctively consider other food kingdoms.

An information paradox

Participants wanted to understand what precision fermentation was, but they didn't want to hear too much detail about the science behind it.

Secondary benefits

The benefits offered by PF-made foods are not yet core drivers of purchase for participants.

To make PF dairy and egg products understandable, appealing, and differentiating for mainstream consumers, the sector could address these challenges by:

- **Building trust through clarity around PF-made foods.**
- **Communicating the health benefits via the "free from" logic.**
- **Communicating the environmental benefits of PF-made foods.**
- **Taking advantage of curiosity about new foods.**

The new realm

Participants tended to divide the world of food into two realms – animal and plant – but precision fermentation doesn't fit into this framework.

The two worlds

- Participants largely believed they need to be able to categorise foods as either animal- or plant-based.
- Something other than an animal- or plant-derived process for making food is a new space and was often viewed by participants as "artificial", chemical, or ultra-processed.

As consumer awareness and education around newer food categories grow, the sector could consider researching how consumers respond to messaging that explains, just as people look to plant, animal, and fungi (mushroom) kingdoms for food, additional kingdoms could also help produce ingredients and products people know and love.

Taking advantage of curiosity about new foods

High openness and curiosity from consumers towards newness is a prime entryway for PF dairy and eggs into households, if the price is comparable. More than half of participants indicated they would try PF dairy and egg if they felt clear and confident about what they are, if they were given them for free or if they were made by a friend.[4]

Participants indicated that competitive pricing would be another central factor, alongside personal recommendation and understanding of the product, in their decision to try PF dairy and egg.

Because final PF products will also contain other ingredients, often from plants, companies can also lean into the familiarity and benefits of all elements of the finished product.

"So now are you telling me that I will have a third option [of food] that is not from animals or plants? Now I need to think about microorganisms?"
– Male, 53, flexitarian, Spain

"I feel like something that wasn't possible became possible because you get animal protein without touching an animal – you can't grow milk, and here you have!"
– Female, 39, omnivore, France

4 Refer to pp87-88 in the Appendix for a more detailed overview.

An information paradox

Participants wanted to know what precision fermentation is, but they found the full, scientific explanation confusing and off-putting.

- A clear and simple explanation of the process that helps consumers understand what it's made of is key.
- For many, taste is the final frontier and descriptions can only do so much to persuade them to embrace the product.
- Trying to understand technical details of the process, especially at the point of purchase, doesn't inspire appeal or confidence.
- Scientific language made it difficult for participants to categorise PF-made food and also brought up unfounded safety and health concerns.

Building trust through clarity around PF-made foods

Given participants' need to understand what PF-made foods are, it is important to deliver on clarity by using familiar names and appropriate descriptions. Consumers trust what they know and are generally familiar with animal- and plant-based foods. Precision fermentation is not familiar to most, and names often confuse consumers without process descriptors and further communication. Furthermore, consumers are often hesitant to engage with unfamiliar-sounding food (eg, precision fermentation-made products). To create trust and lay the foundation for widespread desirability, the sector could consider building clarity through:

- Simple and familiar language in naming.
- Describing what PF is with medium levels of detail.[5]
- Communicating (beyond the name and process description) the idea that PF products can be healthy (subject to necessary evidencing by the industry).
- Messaging that covers the benefits of the products being "free from" elements like hormones to differentiate them positively from other categories.

"I can eat it if I don' t know what's in it, but then [if] you give me this scientific stuff, then [I think] 'I actually don't want to eat this anymore.' … More information is probably going to make me want to eat it less."
– Female, 29, omnivore, United States

5 Refer to p62 for a more detailed overview.

Secondary benefits

PF-made foods might be good for animals and the planet, but most consumers prioritise other benefits.

- Many participants expressed that existing food products already meet their needs.
- Health, nutrition, taste, and price were participants' main purchase drivers, ahead of sustainability and animal welfare concerns.
- Sustainability benefits can serve as an important secondary purchase driver for omnivores, if backed up by facts.

First and foremost, companies should emphasise the primary drivers that motivate consumers to purchase – taste, price and nutrition. With these as the primary selling points, sustainability benefits can be presented as an additional reason to buy. While participants' primary concerns around PF-made foods related to health, taste and price, the sector could tap into secondary desires for foods that help mitigate the climate crisis.

Participants found benefits concerning the environment (eg, saving water, resources, and animal welfare) the second most compelling factor of PF-made foods after health. The net appeal of these benefits was 55% on average.[6]

However, many participants did not appear to be highly aware of the environmental impact of dairy and egg production. To cater to consumers' desire to contribute to a more sustainable world, PF dairy and egg producers could consider messaging covering how PF-made products help to conserve scarce resources.

"There's a lot of vegan alternatives that already meet the planetary benefit concerns, so I think this is unnecessary."
– Male, 61, vegetarian, UK

"It would be nice to learn in data and facts in what sense this is better for the environment."
– Male, 25, omnivore, Germany

"The nutritional concerns make me suspicious. I might still try it once."
– Male, 30, flexitarian, United States

6 Refer to p90 in the Appendix for a more detailed overview.

Research findings
b. nomenclature

Naming options tested

UK and US	France	Germany	Spain
Animal-free	Non-animal(e)	Tierfrei	Sin origen animal
Non-animal	Sans élevage animal	Ohne Tierhaltung	Sin ganadería
Made with microflora	Élaboré(e) à partir de microflore	Hergestellt aus Mikroflora	Elaborado a partir de microflora
Made from precision fermentation	Obtenu(e) par fermentation de precision	Hergestellt durch Präzisionsfermentation	Elaborado por fermentación de precision
Made from fermentation	Obtenu(e) par fermentation	Hergestellt durch Fermentation	Elaborado por fermentación
Cultivated	Cultivé(e)	Kultiviert	Cultivado/cultivada
Precision-brewed	Obtenu(e) par brassage de precision	Hergestellt durch präzises Brauen	
Precision-fermented		Mikrobengebraut	Cuidadosamente elaborado
Microflora-made		Microbe-brewed	
Fermentation-made			

- Names in black were tested in all five markets
- The variations in blue were only tested in the UK and the United States as there was less tangible difference when translated into the other languages
- The two terms in yellow were tested in Germany only because they were under consideration by German PF companies
- The term in red was tested in Spain only

Adapting translations to cultural and linguistic contexts

When translating naming options from English, efforts were made to find translations that were most adapted to cultural contexts and most closely associated in meaning with the English counterpart.

A first version of translations was carried out by an external survey provider and checked for accuracy and cultural relevance by native speakers from both Accenture and GFI. Industry stakeholders from France, Germany, and Spain also helped vet the naming options to ensure relevance and accuracy before use in the quantitative survey.

"Made from precision brewing"

In certain markets, it was difficult to arrive at a direct translation of this name. In Spain, the term "made from precision brewing" was best translated into Spanish as "elaborado a partir de fermentación de precision". However, this phrase was unsuitable for testing as it was already in use as a translation for the term "made from precision fermentation". The Spanish phrase "cuidadosamente elaborado" – literally translated as "carefully crafted" – was tested as an alternative for "made from precision brewing".

"Animal-free"

"Animal-free" was translated as "non-animal(e)" in French, "tierfrei" in German, and "sin origen animal" in Spanish. In the French case, the literal translation of "animal-free" would be "sans animal", however this phrase was not aligned with common usage and therefore the phrase "non animal(e)" was considered a more appropriate option.

Across all markets, the various translations of "animal-free" are taken to mean a product without animal ingredients.

"Non-animal"

"Non-animal" was translated as "without animal farming", as there is no direct translation of "non-animal" in French, Spanish and German.

In the English language, "non-animal" is taken to mean "not derived from animals" (distinct from "without animal ingredients") and there is no need to clarify this meaning with reference to animal farming. The two groupings hold as two related but distinct linguistic positions.

Key quantitative survey takeaways

Subjective associations before knowledge of the PF process

- "Animal-free" was most associated with being sustainable, ethical, healthy and natural.
- "Animal-free" was most likely to be associated with plant-based foods. However, once participants were made aware of the PF process, it became differentiating from plant-based.
- "Made from fermentation" and "made from precision brewing" were associated with being innovative, healthy, natural and less likely to be associated with plant-based foods.

Objective measures of name appeal and differentiation after knowledge of the PF process

- "Animal-free" was consistently rated the most appealing name and considered the most effective name at differentiating PF dairy and egg products from conventional and plant-based equivalents. It was also the name participants said they would be most likely to use socially.
- Names such as "made from precision fermentation", "made from fermentation", and "made from microflora" generally performed poorly on appeal.

Simple explanations of what PF products are should be provided when introducing consumers to the category.

Clarity is better established when consumers receive messaging that identifies product benefits and key descriptors to help them answer the "what is it?" question.

Subjective associations[7] before PF process knowledge

"Animal-free" was subjectively perceived by survey respondents to be the most associated with being sustainable, ethical and healthy.

The question below was asked before respondents received any information about the PF process and how PF-made products are different from their conventional or plant-based counterparts.

Q1: We're going to introduce some names that could be used for new kinds of dairy and egg products (eg, milk, cheese, ice cream, egg whites). Please select all terms that you would associate with each name.

The findings shown are a result of subjective probes based on single word associations to naming options.

"Animal-free" received 4% Associated Net Positivity[8] (ANP)

Participants associated the name "animal-free" with terms like "sustainable", "ethical", and "healthy".

"Made from fermentation" received 2% ANP

"Made from fermentation" was associated with the term "natural".

"Made from precision brewing" received 1% ANP

"Made from precision brewing" was tied to the term "innovative".

Terms with negative ANP

Names such as "made from microflora" (-3% ANP), "made from precision fermentation" (-4% ANP), and "microbe-brewed" (-14% ANP, Germany only) were associated with with terms like "artificial", "lab grown", and "unhealthy".

7 Refer to pp77-78 in the Appendix for a detailed view of the subjective word associations tested.

8 Net positivity is a subjective measure calculated by subtracting the average percentage of consumers who selected what may be considered negative associations from the average percentage of consumers who selected what may be considered positive associations. For more details, refer to pp77-78.

Measured appeal:[9] animal-free

"Animal-free" was ranked by survey participants as the most appealing name when it came with an explanation of the process.

- When participants received information about the PF process,[10] "animal-free" was the highest-ranked name in all markets except France.
- "Cultivated" and "made from precision brewing" were generally more appealing when compared to names such as "made from precision fermentation", "made from fermentation" and "made from microflora".
- Scientific naming options such as "microflora-made" and "made from precision fermentation" consistently performed lowest in terms of appeal in all markets.

Note: When using "animal-free" as a name for PF-made products, it's essential to provide consumers with information on the PF process to avoid confusion around allergen information and differentiate from plant-based products.

Educating consumers about how these products are made can help them understand that these products are made without using animals but contain real animal proteins.

When participants received a brief, clear explanation of the PF process, they became more open to trying the product as they were better able to understand its origins and assess its benefits and flaws.

"It reminds me of soy milk, which also doesn't contain animals."
– Male, 23, omnivore, Spain

"It's still contradictory. If we just walked into a supermarket and we saw that and you go well, is it made with milk or not? Is it animal-free or not? It seems to contradict itself."
– Male, 65, omnivore, UK

"I need to know whether this is plant-based or animal-based, so that I can watch out for what unhealthy ingredients or processes to look out for."
– Female, 49, omnivore, United States

9 For a more detailed overview of the survey results around measured appeal, refer to p79.

10 PF process descriptor provided in Q2: "The process uses an innovative form of fermentation in some wayssimilar to brewing beer. The process encodes microorganisms with milk or egg DNA to produce the same proteins you'd find in cow's milk or chicken eggs, without using animals. These proteins are used in dairy and egg products made in a new way."

Measured appeal:[11] other naming options

After "animal-free," the best performing term in most markets after survey participants received information around the PF process was thematically similar: "non-animal".[12]

- In Germany, the UK and the United States, participants ranked "non-animal" as the second-most appealing term presented.
- In Spain, "cuidadosamente elaborado" – roughly translated as "carefully crafted" – tied with "animal-free" for top appeal.
- France was the only market in which "animal-free" did not rank as the most appealing; French participants ranked "non-animal" the highest followed by "made from precision brewing".
- In France and Spain, "made from fermentation" performed relatively well on appeal likely due to associations of fermented foods as healthy in these markets, especially with the current popularity of probiotic yoghurts.

The worst-performing terms after survey participants received an explanation of the PF process were those that used more scientific or technical language about the fermentation process.

- In the United States, "microflora-made" was ranked the least appealing and, in the UK, "fermentation-made" ranked the lowest.
- While fermented products have a health halo in France in Spain, "made from fermentation" brought up taste concerns with participants in the UK and the United States.
- In Germany, participants ranked "microbe-brewed" as the least appealing term presented.
- In Spain and France, "cultivated" performed worst in terms of appeal.
- Adding "brewing" boosted appeal for UK and US participants, with terms like "precision-brewed" and "made from precision brewing" achieving higher appeal than terms that included "fermentation".

"Fermentation sounds good to me, I associate it with beer. I think it's all right for a product like beer or milk."
– Male, 23, omnivore, Spain

11 For a more detailed overview of the survey results around measured appeal, refer to p79.

12 PF Process Descriptor provided in Q2: "The process uses an innovative form of fermentation in some ways similar to brewing beer. The process encodes microorganisms with milk or egg DNA to produce the same proteins you'd find in cow's milk or chicken eggs, without using animals. These proteins are used in dairy and egg products made in a new way."

