10 Key Trends in Food, Nutrition & Health 2023

by Julian Mellentin

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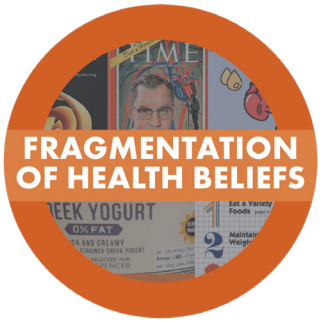
Asia-Pacific

Companies and brands in this Report

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Afia
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Alexandre Family Farms
All Real
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Alpro
Amazon
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Anlene
Antithesis Foods
Applegate Farms
Arcadia Biosciences
Ārepa
Arla Dairy
Arla Foods
Arrogant Chicken
Athletic Greens
Atura Proteins
Auvernou
Aventure
Bachan's
Balanced Breaks
BarleyMax
Barrambah Organics
Bay State Milling
Beanit
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Beetgold
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Beyond Meat
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Brave Good Kind
Brownberry
Burgo de Arias
Butcher Box
Cadbury
Capello's
Capri Sun
Carman's
Catalina Crunch
Catelli
Cathedral City
Caulipower
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Clean Oil Crew
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Dovedale
Dr Atkins
DuPont
Eat Meati
Egg-land's Best
Elmhurst
Enlightened
Enough
Epic Provisions
Epicured
Ethical Dairy
Ezaki Glico
Fable Food
Fairlife
Family Mart
Fazer
Ferrero Rocher

Fine Fettle
Fitness
Fodilicious
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Four Sigmatic
Freshé Meals
FroPro
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Lifeway
Lindt
Live Kuna
LiveLife
Lome
Lotatoes
Mariani
Marigot
Masa
Mauna Loa
McDonald's
McPlant
Meat & Livestock Australia
Meati Foods
Meijer
Meltemi
Mid-Day Squares
Mikey's
Mitolo Family Farms
Mondelez
Moon Milk
Morningstar
Morrisons
Naera Icelandic Snacks
Nairns
Nestlé
Nestle Health Sciences
Nestlé Real Dairy
Nestum
Neutral Foods
Nextmilk
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Ten Finns Creamery
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That's It
Thrive Market
Tofu Tasty
Tom & Luke
Torq
Trader Joe's
Tree Island
Trimona
True Made Foods
Turmeric Co
Turners & Growers
Unilever
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Vital Proteins
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Waitoa
Walmart
Well Carved
Whisps
Whole Foods Markets
Willja
Wonderful Pistachios
Wow Donuts
Wunda
Yakult Honsha
YoPro
Zero Acre Farms

5 MEGA TRENDS











10 KEY TRENDS IN FOOD, NUTRITION & HEALTH 2023

















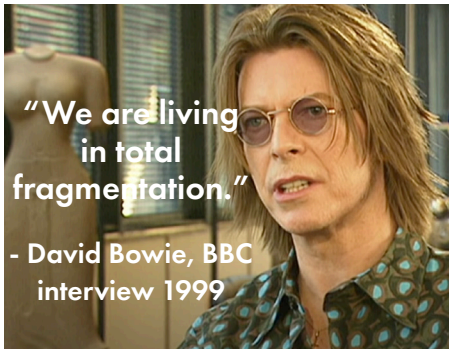




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10 Key Trends in Food, Nutrition & Health 2023

Understanding why consumer trends evolve, where they are heading and what strategies you can choose to connect to them is a super-power for food industry executives. This unique trend report is written to enable you and your colleagues to develop this power. It's a comprehensive summary of the most important trends in our industry with key points clearly signposted so that you and your colleagues can come together around its content and use it as a tool – a focus for discussions about what the trends means for your business, what you can do now and what you must be planning for tomorrow. We have even made all of this information available in Powerpoint to make it easier for you to share and discuss with colleagues, customers and suppliers.



Fragmentation of consumers' beliefs about food and health is one of the Mega-Trends that has been growing in importance since about 2003, when we first flagged up its importance. You can see fragmentation at work in the success of collagen, a protein obtained from scraping the hides of beef cattle. Collagen is popular for its skincare benefits with younger female consumers, even those who describe themselves as 'plant-based' (see KT4). These benefits drive up demand for collagen every year. In simple terms, consumers will compromise on what they claim are their strongly-held beliefs if doing so gets them a compelling benefit.

The Fragmentation Mega-trend was forecast by David Bowie back in 1999, and such is its impact now on our industry that we have this year elevated it to the status of No 1 Mega-Trend, displacing Naturally Functional.

In 2022 we included Nutrient Density as an emergent Key Trend. It was a term growing in consumer attention and in

WHAT MAKES THIS TREND REPORT UNIQUE?

New Nutrition Business 10 Key Trends is the only source that tells you the what, the why and – most importantly – the how. We explain and forecast, based on both quantitative and qualitative data, the most important long-term growth trends in food, nutrition and health, exploring why they are important and where they are heading. Our aim is to help you develop your own ideas about the options open to you and to make well-informed decisions about the way forward.

Our trend list does not change dramatically from one year to the next. And that is because, unlike other trend lists that come up with 10 entirely new things every year, we focus only on what the most-important long-term trends are – the ones that will stick around. To help you figure out your strategy and NPD plans, over the following pages we:

1. Set out the 10 most important trends in nutrition and health and the consumer, market and science drivers for each one.
2. Spell out the direction of travel for each trend.
3. Identify for each trend which strategies you can use.
4. Spell out which are higher risk and which are lower risk.
5. Show which are established paths for companies and which are emergent opportunities.
6. Show how each strategy is developing and provide examples of companies and brands using the strategies.
7. Point out failed strategies to help you avoid repeating common mistakes. We have a unique-in-the-world expertise in the causes of failure in the business of food and health.

For two decades, the smartest people in the food, beverage and ingredients business have used 10 Key Trends as a practical tool to help formulate strategy and innovation planning.

Companies around the world – in Japan, America, China, Australia, New Zealand, France, Sweden, Germany, South Korea and elsewhere – rely on this document and we're delighted that they return to 10 Key Trends every year.

Our practical 'how can you do it' focus is what sets us apart. For example, over the last few years an abundance of commentators have claimed 'plant-based meat substitutes are going to be big'. But what does that mean in practice? What sort of products? In which categories? Why? It is our attention to the all the details – not only consumer research, but ingredients and technologies, nutrition science and many other parameters – that enabled us, back in 2018, to forecast that plant-based meat substitutes would not be more than a big niche. This is also the only report on the growth trends written by people who have both industry experience and scientific knowledge.

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marketing – as well as one that refers to a real nutritional need. This year we have included it not as a trend by itself but within other key trends as a strategy companies can follow.

Its place has been taken by an emergent Key Trend, **Real Food & the UPF Challenge**. Over the past 2-3 years, concern from academic researchers about possible health harms from consuming ultra-processed foods (UPFs) has been gaining momentum. There is no definition of UPFs, but the definition chosen by the researchers has also been embraced by the media and health-forward consumers. It's clear that the tide of negativity around UPFs is going to build for some years yet. Companies need to know how to respond to what is both a threat and an opportunity. Many companies are already adapting their product portfolios and finding success.

Also an emergent strategy which can be either a threat or an opportunity is the growing negativity about seed oils/ industrial oils (see KT7). This has been brewing for several years driven by research (controversial research, but real nonetheless) flagging up an excess of linoleic acid in western diets and its potential to promote inflammation. That might sound obscure, given that public health authorities have urged us to consume sunflower and canola oil for the last 50 years, but not only is the research promising, not only are health-forward consumers beginning to embrace the idea, so are brands. More and more brands are embracing the concept, such as Hu Kitchen, the world's most successful vegan confectionery brand, which is part of Mondelez.