Measured differentiation from other categories[13]

"Animal-free"

- 50% net effectiveness for differentiating from conventional products.
- 42% net effectiveness for differentiating from plant-based products.
- Although we found "animal-free" had the most potential for category confusion among participants without prior knowledge of the PF process – 26% associated "animal-free" with plant-based products[14] – this perception changed after participants received information about the PF process.
- After providing participants with an explanation of the PF process, "animal-free" and "non-animal" were the most effective at differentiating PF dairy and egg from conventional and plant-based dairy and egg.

"Made from fermentation" and "made from precision brewing"

- 25% net effectiveness for differentiating from plant-based products.
- 23-24% net effectiveness for differentiating from conventional products.
- After participants learned about PF, "made from fermentation" and "made from precision brewing" became closely tied as the second-most differentiating identifiers after "animal-free".

"Cultivated"

- 19% net effectiveness for differentiating from conventional products.
- 21% net effectiveness for differentiating from plant-based products.

13 For a more detailed overview of the survey results around measured differentiation, refer to p80.

14 Refer to p77 for a more detailed overview.

Simple explanations create clarity

A simple explanation of what PF products are creates clarity and when introducing consumers to the category.

Clarity

Given the novelty of PF products to most participants, naming alone cannot answer the "what is it" question, which emerged as a crucial barrier from the consumer perspective during the qualitative phases.[15]

Simplicity

A simple explanation of the PF process, using familiar words and a moderate amount of detail,[16] helped participants better understand the name.

Differentiation

Prior knowledge about the PF process increases both appeal and differentiation of the naming options tested, thus reducing confusion around the "new realm" (see p44).

Unfamiliar words and phrases were perceived as "scientific" and failed to persuade participants.

"[Brands] should remove precision fermentation [from the label] as I have no idea what it is – I'd have to look it up."
– Male, 32, omnivore, Spain

"['Culture-made milk protein'] sounds vague. It just reads like 'We're going to put a few science words here, and no one's going to think twice about it', but it doesn't actually give me any new information to help me decide to buy."
– Male, 27, vegetarian, United States

15 Refer to p37-40 for a summary of the qualitative insights that support this claim.

16 Refer to p60-63 for a more detailed overview.

Ingredient names and social use

Ingredient names[17]

Survey participants preferred ingredient names to be short and simple with a name in front of the ingredient and nothing following it (eg, “animal-free whey protein” as opposed to “animal-free whey protein made from precision fermentation”). This was true for all markets except France, where they preferred none of the options shown.

Social use of terms[18]

When survey participants were asked which names they could imagine using personally when discussing these products with friends or family, “animal-free” was again found to be the most likely to be used socially across all markets except France, where “non-animal” or “sans élevage animal” was narrowly preferred to “animal-free”.

In round one of the co-creation groups, participants were shown the ingredients of a bottle of PF milk that contained 80% water. Participants’ immediate reactions converged around why water was the main ingredient when they were looking to buy milk. Questions were also raised around the presence of sugars and salt in milk.

This suggests that participants attached great importance to ingredient lists to assess whether their expectations of the food in question – around quality, healthiness, nutritional value, and categorisation – were likely to be met.

17 For a more detailed overview on preferred ingredient name arrangements, refer to p81 in the Appendix.

18 For a more detailed overview on the social use of terms, refer to p82 in the Appendix.

Top names by market

France

Appeal: “sans élevage animale”

Differentiation: “sans élevage animale”

Social use: “sans élevage animale”

Ingredient name: none of the options shown

Germany

Appeal: “tierfrei”

Differentiation: “tierfrei”

Social use: “tierfrei”

Ingredient name: “tierfreies molkenprotein”

Spain

Appeal: “sin origen animal” and “cuidadosamente elaborado”

Differentiation: “sin origen animal”

Social use: “sin origen animal”

Ingredient name: “proteína de suero lácteo sin origen animal”

UK and United States

Appeal: “animal-free”

Differentiation: “animal-free”

Social use: “animal-free”

Ingredient name: “animal-free whey protein”

Research findings
c. messaging

Photo: Formo

Key quantitative survey takeaways

Communication of key messages

- An explanation of the PF process with a medium level of detail[19] was found to be the most appealing across all markets but Spain, where more detail was preferred.
- “Without using animals” was the most appealing element of the explanations tested across four of five markets.

Appeal of the PF category

- Survey participants found PF dairy products to be more appealing than unappealing on average. PF egg was found to be marginally more appealing than PF dairy.
- More than half of survey participants said they would try PF dairy and egg products, if given a free sample or if someone else prepared it for them.

Messaging around benefits

- Knowledge of the benefits significantly increased appeal of PF products.
- Health was the primary benefit that participants engaged with when it came to trying PF-made foods.

19 Refer to p61 for the three levels of detail used in the PF explanations provided to survey respondents.

Explaining the PF process

Level of detail in the PF explanation

A key objective of this project was to explore appealing ways to explain and describe the process of making foods using precision fermentation.

During the research, we found that there was a fine balance to be struck between providing information that was factually correct and descriptive without providing too much technical detail, which might deter or confuse consumers, while keeping interest high enough to lead to trial.

To explore this effectively with survey participants, we developed three versions of the explanation around the PF process. Each version had a different level of detail – low, medium, or high. Survey participants were shown these three options and asked which description would make them most likely to try the product.

Descriptions tested

Description one: low detail

"In this process, microorganisms convert sugars into proteins – providing the same proteins you'd find in cow's milk or chicken's eggs, but made without animals."

Description two: medium detail

"Just like brewing beer, this fermentation process uses microorganisms like yeast. In this case, microorganisms are programmed to produce specific proteins during fermentation, when they are fed sugars, which they convert into dairy or egg proteins, like whey or casein. These proteins are identical to what we'd find in milk or eggs but made without animals."

Description three: high detail

"The process is similar to brewing beer. When you make beer, you feed sugars to a microorganism like yeast. As the yeast digests the sugars, it produces alcohol. Then the spent yeast is separated and the liquid is consumed.

In this process, first, gene sequences for the proteins found in cow's milk or chicken eggs are introduced into a microorganism like yeast or fungi. These tell the organism how to produce specific proteins during fermentation.

Next, the organism is placed into a steel fermentor and fed sugars and nutrients to convert them into the desired protein, in the same way it would turn sugar into alcohol during beer production.

- Then, the proteins are filtered out from the rest of the broth and the organisms that created them, to produce a pure protein powder.
- Finally, the proteins are mixed with other ingredients like plant-based fats to create a finished product that is indistinguishable from an animal product, such as cow's milk or cheese.

This process has been used for decades to produce ingredients like vegetarian rennet for cheesemaking and is now being used to produce dairy and egg proteins too."

Process explanation findings

Survey participants found a moderate level of detail to be most desirable. While participants desired detail, they were deterred by lengthy or scientific explanations.

The medium-level explanation effectively offers:

- A light walkthrough of the process.
- Recognisable examples of host microorganisms.
- Recognisable examples of the ingredients produced.
- Confirmation that the produced ingredient is the same as the conventionally produced ingredient.
- Mention of the benefit that the ingredient is produced without animals.
- Some necessary explanation, but not so much that it becomes overwhelming.

Description two: medium detail

"Just like brewing beer, this fermentation process uses microorganisms like yeast. In this case, microorganisms are programmed to produce specific proteins during fermentation, when they are fed sugars, which they convert into dairy or egg proteins, like whey or casein. These proteins are identical to what we'd find in milk or eggs but made without animals."

- 32% of participants preferred the medium-level description across markets.
- 38% of participants in Spain preferred the high-level description.
- Participants in all markets apart from Spain found the description with the medium level of detail the most appealing.
- Participants in Germany, the UK and the United States showed slight skews towards the low-level detail description.

"Just enough detail for those of us who aren't chemists."

"It explains it but doesn't go into too much detail."

Testing individual components of an explanation

We also tested which **components[19] of the explanation were most appealing. Survey participants were shown the following explanation and asked to rate selected components on appeal.**

Full description with all components

"The process uses an innovative form of fermentation, in some ways similar to brewing beer. The process encodes microorganisms with milk or egg DNA to produce the same proteins you'd find in cow's milk or chicken eggs, without using animals. These proteins are used in dairy and egg products made in a new way."

- We found that "without using animals" was consistently the most appealing description component across all markets.
- The second most appealing component of the explanation was "produces the same proteins you'd find in cow's milk or chicken eggs".
- Scientific explanations such as "encoding microorganisms with milk or egg DNA" had net negative appeal across all markets, validating insights from the qualitative phases around scientific language being unappealing.
- There was more positivity across all components in Spain, whereas French participants were the least positive overall.

36%: Average appeal across markets of "without using animals" in the PF explanation

29%: Average appeal across markets of "produces the same proteins you'd find in cow's milk or chicken's eggs" in the PF explanation

19 For a more detailed overview of preferences around the components of the explanation, refer to p84 of the Appendix.

Appeal of PF dairy and egg

Across markets, survey participants viewed PF-made products as more appealing than unappealing in general and rated PF egg products marginally more appealing than PF dairy.[20]

Q6: Thinking specifically about dairy products like cheese and ice cream made in this way, based on what you now understand about these new products and how they're made, how appealing do you find them overall?

The net appeal of PF-made products to participants was positive, even before they were shown statements about their benefits.

- Net appeal was highest in Spain and lowest in France.
- Net appeal in Germany, the UK and the United States was relatively close to the five-market average for dairy, whereas for eggs, net appeal was 6% higher for UK participants.

Net appeal of PF eggs and dairy

	Net appeal PF eggs	Net appeal PF dairy
Spain	31%	29%
UK	23%	17%
US	18%	15%
Average	16%	15%
Germany	12%	11%
France	8%	2%

20 For a more detailed overview of preferences around the appeal of PF-made eggs and dairy, refer to p85-86 in the Appendix.

Appeal of PF dairy and egg: qualitative insights

PF acceptance may be easier with “convenience” products rather than whole foods.

Qualitative insights (pp25-27) showed that dairy had strong, deep-rooted connections with goodness, comfort, nutrition, and growth compared to eggs, which were seen as the more functional product. Additional qualitative insights based on round one stimuli showing different product types for dairy and egg found that participants were more reluctant to consider buying or consuming a bottle of PF milk, compared to a ready-made cake mix or pasta with PF egg as an ingredient.

This may be an indication that the functionality of egg as a product may lend it more easily to consumer acceptance as an ingredient in end products than standalone PF milk or egg whites.

For “whole” products such as animal milk, consumers may prefer to stick to the brands and products they know and may be less likely to try PF-made foods in this category.

“It’s also important to see how it’s presented. I think that in a processed product I would accept [PF-made ingredients] much more than in a product that I would use to cook with at home.”
– Male, 28, omnivore, France

Likelihood of trial

Half of survey participants indicated they were willing to try PF dairy and egg products if given a free sample or someone else prepared them.[21]

Q7: Still thinking specifically about dairy products like cheese and ice cream made in this way, based on what you now understand about these new products and how they're made, which of the following are you likely to do?

- *Try them if you were given a free sample or if someone else prepared it for you*
- *Substitute conventional dairy products with them at least some of the time*
- *Purchase them to prepare at home*
- *Add them to your diet (alongside conventional dairy products)*
- *Purchase a meal made with them at a restaurant*
- *Pay a higher price for them than conventional dairy products*
- *None of the above*

- When presented with seven possible behaviours (see left), survey participants were most likely to say they would try PF-made products if given a free sample or if someone else prepared it for them.
- Participants' likeliness to try free samples across both PF dairy and PF egg was highest in the United States and lowest in Germany.
- 20% of respondents across markets chose "none of the above" when presented with likely trial behaviours.

51% of participants across markets said they were willing to try a free sample of PF dairy.

59% of US participants said they were willing to try a free sample of PF dairy.

50% of participants across markets said they were willing to try a free sample of PF egg.

21 For a more detailed overview of likelihood of trial, refer to p87-88 in the Appendix.

Trial motivators

Health was the top reason for survey participants' interest in trying PF products.

Q10: Why are you interested in trying these products?[22]

Note: This question was asked of those who didn't select "none of the above" in the likely behaviours questions (Q7 on p66).

The top reason participants cited in Spain and the United States was health, while in Germany and the UK it was animal welfare, and in France the top reason was curiosity/novelty.

Environmental reasons ranked fourth on average across markets on the list of likely motivations for trial after health, curiosity/novelty, and animal welfare.

41% of those asked across all markets chose health as the top reason for trying PF products.

- **France:** 40% chose curiosity/novelty as the top reason.
- **Germany:** 45% of participants chose animal welfare as the top reason.
- **Spain:** 46% of participants chose health as the top reason.
- **UK:** 43% of participants chose animal welfare as the top reason.
- **United States:** 48% of participants chose health as the top reason.

22 For a more detailed overview of likely motivations for trial, refer to p89 in the Appendix.

Benefits messaging

Health was the most appealing benefit followed by sustainability.

Although all benefit messages had a positive impact on appeal,[23] "free from hormones and antibiotics" was the most compelling benefit statement in all markets except the UK, with 51% saying it made PF dairy and egg more appealing.

- In the UK, "without the need to farm or harm animals" was the most appealing benefit at 64%.
- Spain was the most positive market and showed the highest levels of net appeal for all benefits at 29%.
- Participants in the UK and the United States reacted most positively to the "same taste, smell and texture" message, at 63% and 61% respectively.
- Messaging focused on the ability to produce these products with lower greenhouse emissions and resources were also appealing and ranked after health.
- The least appealing benefit was "lowered risks of contamination by using clean controlled environments". This benefit still had relatively high average appeal at 51%.

All benefit messaging increased the overall appeal of PF products.

The "free from" logic in the benefit messaging was attractive in the co-creation groups and interviews as well, and several participants pointed out the benefit of the "free from antibiotics and pesticides" being a driver for purchase.

In the co-creation groups, several participants, especially in France, Germany and the UK, mentioned animal welfare as a marker of good quality and better nutritional value and considered it a criteria for purchase, especially in the case of eggs.

23 For a more detailed overview of benefit messaging, refer to p90-92 in the Appendix.

Understanding increases appeal of PF benefits

Informing consumers about the PF process helps increase the appeal[23] of its benefits.

Although not measured specifically in the survey, qualitative insights showed that participants were sceptical about the benefits of the products without having clear answers to questions around "the origin" of the protein. Without details of the process, participants perceived PF dairy and egg as "chemical", "unnatural", and "unhealthy". However, as soon as participants were given an explanation of the PF process in the second round of groups, the discussion around benefits was more engaging with more questions asked and trial considered. The explanation also increased understanding of the naming options.

In the survey, the questions about benefits appeared after the explanation of the PF process. The net appeal of PF products increased significantly after participants became aware of their benefits, indicating that providing context around the PF process before introducing the benefits makes the products more compelling.

30%: net increase in appeal of PF dairy products after participants received information about their benefits

25%: net increase in appeal of PF egg products after participants received information around their benefits

23 For a more detailed overview on the impact of benefit messaging on appeal, refer to pp90-92 in the Appendix.

Messaging preferences by market

	France	Germany	Spain	UK	United States
Level of detail in explanation	Medium	Medium	High	Medium	Medium
Component of explanation	“Without using animals”	“Without using animals”	“Without using animals”	“Without using animals”	“Produces the same proteins you’d find in cow’s milk or chicken eggs”
Trial behaviour	“Free sample or someone else prepared it for you”	“Free sample or someone else prepared it for you”	“Free sample or someone else prepared it for you”	“Free sample or someone else prepared it for you”	“Free sample or someone else prepared it for you”
Trial motivation	Curiosity/novelty	Animal welfare	Health	Animal welfare	Health
Trial benefit message	“Unlike many conventional animal products, these products don’t contain hormones or antibiotics.”	“Unlike many conventional animal products, these products don’t contain hormones or antibiotics.”	“Unlike many conventional animal products, these products don’t contain hormones or antibiotics.”	“These new products are just like the dairy and egg we eat today, but without the need to farm or harm any animals.”	“Unlike many conventional animal products, these products don’t contain hormones or antibiotics.”

Further questions for the sector

Following an iterative meta-analysis of all data and insights gathered throughout this project, wider strategic questions emerged beyond the scope of this research.

We present the strategic questions in this section as provocations that might guide further research and strategic prioritisation for the PF sector.

Which categories are best primed to introduce PF ingredients to consumers?

This research indicated that consumers appear to be more open to products where the PF ingredient is a part of a larger product (like egg pasta), rather than presented as a whole entity (such as milk).

Conducting further studies to test this more thoroughly, including testing whether it holds true across different product categories, could be helpful for determining how PF-made foods should be presented to consumers.

While our research focused on consumer appeal, it could also be helpful for B2B companies to conduct research into whether positioning PF-made foods as whole entities or ingredients affects uptake from the wider food industry.

Should PF-made products be positioned as entirely new products or as new ingredients within existing ones?

Does this decision change depending on the product in question (eg, milk as a drink versus within a pancake mix)?

Do these considerations vary across B2C versus B2B contexts?

How should the industry structure consumer journeys towards awareness, understanding, and adoption?

A key finding from this research was consumers need more information than just a name when being introduced to the PF category in order to build their understanding of the category and encourage adoption.

We also found that prior knowledge about the PF process improved understanding and appeal of nomenclature and benefit statements.

These findings indicate that consumer education about PF will need to expand beyond point-of-purchase labelling and brand advertising. It will also be essential to ensure consumers understand any potential allergen risks from PF-made products.

Conducting further research into how best to approach this could help the sector to develop effective communications strategies.

Is point of purchase the best place to introduce information about PF to consumers?

If not, what are other ways to introduce consumers to PF and its benefits? As individual brands and collectively?

Is there a need for different messaging approaches for different markets and consumer groups?

While this research sought effective language that could appeal to a broad spectrum of consumers, it could also be helpful for future research to focus on the different needs of certain groups and demographics.

We found some countries had different preferences for nomenclature and levels of detail in the description of precision fermentation, which indicates a potential need to explore more tailored messaging approaches for audiences depending on their cultural background and language spoken.

It will also be important to conduct further research to explore whether messaging needs to be adapted for consumers with particular dietary needs, such as allergies or religious requirements.

Should the naming, messaging, and benefits of PF be tailored to different markets or should there be a universal structure across the sector?

How should narratives vary across product packaging, marketing strategies, and awareness campaigns?

Is there a need for different messaging approaches for different consumer groups, such as those with allergies or other dietary requirements, or different generational groups?

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Appendix

Photo: Onego Bio

Subjective associations before PF process knowledge

- This question was asked **before** respondents received any information about the PF process and how products differ from conventional and/or plant-based products.
- "Net positivity" (of terms testing in multiple markets) was a subjective measure calculated by subtracting the average percent of participants who selected what may be considered negative associations from the average percent of participants who selected what may be considered positive associations.
- "Made from fermentation" and "made from precision brewing" also had net positive appeal across all markets.
- "Animal-free" also had the highest association with plant-based products (26%).

Q1: We're going to introduce some names that could be used for new kinds of dairy and egg products (eg, milk, cheese, ice cream, egg whites). Please select all terms that you would associate with each name.

	Spain only	Multi-market averages						Germany only	
	Cuidadosamente elaborado	Animal-free	Made from fermentation	Made from precision brewing	Cultivated	Made from microflora	Made from precision fermentation	Mikrobengebraut	Microbe-brewed
Sustainable	16%	17%	12%	11%	14%	12%	12%	9%	7%
Innovative	18%	16%	20%	24%	17%	19%	21%	15%	14%
Ethical	13%	17%	8%	8%	9%	8%	8%	7%	7%
Healthy	34%	17%	16%	14%	16%	15%	15%	9%	8%
Natural	28%	14%	21%	17%	19%	15%	16%	10%	9%
Artificial	12%	19%	16%	18%	20%	21%	20%	23%	27%
Lab-grown	12%	14%	19%	18%	21%	26%	25%	35%	32%
Unhealthy	4%	4%	6%	5%	5%	6%	6%	9%	10%
Plant-based (made from plants)	5%	26%	7%	5%	8%	15%	6%	5%	4%
Animal-based (e.g., from a cow or chicken)	10%	2%	7%	5%	6%	3%	5%	2%	2%
Not from plant or animal	2%	10%	5%	7%	5%	6%	6%	7%	5%
Other (please specify)	1%	0%	1%	1%	0%	0%	0%	0%	0%
None of the above	10%	12%	15%	19%	15%	15%	16%	17%	20%
Net positivity	12%	4%	2%	1%	-1%	-4%	-3%	-12%	-14%

“Animal-free” was the term with the highest “net positivity” score for associations without prior knowledge of the PF process

- This question was asked **before** respondents received any information about the PF process and how products differ from conventional and/or plant-based products.
- “Net positivity” is a subjective measure; an objective measure of appeal follows later in the survey.
- “Positive” associations included terms like “sustainable”, “innovative”, “healthy”, “ethical” and “natural”, while negative associations included “artificial”, “lab-grown” and “unhealthy”.
- “Animal-free” had the highest positive associations followed by “made from fermentation” and “made from precision-brewing”.
- Based on net positivity scores, we see varying degrees of positivity towards terms in different markets.
- Terms like “microflora”, “made from precision fermentation” and “microbe-brewed” had more negative associations.

Q1: We’re going to introduce some names that could be used for new kinds of dairy and egg products (eg, milk, cheese, ice cream, egg whites). Please select all terms that you would associate with each name.

Net positivity

	Average	France	Germany	Spain	UK	U.S.
Cuidadosamente elaborado	12%			12%		
Animal-free	4%	0%	4%	2%	7%	6%
Made from precision brewing	1%	3%	0%		0%	2%
Made from fermentation	2%	4%	-1%	3%	1%	1%
Cultivated	-1%	-1%	-2%	0%	-3%	2%
Made from microflora	-3%	0%	-8%	-2%	-3%	0%
Made from precision fermentation	-4%	-5%	-7%	0%	-2%	-4%
Mikrobengebraut	-12%		-12%			
Microbe-brewed	-14%		-14%			

“Animal-free” was the highest-ranked name in four of five markets

- This question was asked after respondents received information about the PF process and how products differ from conventional and/or plant-based products.
- The table shows the average ranking for each name in each market – these are not comparable cross-market as total options varied, but we can pick out the highest and lowest-ranking names in each market based on relative scores and color scaling.
- A darker green indicates a higher positivity ranking per market.

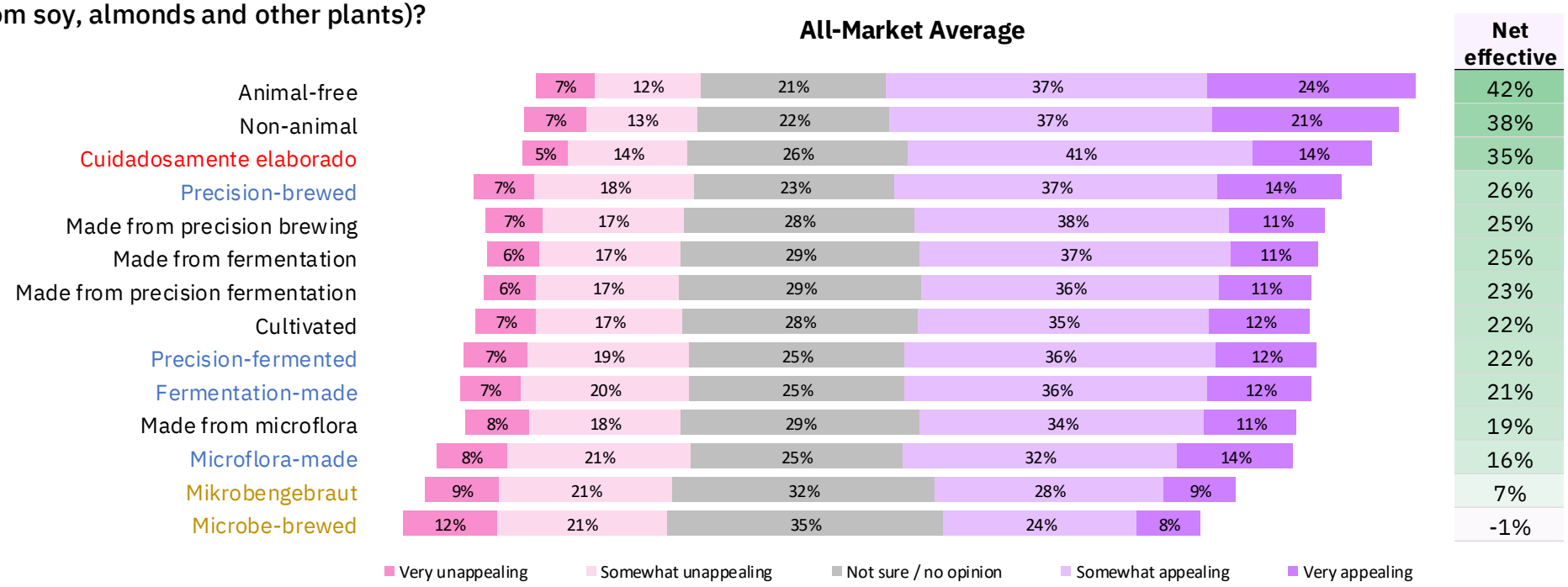
Q5: Which of the following names do you think sounds the most appealing for these products? (Rank in order of most to least appealing)

	Markets	France	Germany	Spain	UK	U.S.
Animal-free	All markets	4.2	3.7	3.3	3.9	**4.3**
Non-animal	All markets	3.6	3.8	4.4	4.8	**4.9**
Cultivated	All markets	4.5	4.6	4.5	5.7	**5.0**
Precision-brewed	*UK and US*				5.8	**5.3**
Made from precision brewing	All markets	3.7	4.7		6.0	**5.6**
Precision-fermented	*UK and US*				6.6	**6.1**
Made from precision fermentation	All markets	3.9	5.3	4.1	6.7	**6.4**
Made from fermentation	All markets	3.8	4.8	4.0	6.8	**6.6**
Fermentation-made	*UK and US*				7.0	**6.9**
Made from microflora	All markets	4.4	5.5	4.4	6.3	**7.3**
Microflora-made	*UK and US*				6.4	**7.5**
Mikrobengebraut	*Germany*		6.0			
Microbe-brewed	*Germany*		6.6			
Cuidadosamente elaborado	*Spain*			3.3		
	Total options	7	9	7	11	11

“Animal-free” was the most effective at differentiating from plant-based dairy and egg

- “Animal-free” had an average net effectiveness of 42%, with “non-animal” close behind at 45% – lower than their net effectiveness scores for differentiating from conventional products, at 50% and 45%, respectively.
- The two options mentioning “microflora” were again the least effective of those tested in multiple markets, while the two options that were only tested in Germany scored lowest overall.

Q13: How effective is each of the following names at making it clear this new type of dairy or egg is produced differently to plant-based dairy or eggs (e.g., products made from soy, almonds and other plants)?



As “cuidadosamente elaborado” was only tested in Spain in lieu of “made from precision brewing,” the all-market average figures for "made from precision brewing" do not include Spain.

Consumers preferred shorter, simpler ingredient names

- The three most appealing options, on average, were of the same format – a name in front of the ingredient with nothing following it.
- Despite the two German-only tested options following this format, they still finished bottom in terms of appeal in Germany.