Mood & Mind remains in our Key Trends and it is possible that it may move up the ranking in future years. Dealing with stress, anxiety, sleep and cognitive performance have always ranked high on consumers' wish lists. But to translate consumer interest into products, you have to find ingredients that actually deliver the benefits (and in the case of mood, 'feeling the benefit' is crucial), taste OK and are legal. That has presented a too-difficult ingredient and technology challenge which has restrained the evolution of the trend. However, developments in Japan (which is where food and health trends originated back in the early 1990s) suggest that this might change. Yakult Honsha, a company specialised in probiotics, appears to have made a consumer and technical breakthrough in the gut-brain axis, while confectionery giant Ezaki Glico is making headway with its GABA-based chocolate.

Back in 2018 we predicted plant-based meat substitutes would never be more than a niche – an opinion that ran directly counter to the hype from the echo chamber of consultants, investors and media.

Plant-based meat substitutes have performed even worse than we expected

HOW DO WE CHOOSE THE KEY TRENDS?

As the Trend Diamond shows, the drivers behind the growth trends are multi-dimensional. For example, consumer research is important but it is only one part of the picture and sometimes the least important. Good strategy needs to take all parameters into account, such as the availability of technologies and ingredients that can deliver the consumer need.

When we select the trends, we focus on answering the important questions that all companies face:

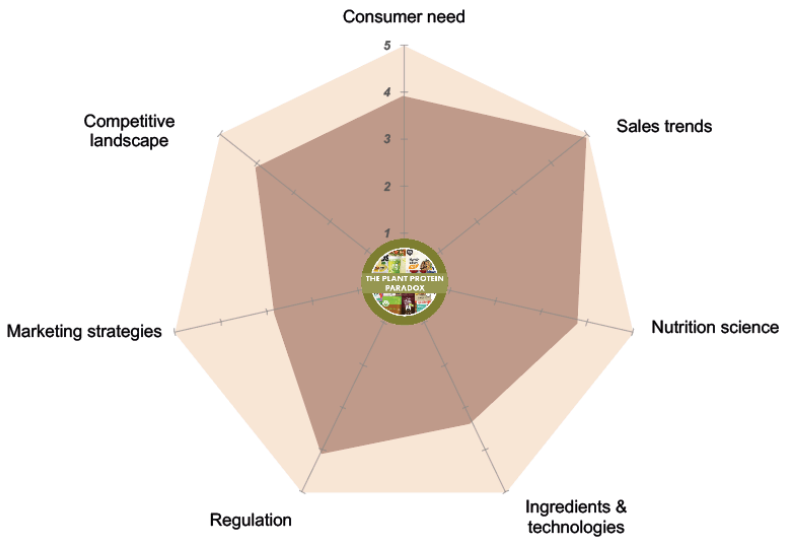
- Will this trend endure? Will it have a strong (or small-but-growing) influence on our industry for at least five years – because no-one can afford to connect their NPD efforts to a short-lived fad.
- Will this trend produce opportunities for profitable growth?

To answer these questions with confidence:

- We monitor a wide variety of qualitative and quantitative information, all year long, in multiple markets. My team is multi-cultural and, although we're a small business, we have customers globally. That puts us in a good position to gather insights on all the trends. Trends are driven not only by what people tell consumer researchers, but also by the competitive activities of companies, improvements in food technology and ingredients, advances in nutrition science and many other parameters.
- Our algorithm interrogates this data to create a score for each trend. There are many trends beyond the top-10, but the 10 we have selected are those that score highest.

EXAMPLE OF A TREND DIAMOND

Each trend is evaluated through the lens of seven parameters.



and have become one of the biggest failures in food industry history. However, as we set out in KT6, **Plant Protein Paradox**, there are some strategies that companies can use to succeed with meat substitutes and we set out what these are, with examples of companies and brands following them.

The failure of plant-based meat substitutes is a good example of why you must not allow pre-conceptions to cloud your judgement – and why every trend must be explored and understood on every parameter. Exploring too-few data points will lead you astray.