Q20: Which of the following options for describing the key ingredient (such as "_____ whey protein" or "_____ egg protein") in these new products do you find most appealing?

	Average	France	Germany	Spain	UK	U.S.
Animal-free whey protein	**19%**	11%	21%	15%	28%	20%
None of the above	**10%**	15%	11%	6%	10%	9%
Non-animal whey protein	**10%**	11%	13%	6%	12%	10%
Cultivated whey protein	**7%**	6%	6%	5%	7%	12%
Animal-free whey protein made from precision fermentation	**6%**	6%	4%	9%	5%	7%
Animal-free whey protein made from fermentation	**6%**	6%	7%	8%	5%	4%
Animal-free whey protein made from precision brewing	**5%**	4%	5%	6%	5%	6%
Whey protein made from precision brewing	**5%**	4%	4%	7%	5%	4%
Non-animal whey protein made from precision fermentation	**5%**	6%	5%	6%	3%	3%
Whey protein made from fermentation	**4%**	6%	3%	5%	3%	4%
Non-animal whey protein made from precision brewing	**4%**	5%	4%	5%	2%	4%
Whey protein made from precision fermentation	**4%**	4%	2%	4%	4%	5%
Non-animal whey protein made from fermentation	**4%**	6%	5%	3%	2%	2%
Cultivated whey protein made from precision fermentation	**4%**	4%	2%	6%	3%	4%
Cultivated whey protein made from fermentation	**3%**	3%	3%	5%	2%	3%
Cultivated whey protein made from precision brewing	**3%**	2%	2%	4%	2%	4%
Mikrobengebrautes Molkenprotein	**2%**		2%			
Microbe-brewed Mikrobenprotein	**0%**		0%			

“Animal-free” is the name most likely to be used by consumers socially across all markets

Q14: Which of the following names can you imagine using personally, when discussing these products with friends or family?

	Average	France	Germany	Spain	UK	U.S.
Animal-free	**46%**	33%	46%	47%	52%	52%
Non-animal	**38%**	34%	44%	25%	42%	42%
Cuidadosamente elaborado	**27%**			27%		
Cultivated	**23%**	19%	20%	19%	24%	31%
Made from fermentation	**20%**	25%	20%	24%	13%	19%
Made from precision brewing	**20%**	24%	19%		14%	21%
Precision-brewed	**20%**				16%	23%
Made from precision fermentation	**18%**	21%	14%	23%	13%	19%
Made from microflora	**16%**	20%	15%	17%	17%	13%
Fermentation-made	**15%**				14%	15%
Precision-fermented	**15%**				13%	17%
Microflora-made	**14%**				17%	12%
None of the above	**13%**	18%	14%	9%	14%	12%
Mikrobengebraut	**10%**		10%			
Microbe-brewed	**6%**		6%			

A medium level of detail was preferred for process explanations

- When describing the process of precision fermentation, a medium level of detail was generally found to be most appealing.

Q3: Here are three descriptions of varying lengths describing these products and how they're made. Which description makes you most likely to try these products?

	Average	France	Germany	Spain	UK	USA
The least detailed description is the most appealing	**25%**	20%	32%	17%	29%	28%
The description in the middle is the most appealing	**32%**	34%	33%	29%	33%	30%
The most detailed description is the most appealing	**24%**	25%	17%	38%	18%	23%
I found them all equally appealing	**9%**	8%	8%	8%	11%	11%
Not sure	**9%**	13%	9%	7%	9%	8%

Testing individual components of a process explanation

- "Without using animals" was consistently the most appealing component of the explanation across all markets but the United States.

Q2: *"The process uses an innovative form of fermentation, in some ways similar to brewing beer. The process encodes microorganisms with milk or egg DNA to produce the same proteins you'd find in cow's milk or chicken eggs, without using animals. These proteins are used indairy and egg products made in a new way."*

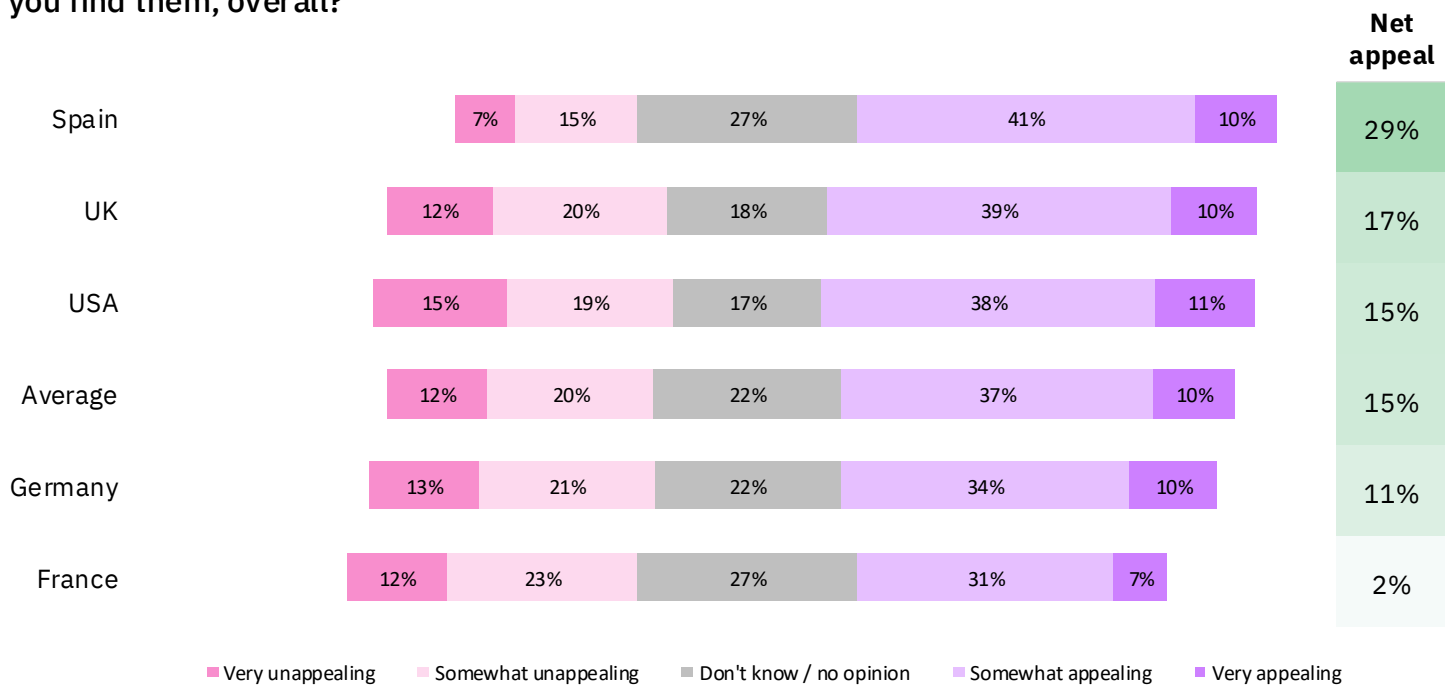
Rate the following components of the explanation on how appealing they are to you.

	Average	France	Germany	Spain	UK	U.S.
Without using animals	**36%**	30%	38%	36%	40%	33%
Produces the same proteins you'd find in cow's milk or chicken eggs	**29%**	15%	23%	33%	36%	36%
These proteins are used in dairy and egg products made in a new way	**18%**	12%	12%	26%	21%	20%
Similar to brewing beer	**17%**	12%	16%	28%	18%	10%
Innovative form of fermentation	**13%**	7%	7%	26%	13%	12%
Encoding microorganisms with milk or egg DNA	**-20%**	-30%	-23%	-1%	-22%	-24%

Appeal of PF dairy

- On average, more consumers think PF dairy products sound appealing (46%) versus unappealing (32%), giving a net appeal of 15%.
- Net appeal was highest in Spain, with 29% net appeal, while appeal was lowest in France, with marginally positive net appeal of 2%.
- Germany, the UK and the United States' individual net appeals were all relatively close to the five-market average.

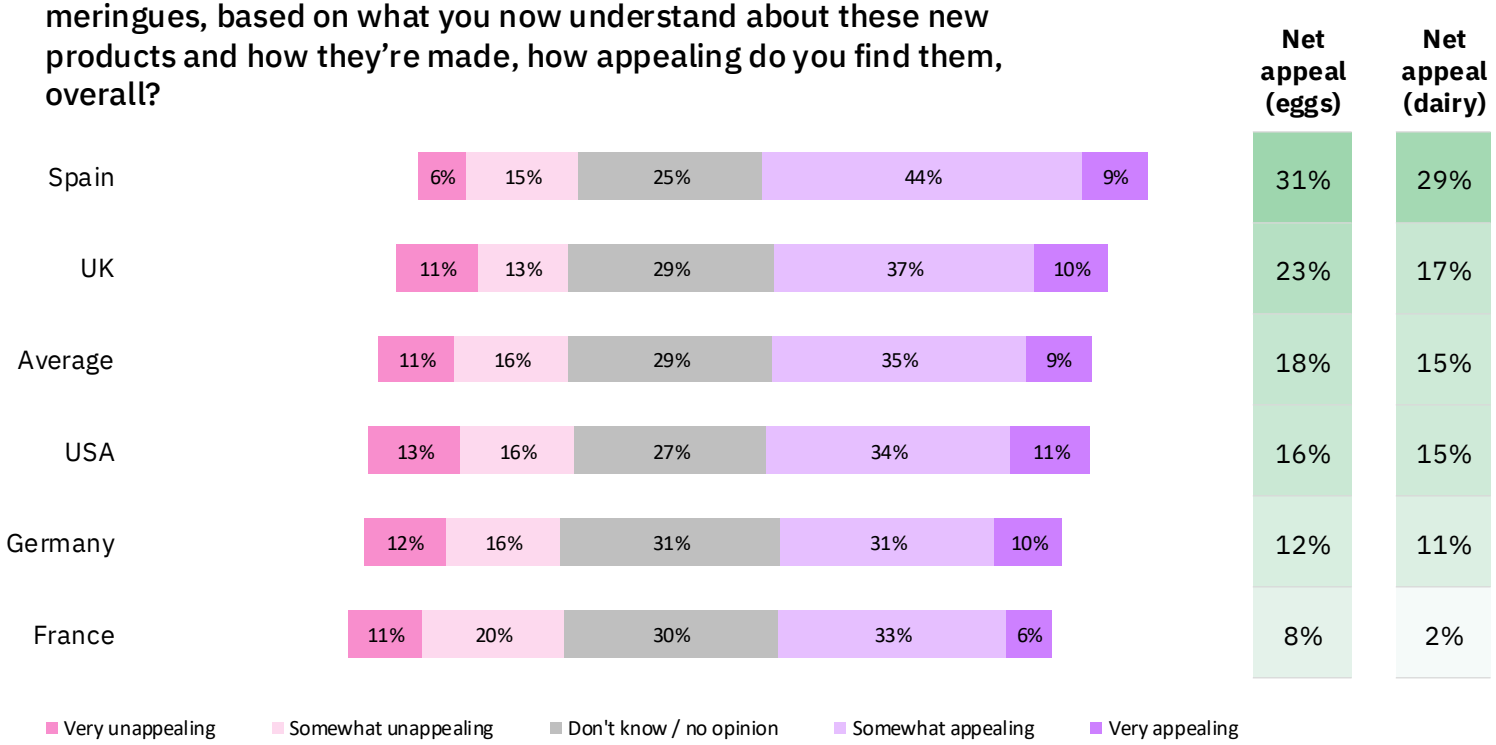
Q6: Thinking specifically about dairy products like cheese and ice cream made in this way, based on what you now understand about these new products and how they're made, how appealing do you find them, overall?



Appeal of PF egg

- On average across all five markets, net appeal for PF egg is 18%, which is marginally higher than for dairy (15%).
- Net appeal was once again highest in Spain, with 31% net appeal, and lowest in France, with 8%.
- All markets found PF egg a more appealing prospect than PF dairy, with the highest differences found in France (+6%) and the UK (+6%).

Q8: Now thinking specifically about egg products like egg whites and meringues, based on what you now understand about these new products and how they're made, how appealing do you find them, overall?



Likelihood of trial of PF dairy

Q7: Still thinking specifically about dairy products like cheese and ice cream made in this way, based on what you now understand about these new products and how they're made, which of the following are you likely to do?

	Average	France	Germany	Spain	UK	U.S.
Try them if you were given a free sample or someone else prepared it for you	**51%**	48%	44%	52%	53%	59%
Substitute conventional dairy products with them at least some of the time	**24%**	18%	28%	30%	23%	23%
Purchase them to prepare at home	**20%**	19%	23%	18%	20%	20%
Add them to your diet (alongside or replacing conventional dairy products)	**20%**	19%	21%	24%	20%	17%
None of the above	**18%**	19%	21%	11%	20%	19%
Purchase a meal made with them at a restaurant	**14%**	11%	14%	16%	15%	15%
Pay a higher price for them than conventional dairy products	**11%**	14%	10%	11%	10%	10%

Likelihood of trial of PF egg

Q9: Still thinking specifically about egg products like egg whites and meringues, based on what you now understand about these new products and how they're made, which of the following are you likely to do?

	Average	France	Germany	Spain	UK	U.S.
Try them if you were given a free sample or someone else prepared it for you	**50%**	47%	43%	53%	52%	57%
Substitute conventional egg products with them at least some of the time	**23%**	18%	27%	25%	21%	23%
Purchase them to prepare at home	**21%**	20%	22%	21%	23%	20%
None of the above	**19%**	18%	22%	12%	21%	19%
Add them to your diet (alongside or replacing conventional egg products)	**19%**	19%	19%	25%	17%	17%
Purchase a meal made with them at a restaurant	**15%**	12%	14%	16%	16%	16%
Pay a higher price for them than conventional egg products	**11%**	15%	10%	11%	10%	8%

Trial motivators

- This question was asked of those that didn't select "none of the above" in the likely behaviours questions (pp87-88).
- The top reason for consumers to try PF products was health in Spain (46%) and the United States (48%), animal welfare in Germany (45%) and the United Kingdom (43%), and curiosity/novelty in France (40%).
- Lactose-free was the lowest given reason for trial interest in all five markets.

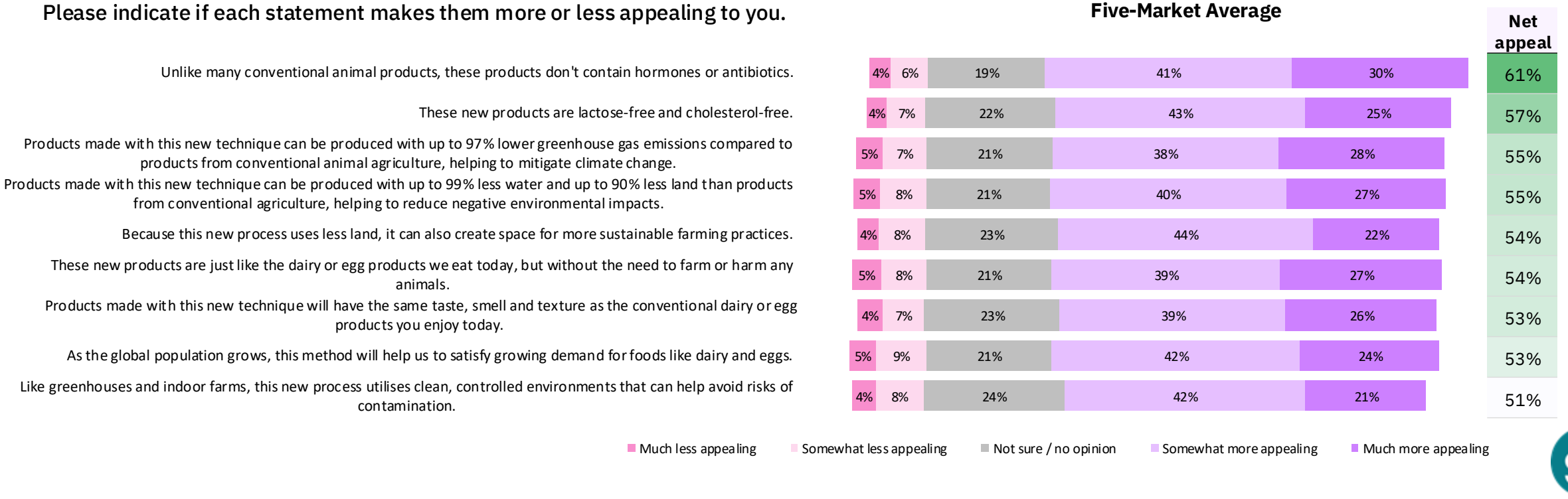
Q10: Why are you interested in trying these products?

	Average	France	Germany	Spain	UK	U.S.
Health	**41%**	37%	34%	46%	41%	48%
Curiosity/novelty	**39%**	40%	41%	45%	34%	36%
Animal welfare	**38%**	35%	45%	38%	43%	31%
Environmental reasons	**27%**	23%	25%	27%	33%	26%
Taste	**26%**	25%	28%	25%	25%	28%
No cholesterol	**18%**	13%	14%	25%	17%	20%
No antibiotics	**16%**	13%	20%	14%	12%	21%
Food safety	**16%**	9%	13%	21%	15%	20%
Global food security	**15%**	14%	14%	18%	16%	16%
Price	**14%**	12%	12%	14%	15%	16%
Lactose-free	**11%**	9%	9%	13%	8%	14%

Benefits messaging

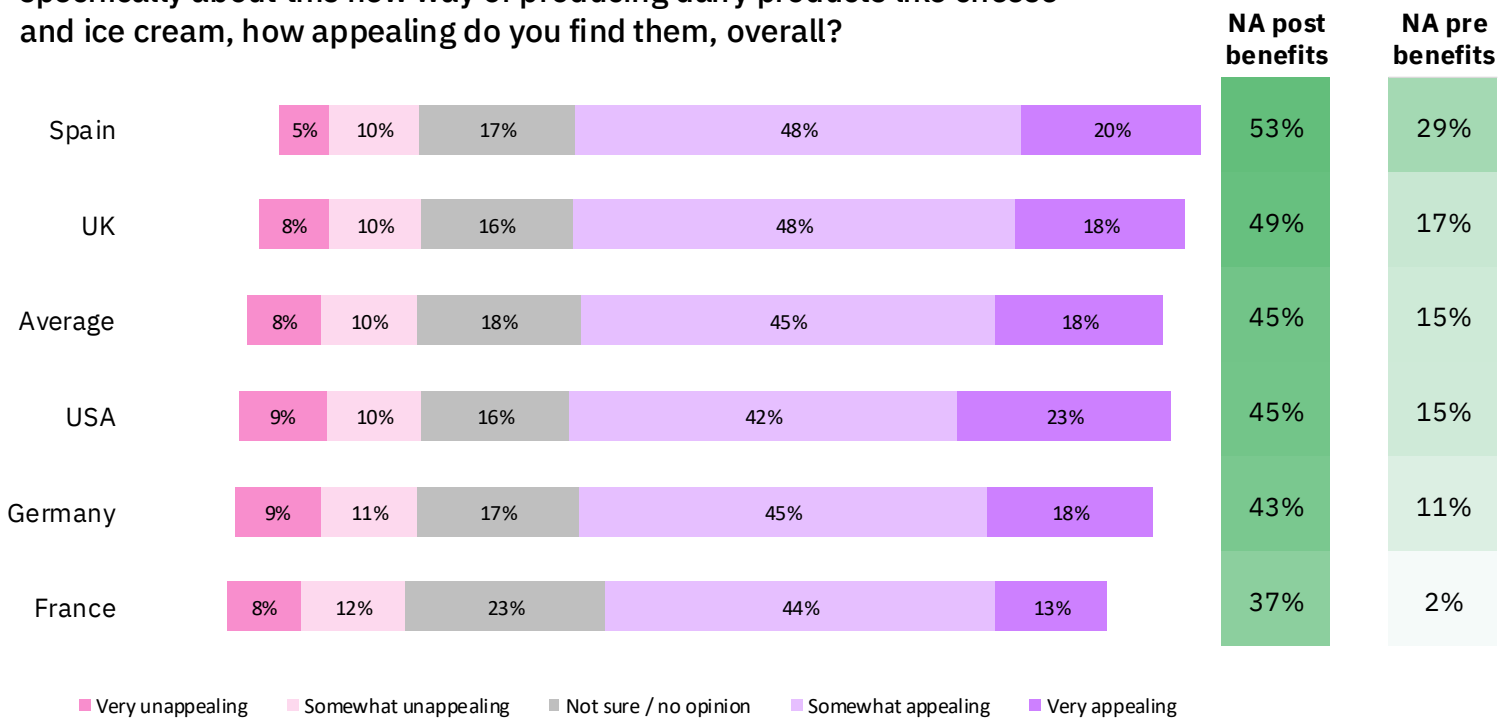
- To understand the influence that benefit statements of PF-made products had on their appeal, respondents were shown positive benefit messages and then asked which of them were likely to increase the appeal of PF-made products. We found that all benefit statements had a positive impact on PF product appeal (above 50% net appeal on average across all markets).

Q16: Here are some statements about these new products.
Please indicate if each statement makes them more or less appealing to you.



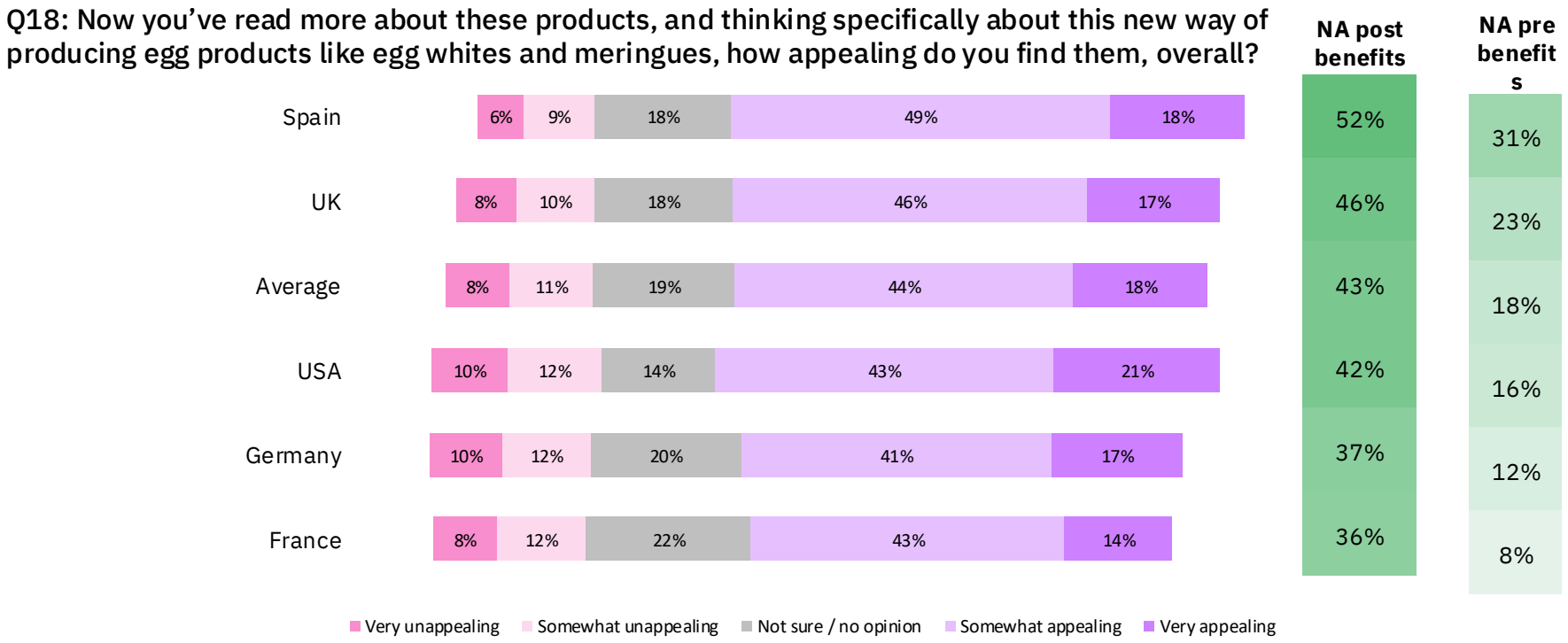
Net appeal of PF dairy increased significantly after benefits messaging

Q17: Now you've read more about these new products, and thinking specifically about this new way of producing dairy products like cheese and ice cream, how appealing do you find them, overall?



Net appeal of PF egg increased significantly after benefits messaging

- All markets saw a significant increase in net appeal of PF egg products once they'd considered the benefits from the previous questions, with an average increase in net appeal of 25%.
- Spain was again the most positive market for PF egg net appeal and France the least, but the gap between them was smaller than when appeal was tested prior to sharing positive benefits messages to participants.



Stimuli

Stimuli (text-only) used in phase two one-to-one interviews for dairy and egg: France

1. La fermentation, notre héros: « des produits laitiers/oeufs faits à partir de la fermentation »
2. Sans animaux: « les vrais produits laitiers/oeufs, fabriqués sans les animaux »
3. La force combinée de la science et de la nature: « des produits laitiers/oeufs qui marient science et nature »
4. Une protéine enrichie « plus »: « des produits laitiers/oeufs à base de protéines naturelles qui peuvent fournir une nutrition améliorée grâce aux progrès technologiques »
5. Des produits laitiers « tout en un »: « de vrais produits laitiers/oeufs qui ont bon goût et qui sont meilleurs pour la santé, la planète et les animaux »
6. La ferme de demain: « ce produit laitier/oeuf utilise l'innovation pour contribuer à créer un monde plus durable pour tous »
7. Guidés par le goût: « des produits laitiers/oeufs fabriqués à partir d'ingrédients durables de la plus haute qualité pour un goût optimal »

Stimuli (text-only) used in phase two one-to-one interviews for dairy and egg: Germany

1. Fermentierung als Heldin: "Milchprodukte/Eiprodukte, die durch Fermentierungsprozesse hergestellt wurden"
2. Ohne Tiere: "Echte Ei/Molkereierzeugnisse, die ohne Tiere hergestellt wurden"
3. Wenn sich die Kraft der Wissenschaft und Natur vereint: "Milchprodukte/ Eiprodukte, die durch die Kombination von Wissenschaft und Natur hergestellt wurden"
4. Angereichertes Protein Plus: "Milchprodukte/ Eiprodukte, hergestellt aus natürlichen Proteinen, die verbesserte Ernährung dank fortschrittlicher Technologie zur Verfügung stellen können"
5. Wunschlose Milchprodukte: "Echte Milchprodukte/ Eiprodukte, die wunderbar schmecken und besser für die Gesundheit, den Planeten und die Tiere sind"
6. Landwirtschaft von Morgen: "Dieses Eiprodukt/Molkereierzeugnis kreiert mit Hilfe von Innovation eine nachhaltigere Zukunft für alle"
7. Geleitet von Geschmack: "Eiprodukte/Milcherzeugnisse, die für den besten Geschmack mit nachhaltig hochqualitativen Inhaltsstoffen gemacht werden"