Contrary to many people's expectation, **Animal Protein** continues to be successful and in-demand with consumers and there is no sign of that stopping. If anything, producers of dairy protein – and meats – have shown themselves to be highly creative in responding to the consumer and creating new demand.

For example, the strategy of 'grass-fed'. It's a message that has been around for about 7-10 years, but in the US it has clearly crossed the Rubicon and it is now emergent in Europe. For the small but growing segment of consumers who are motivated by it, grass-fed signals "better for the animal, better for the plant and better for my health". In today's market that is a trifecta for success.

Another success strategy developing fast within Animal Protein is delivering on sustainability. This is a commercial and environmental necessity and it's also what consumers want. Most people want to go on enjoying their favourite dairy foods and meats and knowing that companies are investing in sustainability creates 'permission to indulge'.

Because we have a rigorous methodology, we sometimes get answers that are surprising and force us to challenge our own preconceptions. And that's a good thing, because too many trend analyses are based on semi-educated guesswork.

"We sometimes get answers that are surprising and force us to challenge our own preconceptions. And that's a good thing, because too many trend analyses are based on semi-educated guesswork."

It's only when you have a rigorous approach and cover every single parameter (see Trend Diamond box) that you can come out with a true picture that is sometimes quite counter-intuitive.

Meat snacking, for example, has become one of the most successful categories in the supermarket in the US, with sales jumping by 13% in 2022 to $4.7bn (€4.6bn). This success runs completely counter to the narrative from consultants and media that people are turning away from meat. It turns out that a significant percentage are turning towards it for reasons of taste, health and convenience.

Challenging your own pre-conceptions and the herd mentality that many food industry executives are guilty of will be key to your success – and our goal is to help you do just that.

If you would like me or one of my colleagues to present our strategies (or selected strategies) to you and your colleagues, we can do that by webinar – and we can focus on the areas of most interest to your business or category.

To discuss any of the trends and the strategies in more depth, or to help you work out – in detail – the right path for your business, please get in touch with me by sending an email to: julian.mellentin@new-nutrition.com

I wish you every success!

HOW IMPORTANT IS THE RANKING OF THE TRENDS?

Customers often ask about how the rankings change from year to year. Interestingly, the scores our algorithm produces that enable use to rank the trends have been getting steadily closer together for the top 5 trends. This partly reflects:

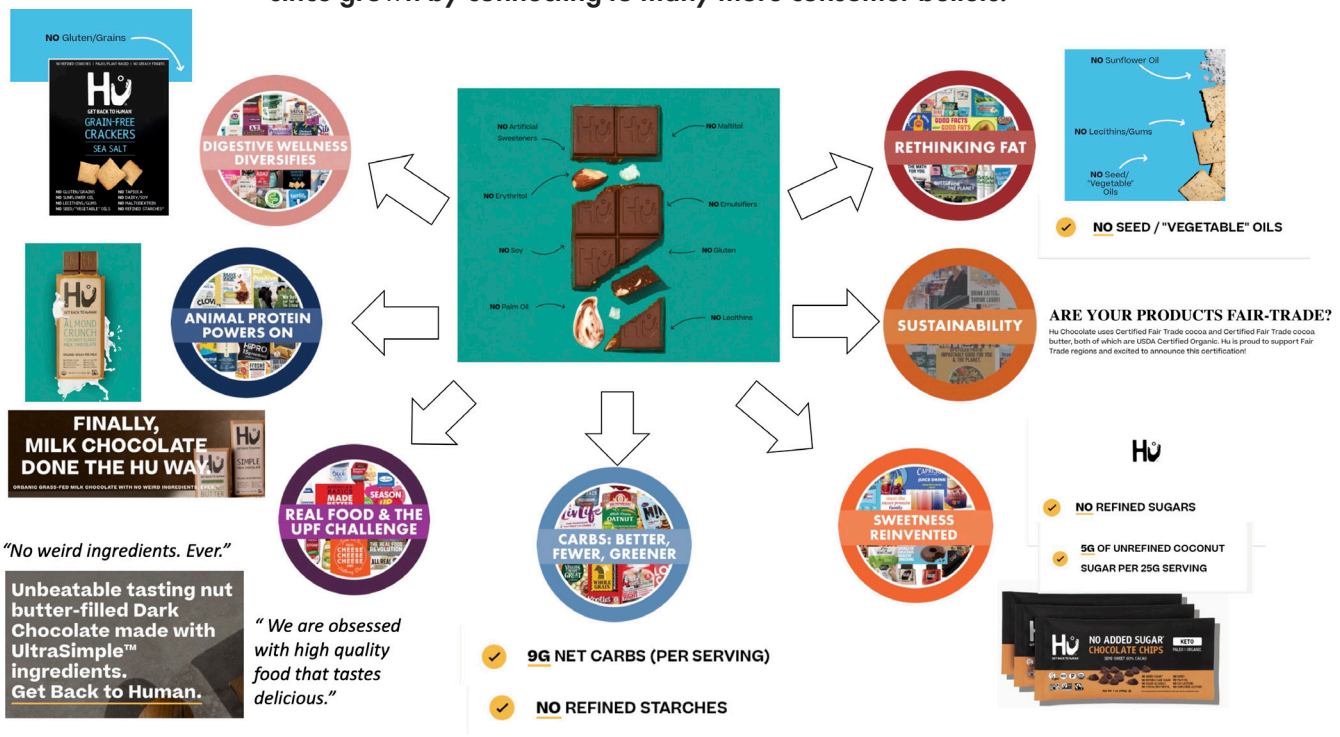
- The high level of innovation and creative NPD which is making products connected to these trends more accessible to more people.
- The Fragmentation mega-trend, which means they all get attention from consumers, sometimes from different tribes, but mostly because people are looking for more benefits.