Stimuli (text-only) used in phase two one-to-one interviews for dairy and egg: UK and United States

1. Fermentation as hero: “dairy/egg products made through fermentation processes”

2. Animal-free: “real dairy/egg, made without the animals”

3. When the power of science + nature meet: “dairy/egg products made by combining science with nature”

4. Enriched protein plus: “dairy/egg products made with natural proteins that can provide enhanced nutrition thanks to technological advancements”

5. “Have-it-all” egg: “real dairy/egg products that taste great and are better for health, the planet, and for animals”

6. Tomorrow’s farm: “this dairy/egg product uses innovation to help create a more sustainable future for everyone”

7. Guided by taste: “dairy/egg products made with the highest quality sustainable ingredients for the best taste”

Stimuli (text-only) used in phase two one-to-one interviews for dairy and egg: Spain

1. La fermentación como héroe: “productos lácteos/huevos hechos a través de procesos de fermentación”

2. Sin animales: “lácteos/huevos auténticos, hechos sin animales”

3. Cuando se encuentran el poder de la ciencia y la naturaleza: “productos lácteos/huevos hechos combinando ciencia con naturaleza”

4. Enriquecido con proteínas: “productos lácteos/huevos hechos con proteínas naturales que pueden proporcionar una nutrición mejorada gracias a los avances tecnológicos”

5. Lácteos “que lo tienen todo”: “productos lácteos/huevos auténticos que saben estupendamente y son mejores para la salud, el planeta y los animales”

6. Granja del mañana: “este producto lácteo/huevo utiliza la innovación para ayudar a crear un futuro más sostenible para todos”

7. El sabor como guía: “productos lácteos/huevos hechos con ingredientes sostenibles de la más alta calidad para obtener el mejor sabor”

Phase three, round one: dairy stimuli

Archetype one: culture-made

France
Front of pack: Cultivé(e)
Back of pack: Fabriqué par fermentation de precision à base de cultures de protéines
Ingredients: 80% eau, 5% protéine de lait cultivée, matières grasses, sucre, sel

Germany
Front of pack: Kultivierte
Back of pack: Hergestellt mit echten milchproteinen aus präzisionsfermentation
Ingredients: 80% wasser, 5% kultiviertes milchprotein, fette, kohlenhydrate, zucker, salz

Spain
Front of pack: Cultivada
Back of pack: Fabricada con fermentacion de precision, generando proteinas a partir de cultivos
Ingredients: 80% agua, 5% proteinas de leche obtenidas mediante cultivo, grasas, carbohidratos, azucares, sal

UK/United States
Front of pack: Culture-made
Back of pack: Made with precision fermentation by growing proteins from cultures
Ingredients: 80% water, 5% culture-made milk protein, fats, carbohydrates, sugars, salt

The visuals on this page show the text that was used in the English-speaking markets of the United States and the United Kingdom. The same visuals were used across all the markets.

Phase three, round one: egg stimuli

Archetype one: culture-made

France
Front of pack: Oeuf cultivé
Back of pack: Fabriqué par fermentation de precision à base de cultures de protéines
Ingredients: 80% eau, 5% protéine d'oeuf cultivée, matières grasses, sucre, sel

Germany
Front of pack: Kultiviertes ei
Back of pack: Hergestellt mit echten eiproteinen aus präzisionsfermentation
Ingredients: 80% wasser, 5% kultiviertes eiprotein, fette, kohlenhydrate, zucker, salz

Spain
Front of pack: Cultivada
Back of pack: Fabricada con fermentacion de precision, generando proteinas a partir de cultivos
Ingredients: 80% agua, 5% proteinas de huevo obtenidas mediante cultivo, grasas, carbohidratos, azucares, sal

UK/United States
Front of pack: Culture-made
Back of pack: Made with precision fermentation by growing proteins from cultures
Ingredients: 80% water, 5% culture-made milk protein, fats, carbohydrates, sugars, salt

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Phase three, round one: dairy stimuli

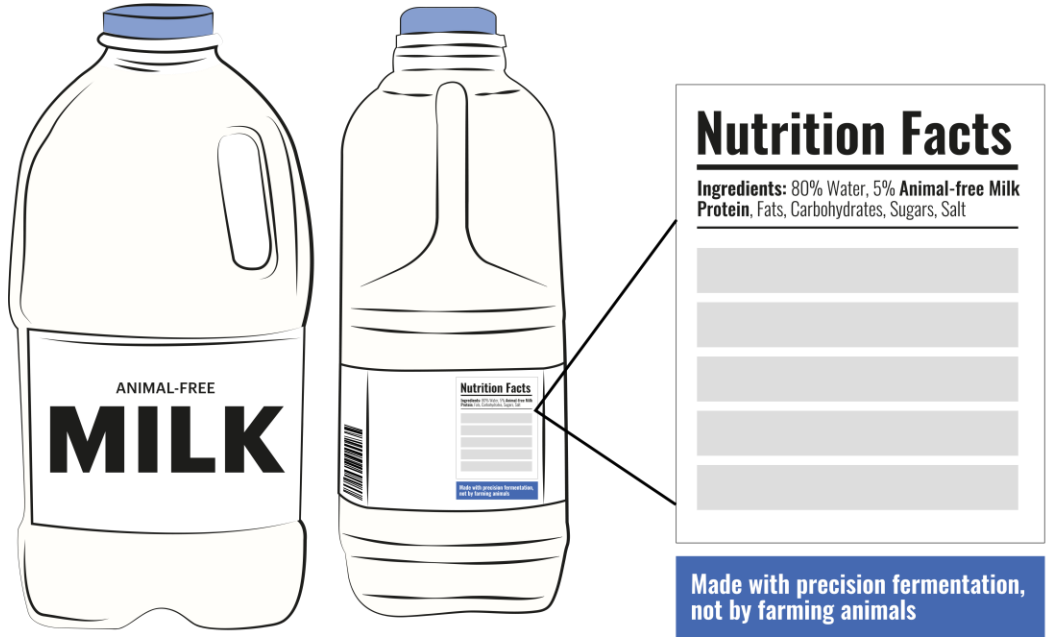
Archetype two: animal-free

France
Front of pack: Non animale
Back of pack: Fabriqué par fermentation de precision, sans élevage animal
Ingredients: 80% eau, 5% protéine de lait non animale, matières grasses, sucre, sel

Germany
Front of pack: Tierfrei
Back of pack: Hergestellt mit präzisionsfermentation ohne haltung von tieren
Ingredients: 80% wasser, 5% tierfreies milchprotein, fette, kohlenhydrate, zucker, salz

Spain
Front of pack: No animal
Back of pack: Hecha con fermentation de precision, sin ganaderia
Ingredients: 80% agua, 5% proteinas de leche no animales, grasas, carbohidratos, azucares, sal

UK/United States
Front of pack: Animal-free
Back of pack: Made with precision fermentation, not by farming animals
Ingredients: 80% water, 5% animal-free milk protein, fats, carbohydrates, sugars, salt



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Phase three, round one: egg stimuli

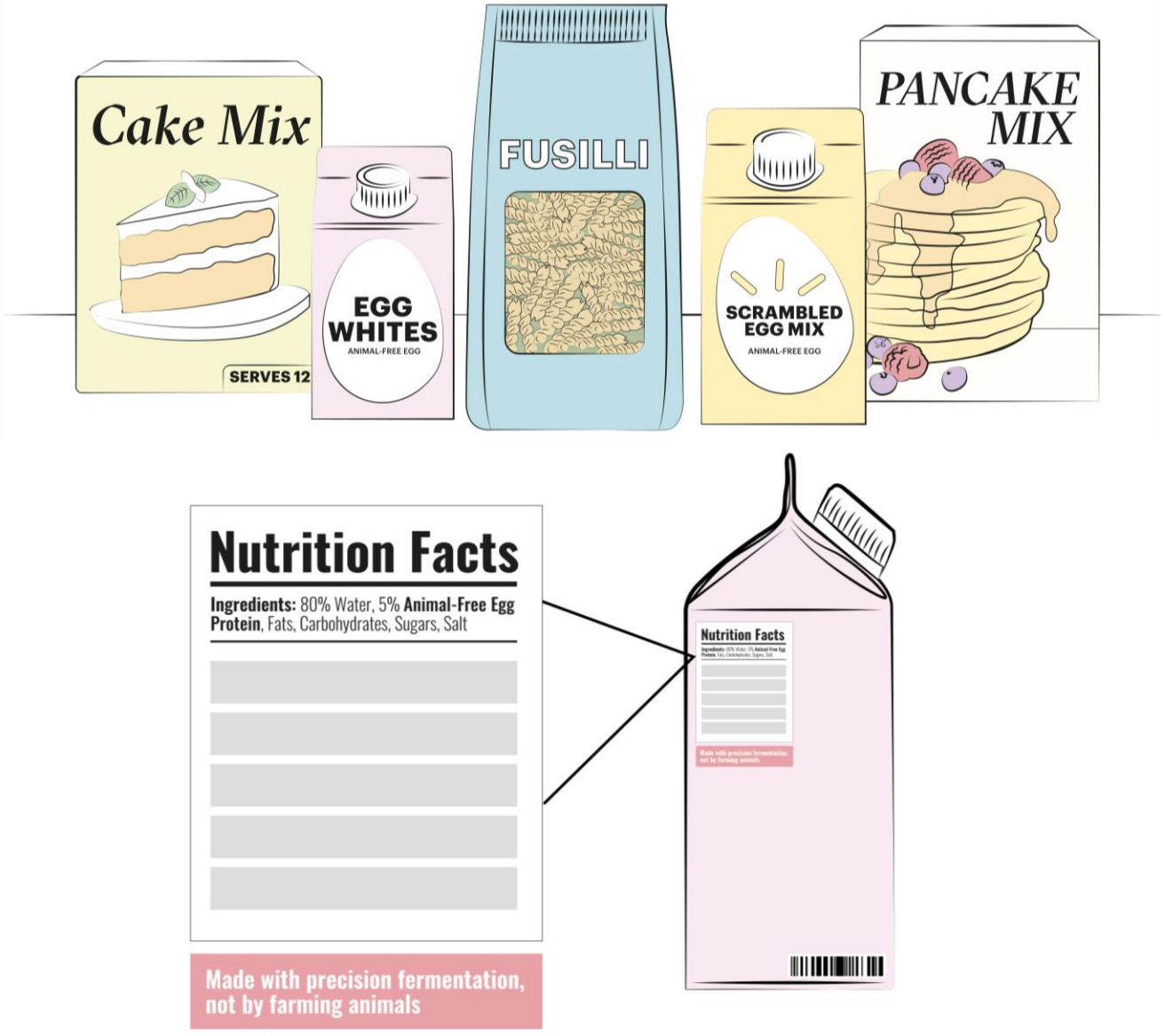
Archetype two: animal-free

France
Front of pack: Oeuf non animale
Back of pack: Fabriqué par fermentation de precision, sans élevage animal
Ingredients: 80% eau, 5% protéine d'oeuf non animale, matières grasses, sucre, sel

Germany
Front of pack: Tierfreies ei
Back of pack: Hergestellt mit präzisionsfermentation ohne haltung von tiere
Ingredients: 80% wasser, 5% tierfreies eiprotein, fette, kohlenhydrate, zucker, salz

Spain
Front of pack: No animales
Back of pack: Hechos con fermentation de precision, sin ganaderia
Ingredients: 80% agua, 5% proteinas de huevo no animales, grasas, carbohidratos, azucares, sal

UK/United States
Front of pack: Animal-free
Back of pack: Made with precision fermentation, not by farming animals
Ingredients: 80% water, 5% animal-free egg protein, fats, carbohydrates, sugars, salt



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Phase three, round one: dairy stimuli

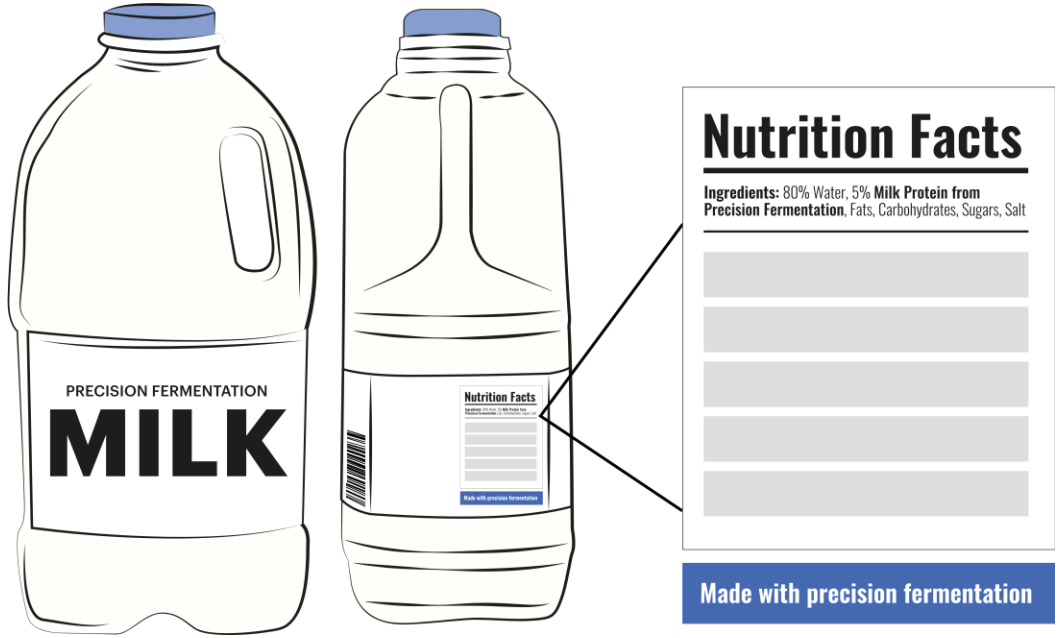
Archetype three: precision fermentation

UK/United States
Front of pack: Precision fermentation
Back of pack: Made with precision fermentation
Ingredients: 80% water, 5% milk protein from precision fermentation, fats, carbohydrates, sugars, salt

Germany
Front of pack: Präzisionsfermentierte
Back of pack: Hergestellt mit präzisionsfermentation
Ingredients: 80% wasser, 5% milchprotein aus präzisionsfermentation, fette, kohlenhydrate, zucker, salz

France
Front of pack: Obtenu par fermentation de precision
Back of pack: Fabriqué par fermentation de precision
Ingredients: 80% eau, 5% protéine de lait élaborée par fermentation de précision, matières grasses, sucre, sel

Spain
Front of pack: Obtenida mediante fermentacion de precision
Back of pack: Hecha con fermentation de precision
Ingredients: 80% agua, 5% proteinas de leche procedentes de fermentacion de precision, grasas, carbohidratos, azucares, Sal



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Phase three, round one: egg stimuli

Archetype three: precision fermentation

France
Front of pack: Oeuf obtenu par fermentation de precision
Back of pack: Fabriqué par fermentation de precision
Ingredients: 80% eau, 5% protéine d'oeuf élaborée par fermentation de précision, matières grasses, sucre, sel

Germany
Front of pack: Präzisionsfermentieres ei
Back of pack: Hergestellt mit präzisionsfermentation
Ingredients: 80% wasser, 5% eiprotein aus präzisionsfermentation, fette, kohlenhydrate, zucker, salz

Spain
Front of pack: Obtenidas mediante fermentacion de precision
Back of pack: Hechos con fermentation de precision
Ingredients: 80% agua, 5% proteinas de huevo procedentes de fermentacion de precision, grasas, carbohidratos, azucares, sal

UK/United States
Front of pack: Precision fermentation egg
Back of pack: Made with precision fermentation
Ingredients: 80% water, 5% egg protein from precision fermentation, fats, carbohydrates, sugars, salt

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Phase three, round one: dairy stimuli

Archetype four: precision crafted

France
Front of pack: de précision
Back of pack: Elaboré par fermentation de precision
Ingredients: 80% eau, 5% protéine de lait élaborée avec précision, matières grasses, sucre, sel

Germany
Front of pack: Präzisionsfermentierte
Back of pack: Hergestellt mit präzisionsfermentation
Ingredients: 80% wasser, 5% präzisionsgefertigte milch eiweiß, fette, kohlenhydrate, zucker, salz

Spain
Front of pack: Cuidada receta
Back of pack: Cuidadosamente elaborado mediante fermentacion de precision
Ingredients: 80% agua, 5% proteinas obtenidas mediante fermentacion de precision, grasas, carbohidratos, azucares, sal

UK/United States
Front of pack: Precision crafted
Back of pack: Crafted with precision fermentation
Ingredients: 80% water, 5% precision crafted milk protein, fats, carbohydrates, sugars, salt

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Phase three, round one: egg stimuli

Archetype four: precision crafted

France
Front of pack: Oeuf de précision
Back of pack: Elaboré par fermentation de precision
Ingredients: 80% eau, 5% protéine d'oeuf élaboré avec précision, matières grasses, sucre, sel

Germany
Front of pack: Präzisionsgefertigtes ei
Back of pack: Hergestellt mit präzisionsfermentation
Ingredients: 80% wasser, 5% präzisionsgefertigtes ei eiweiß, fette, kohlenhydrate, zucker, salz

Spain
Front of pack: Cuidada receta
Back of pack: Cuidadosamente elaborado mediante fermentacion de precision
Ingredients: 80% agua, 5% proteinas obtenidas mediante fermentacion de precision grasas, carbohidratos, azucares, sal

UK/United States
Front of pack: Precision crafted
Back of pack: Crafted with precision fermentation
Ingredients: 80% Water, 5% precision crafted egg protein, fats, carbohydrates, sugars, salt.

The visuals on this page show the text that was used in the English-speaking markets of the United States and the United Kingdom. The same visuals were used across all the markets.

Phase three, round one: dairy stimuli

Archetype five: made from microflora

France
Front of pack: de microflore
Back of pack: Fabriqué par fermentation de precision, à base de microflore
Ingredients: 80% eau, 5% protéine de lait élaborée à base de microflore, matières grasses, sucre, sel

Germany
Front of pack: Mikroflora
Back of pack: Hergestellt mit mikroflora durch präzisionsfermentation
Ingredients: 80% wasser, 5% aus mikroflora hergestelltes milchprotein, fette, kohlenhydrate, zucker, salz

Spain
Front of pack: de microflora
Back of pack: Hecha de microflora mediante fermentacion de precision
Ingredients: 80% agua, 5% proteinas de leche obtenidas de microflora, grasas, carbohidratos, azucares, sal

UK/United States
Front of pack: Made from microflora
Back of pack: Made from microflora through precision fermentation
Ingredients: 80% water, 5% microflora-made milk protein, fats, carbohydrates, sugars, salt

The visuals on this page show the text that was used in the English-speaking markets of the United States and the United Kingdom. The same visuals were used across all the markets.

Phase three, round one: egg stimuli

Archetype five: made from microflora

France
Front of pack: Oeuf de microflore
Back of pack: Fabriqué par fermentation de precision, à base de microflore
Ingredients: 80% eau, 5% protéine d'oeuf élaborée à base de microflore, matières grasses, sucre, sel

Germany
Front of pack: Mikroflora ei
Back of pack: Hergestellt mit mikroflora durch präzisionsfermentation
Ingredients: 80% wasser, 5% aus mikroflora hergestelltes eiprotein, fette, kohlenhydrate, zucker, salz

Spain
Front of pack: de microflora
Back of pack: Hechos de microflora mediante fermentacion de precision
Ingredients: 80% agua, 5% proteinas de huevo de microflora, grasas, carbohidratos, azucares, sal

UK/United States
Front of pack: Egg made from microflora
Back of pack: Made from microflora through precision fermentation
Ingredients: 80% water, 5% microflora-made egg protein, fats, carbohydrates, sugars, salt

The visuals on this page show the text that was used in the English-speaking markets of the United States and the United Kingdom. The same visuals were used across all the markets.

Phase three, round one: dairy stimuli

Archetype six: made from fermentation

France
Front of pack: Elaboré par fermentation
Back of pack: Fabriqué par fermentation, à base de véritables protéines de lait
Ingredients: 80% eau, 5% protéine de lait élaborée par fermentation, matières grasses, sucre, sel

Germany
Front of pack: Aus fermentation
Back of pack: Hergestellt mit echten milchproteinen aus präzisionsfermentation
Ingredients: 80% wasser, 5% milchprotein aus fermentation, fette, kohlenhydrate, zucker, salz

Spain
Front of pack: Obtenido por fermentacion
Back of pack: Hecha con autenticas proteinas lacteas mediante fermentacion
Ingredients: 80% agua, 5% proteinas de leche obtenidas mediante fermentacion, grasas, carbohidratos, azucares, sal

UK/United States
Front of pack: Made from fermentation
Back of pack: Made with genuine dairy proteins through fermentation
Ingredients: 80% water, 5% fermentation-made milk protein, fats, carbohydrates, sugars, salt

The visuals on this page show the text that was used in the English-speaking markets of the United States and the United Kingdom. The same visuals were used across all the markets.

Phase three, round one: egg stimuli

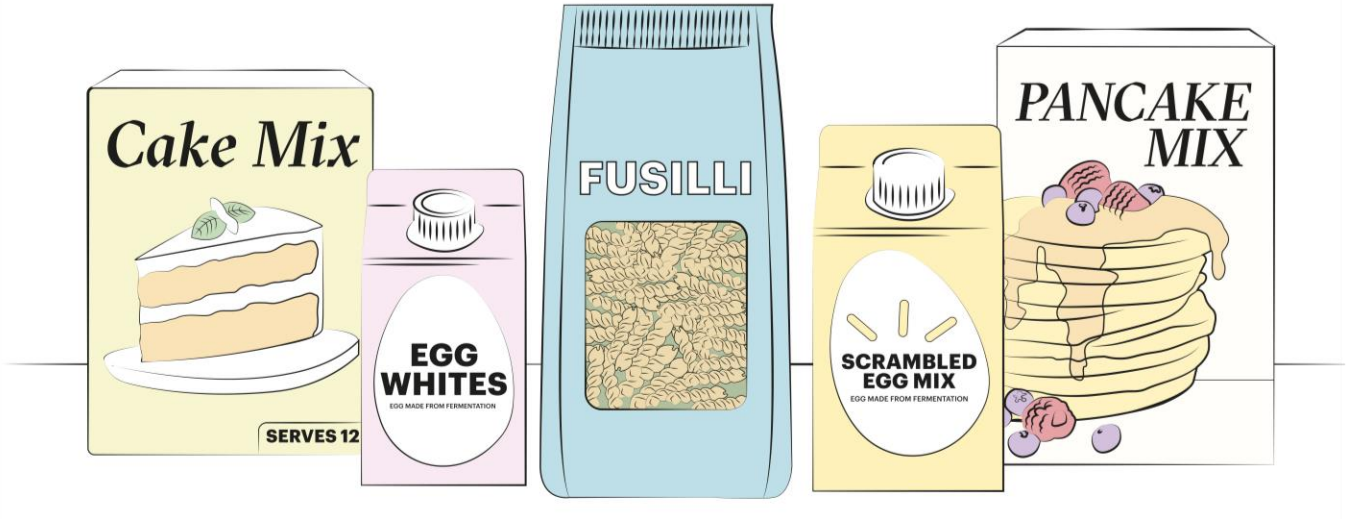
Archetype six: made from fermentation

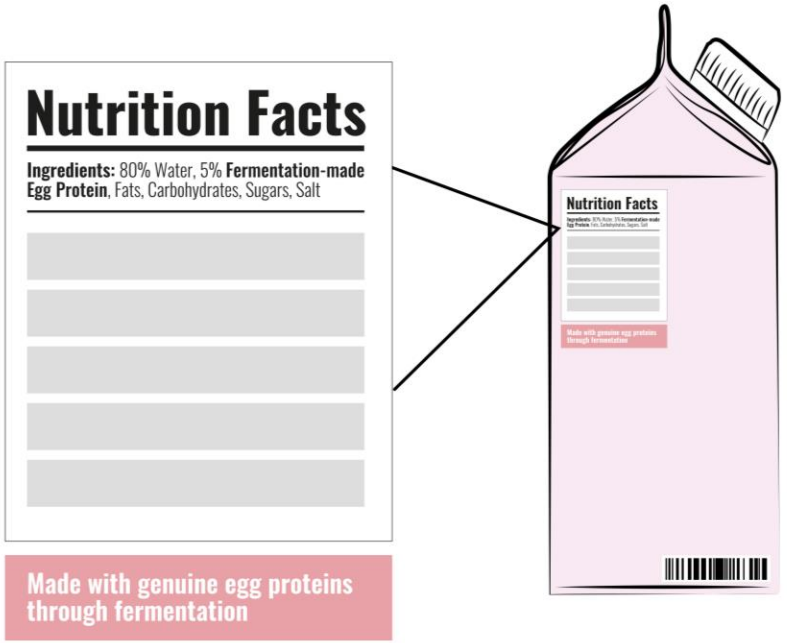
France
Front of pack: Elaboré par fermentation
Back of pack: Fabriqué par fermentation, à base de véritables protéines d'oeuf
Ingredients: 80% eau, 5% protéine d'oeuf élaborée par fermentation, matières grasses, sucre, sel

Germany
Front of pack: Ei aus fermentation
Back of pack: Hergestellt mit echten eiproteinen aus präzisionsfermentation
Ingredients: 80% wasser, 5% eiprotein aus fermentation, fette, kohlenhydrate, zucker, salz

Spain
Front of pack: Obtenido por fermentacion
Back of pack: Hecha con autenticas proteinas de huevo mediante fermentacion
Ingredients: 80% agua, 5% proteinas de huevo obtenidas mediante fermentacion, grasas, carbohidratos, azucares, sal

UK/United States
Front of pack: Made from fermentation
Back of pack: Made with genuine egg proteins through fermentation
Ingredients: 80% water, 5% fermentation-made egg protein, fats, carbohydrates, sugars, salt





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Phase three, round two: dairy stimuli

Archetype one: animal-free

UK/United States: Animal-free dairy ice cream
Good stuff: Classic ice cream with an animal-free twist

Our story: We think everyone should be able to enjoy ice cream. So we use milk protein made from fermentation-just like what you get from cows, but without ever touching an animal. No matter what you eat (or what you don't) you're free to love it.

Ingredients: Water, animal-free whey protein, sugar, cocoa, coconut oil, guar gum, salt

Contains: Milk protein
Made in a facility that handles milk and eggs

KEEP FROZEN

GERMANY: Tierfreis milcheis
Gute sache: Klassische Eiscreme. Tierfrei.

Unsere Story: Wir finden, jeder sollte Eiscreme genießen können. Deshalb verwenden wir Milchprotein aus Fermentation—identisch mit dem der Kuh, ohne dass sie dafür gehalten werden musste. Egal wie du dich ernährst, du darfst es genießen.

Zutaten: Wasser, tierfreies molkenprotein, zucker, kakao, kokosnussöl, guarkernmehl, salz

Enthält: Milchproteine
Kann spuren von milch und eiern

TIEFGEKÜHLT LAGERN

France: Fabriquée sans utilisation animale
De bons ingrédients: Une crème glacée traditionnelle, mais produite sans vaches.

Notre histoire: Nous voulons que tout le monde puisse savourer une bonne glace! C'est pourquoi nous utilisons du lait à base de protéines laitières fabriquées par fermentation—identiques à celles provenant de la vache, mais sans jamais toucher à l'animal. Ainsi, peu importe ce que vous mangez (ou vous ne mangez pas), vous pouvez profiter de nos crèmes glacées!

Ingrédients: Eau, protéines de lactoserum d'origine non animale, sucre, cacao, huile de coco, gomme de guar, sel

Contient: Protéines de lait
Fabriqué dans une usine qui utilise du lait et des œufs

A CONSERVER À -18 °C

SPAIN: Helado sin lacteos de origen animal
Sólo lo mejor: Helado clásico libre de ingredientes de origen animal.

Nuestra historia: Creemos que todos deberían poder disfrutar del helado. Así que utilizamos proteína de leche obtenida mediante fermentación, similar a la de vacas, sin usar animales en el proceso. No importa lo que comas (o lo que no comas), eres libre de amarlo.

Ingredients: Agua, proteína de suero no animal, azúcar, cacao, aceite de coco, goma guar, sal

Contiene proteína de leche
Elaborado en maquinaria que procesa leche y huevo

MANTÉNGASE CONGELADO

The visuals on this page show the text that was used in the English-speaking markets of the United States and the United Kingdom. The same visuals were used across all the markets.

Phase three, round two: egg stimuli

Archetype one: animal-free

UK/United States: Meringue cookies/meringues
Made with animal-free egg protein

Ingredients: Organic sugar, water, animal-free egg white protein

Allergen information: Egg protein

KEEP FROZEN

Germany: Baiser kekse
Hergestellt mit tierfreiem eiprotein

Zutaten: Bio-zucker, wasser, tierfreies eiprotein

Allergene: Eiprotein

France: Meringues
Fabriquées avec des protéines de blanc d'œuf sans élevage animal

Ingrédients: Sucre, eau, protéines de blanc d'œuf d'origine non animale

Informations sur les allergènes: Protéine d'œuf

Spain: Merengues
Elaborado con proteína de huevo sin origen animal

Ingredientes: Azúcar orgánica, agua, proteína de huevo sin origen animal

Alérgenos: Proteína de huevo

The visuals on this page show the text that was used in the English-speaking markets of the United States and the United Kingdom. The same visuals were used across all the markets.

Phase three, round two: dairy stimuli

Archetype two: dairy protein from fermentation

UK/United States: Made with dairy protein from fermentation
Good stuff: Rich, velvety ice cream made using fermentation
Our story: We craft our delicious ice cream through the art of fermentation. We use microflora to produce dairy proteins perfect for rich and thick ice cream. From there, we apply timeless techniques to churn the classic treat you're holding right now.
Ingredients: Water, fermentation-made whey protein, sugar, cocoa, coconut oil, guar gum, salt
Contains: Milk protein
Made in a facility that handles milk and eggs
KEEP FROZEN

Germany: Hergestellt mit milch aus fermentation
Gute Sache: Cremige und samtige eiscreme, aus fermentation.
Unsere Story: Für die Herstellung unserer leckeren Eiscreme nutzen wir die Kunst der Fermentation. Wir nutzen Mikroflora, um Molkenprotein für reichhaltige und cremige Eiscreme zu produzieren. Danach rühren wir mit traditionellen Verfahren den klassischen Genuss an, den du gerade in den Händen hälst.
Zutaten: Wasser, Molkenprotein hergestellt mit Fermentation, Zucker, Kakao, Kokosnussöl, Guarkernmehl, Salz
Enthält: Milchproteine
Kann Spuren von Milch und Eiern enthalten
TIEFGEKÜHLT LAGERN

France: Elaborée avec du lait obtenu par fermentation
De bons ingrédients: Crème glacée onctueuse fabriquée par fermentation
Notre Histoire: Nous créons notre délicieuse crème glacée grâce à l'art de la fermentation. En utilisant des cultures actives, nous obtenons la protéine de lait parfaite pour une crème glacée riche et épaisse. Nous appliquons ensuite le meilleur des procédés de fabrication traditionnels pour vous offrir la glace gourmande et savoureuse que vous tenez entre vos mains.
Ingrédients: eau, protéines de lactosérum obtenues par fermentation, sucre, cacao, huile de coco, gomme de guar, sel
Contient: Protéines de lait
Fabriqué dans une usine qui utilise du lait et des œufs
A conserver à -18 °C

SPAIN: Elaborado con lácteos por fermentación
Sólo lo mejor: Rico y cremoso helado elaborado mediante fermentación
Nuestra historia: Elaboramos nuestro delicioso helado a través del arte de la fermentación, utilizando microflora para producir la proteína láctea perfecta para un helado rico y espeso. Después, utilizamos técnicas atemporales para batir la clásica delicia que tiene en este momento en sus manos.
Ingredientes: Agua, Proteína De Suero Producida Por Fermentación, Azúcar, Cacao, Aceite De Coco, Goma Guar, Sal
Contiene proteína de leche
Elaborado en maquinaria que procesa leche y huevo
MANTÉNGASE CONGELADO

The visuals on this page show the text that was used in the English-speaking markets of the United States and the United Kingdom. The same visuals were used across all the markets.

Phase three, round two: egg stimuli

Archetype two: egg protein from fermentation

UK/United States: Meringue cookies/meringues
Made with egg protein from fermentation

Ingredients: organic sugar, water, fermentation-made egg white protein

Allergen information: egg protein

Germany: Baiser kekse
Hergestellt mit eiprotein aus fermentation

Zutaten: Bio-zucker, wasser, eiprotein hergestellt mit fermentation

Allergene: Eiprotein

France: Meringues
Fabriquées avec des protéines de blanc d'œuf obtenues par fermentation

Ingrédients: Sucre, eau, protéines de blanc d'œuf obtenues par fermentation

Informations sur les allergens: Protéine d'œuf

Spain: Merengues
Elaboradas con proteína de huevo producida por fermentación

Ingredientes: Azúcar orgánica, agua, proteína de huevo producida por fermentación

Alérgenos: Proteína de huevo

The visuals on this page show the text that was used in the English-speaking markets of the United States and the United Kingdom. The same visuals were used across all the markets.

Phase three, round two: dairy stimuli

Archetype three: dairy protein from microflora

UK/United States: Made with dairy from microflora
Good stuff: More flavor for you. Less impact on the planet.
Our story: Welcome to feel-good flavor. We craft our ice cream by brewing microflora to produce pure dairy protein—the same as a cow's but made by fermentation. All the creamy richness you crave, and gentler on the planet.
Ingredients: Water, microflora-made whey protein, sugar, cocoa, coconut oil, guar gum, salt
Contains: Milk protein
Made in a facility that handles milk and eggs
KEEP FROZEN

Germany: Hergestellt mit milch aus mikroflora
Gute Sache: Mehr Geschmack für Dich. Weniger Auswirkungen auf unseren Planeten.
Unsere Story: Der Fühl-Dich-Gut-Geschmack. Für unsere Eiscreme brauen wir Mikroflora um Milchprotein zu produzieren—wie von der Kuh, nur mit Fermentation. All das, was Du von cremiger Eiscreme erwartest, aber schonender für den Planeten.
Zutaten: Wasser, Molkenprotein hergestellt aus Mikroflora, Zucker, Kakao, Kokosnussöl, Guarkernmehl, Salz
Enthält: Milchproteine
Kann Spuren von Milch und Eiern enthalten
TIEFGEKÜHLT LAGERN

France: Fabriquée avec du lait de microflore
De bons ingrédients: Plus de saveur pour vous. Moins d'impact sur la planète.
Notre Histoire: Bienvenue dans le monde des saveurs qui font du bien. Nous élaborons notre crème glacée en combinant de la microflore avec des nutriments pour produire une protéine laitière pure - identique à celle que produit une vache mais fabriquée par fermentation. Toute l'onctuosité crémeuse que vous désirez, mais plus douce pour la planète.
Ingrédients: eau, protéines de lactosérum fabriquées à partir de microflore, sucre, cacao, huile de coco, gomme de guar, sel
Contient: Protéines de lait
Fabriqué dans une usine qui utilise du lait et des œufs.
A conserver à -18 °C

Spain: Elaborado con lacteo a partir de microflora
Sólo lo mejor: Más sabor para ti, menos impacto para el planeta
Nuestra historia: Bienvenido al sabor que te hace sentir bien. Elaboramos nuestro helado mezclando microflora con nutrientes para producir proteína láctea pura, la misma que la de la vaca, pero obtenida por fermentación. Toda la cremosidad y textura que deseas, pero más respetuoso con el planeta.
Ingredientes: Agua, Proteína De Suero a Base De Microflora, Azúcar, Cacao, Aceite de Coco, Goma Guar, Sal
Contiene proteína de leche.
Elaborado en maquinaria que procesa leche y huevo
MANTÉNGASE CONGELADO

The visuals on this page show the text that was used in the English-speaking markets of the United States and the United Kingdom. The same visuals were used across all the markets.

Phase three, round two: egg stimuli

Archetype three: egg protein from microflora

UK/United States: Meringue cookies/meringues
Made with egg protein from microflora

Ingredients: Organic sugar, water, microflora-made egg white protein

Allergen Information: Egg protein

Germany: Baiser kekse
Hergestellt mit Eiprotein aus Mikroflora

Zutaten: Bio-Zucker, Wasser, Eiprotein hergestellt aus Mikroflora

Allergene: Eiprotein

France: Meringues
Elaborées avec des protéines de blanc d'œuf fabriquées à partir de microflore

Ingrédients: Sucre, eau, protéines de blanc d'œuf fabriquées à partir de microflore

Informations sur les allergènes: Protéine d'œuf

Spain: Merengues
Elaborado con proteína de huevo a partir de microflora

Ingredientes: Azúcar orgánica, agua, proteína de huevo obtenida a partir de microflora

Alérgenos: Proteína de huevo

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Phase three, round two: dairy stimuli

Archetype four: PF-made dairy protein

UK/United States: Made with PF dairy protein
Good stuff: Rich, delicious ice cream for everyone.
Our story: We've churned this cool, creamy, chocolatey treat with PF dairy. PF is a process that uses active cultures to produce dairy protein just like you'd find in cow's milk. And guess what? It's lactose-free, hormone-free, and cholesterol-free, so everyone can enjoy it.
Ingredients: Water, PF-made whey protein, sugar, cocoa, coconut oil, guar gum, salt
Contains: Milk protein
Made in a facility that handles milk and eggs
KEEP FROZEN

Germany: PF-milcheis
Gute sache: Köstliche Eiscreme für jeden Ernähungsstil.
Unsere story: Wir haben unsere wunderbar cremige und schokoladige Eiscreme mit PF-Milch angerührt. Für den PF-Prozess werden aktive Kulturen und Nährstoffe vermengt, um Milchprotein herzustellen. Das gleiche Milchprotein, das wir von Kuhmilch kennen. Was macht es so besonders? Es ist laktosefrei, hormonfrei und cholesterinfrei; es ist also für Jeden gemacht.
Zutaten: Wasser, PF-Molkenprotein, Zucker, Kakao, Kokosnussöl, Guarkernmehl, Salz
Enthält: Milchproteine
Kann Spuren von Milch und Eiern enthalten
TIEFGEKÜHLT LAGERN

France: Crème glacée 'FP' avec du lai de microflore
De bons ingrédients: Plus de saveur pour vous. Moins d'impact sur la planète.
Notre histoire: Bienvenue dans le monde des saveurs qui font du bien. Nous élaborons notre crème glacée en combinant de la microflore avec des nutriments pour produire une protéine laitière pure - identique à celle que produit une vache mais fabriquée par fermentation. Toute l'onctuosité crémeuse que vous désirez, mais plus douce pour la planète.
Ingrédients: Eau, protéines de lactosérum fabriquées à partir de microflore, sucre, cacao, huile de coco, gomme de guar, sel
Contient: Protéines de lait
Fabriqué dans une usine qui utilise du lait et des œufs
A conserver à -18 °C

Spain: Helado con lácteos FP
Sólo lo mejor: Un deleite de cremoso sabor, para todos
Nuestra historia: Bienvenido al sabor que te hace sentir bien. Elaboramos nuestro helado mezclando microflora con nutrientes para producir proteína láctea pura, la misma que la de la vaca, pero obtenida por fermentación. Toda la cremosidad y textura que deseas, pero más respetuoso con el planeta.
Ingredientes: Agua, proteína de suero a partir de fermentación de precision, azúcar, cacao, aceite de coco, goma guar, sal
Contiene proteína de leche
Elaborado en maquinaria que procesa leche y huevo
MANTÉNGASE CONGELADO

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Phase three, round two: egg stimuli

Archetype four: PF-made egg protein

UK/United States: Meringue cookies/meringues
With PF-made egg protein

Ingredients: Organic sugar, water, PF-made egg white protein

Allergen information: Egg protein

Germany: Baiser kekse
Hergestellt mit PF-eiprotein

Zutaten: Bio-zucker, wasser, eiprotein hergestellt mit PF

Allergene: Eiprotein

France: Meringues
Fabriquées avec des protéines de blanc d'œuf obtenues par fermentation de précision (FP)

Ingrédients: Sucre, eau, protéines de blanc d'œuf obtenues par fermentation de précision (FP)

Informations sur les allergènes: Protéine d'œuf

Spain: Merengues
Elaboradas con proteína de huevo FP*

*Fermentación de precision

Ingredientes: Azúcar orgánica, agua, proteína de huevo obtenida por (FP)

Alérgenos: Proteína de huevo

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