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SUCCESS COMES FROM CONNECTING TO MULTIPLE TRENDS

Your chances of success will be improved not by focusing on one trend, but by connecting to multiple trends and so appealing to multiple tribes and multiple needs. And that the key to success is often not about choosing a highly-ranked trend, but which strategy you adopt (we lay out 42 on the following pages), how good your NPD skills are, and how good your execution is. All consumer trends are multi-dimensional.

Hu Kitchen, part of Mondelez, first became the world's most successful vegan confectionery brand. It has since grown by connecting to many more consumer beliefs.



LEARNING FROM FAILURE IS A SUPER-POWER

One of NNB's areas of unique expertise is studying failures in food and health. We have been creating failure case studies since 2001, and have published several reports that bring these together, the most recent in 2022. Understanding why brands and ingredients fail, and why some categories never deliver on growth expectations, is a vital part of enabling us to identify the growth strategies that you will find in each of the trends in this report. As economic challenges bite deeper over the next 3-5 years, willingness to understand and learn from failures will become a super-power for food industry executives. Our 20 years of research has identified the most common causes of failure, listed below.

1. Does not deliver on taste & texture
2. Ingredient, benefit & product format together do not make sense
3. Relies too heavily on the health benefit
4. Does not target the right consumer
5. Fails to make trend connections
6. Impatient & unrealistic sales expectations
7. Does not deliver a tangible benefit
8. Focuses on technology, not food
9. Relies on a health claim
10. Is a "me-too" product

ECONOMIC CHALLENGES WILL DEFINE YOUR STRATEGY

The next 2-3 years (at least) will remind us that if you want to excel at creating a successful strategy in food, nutrition & health, you also need to understand economics and be willing to meet consumer's needs when they are cutting back on household expenditure. Thanks to high inflation, an economic downturn, crippling levels of government debt and geo-political uncertainty, consumers face several years in which they will feel anxious and uncertain. When times are tough a back-to-basics mood takes hold of consumers - as we saw during the Covid-19 lockdowns. People turn to comforting and familiar foods. During covid that meant more meat (not plant-based meats), more cheese, more canned staples, bread and rice. To economise, people will turn more to private label products. And in an attempt to make themselves feel happier, they also turn to honestly indulgent products, putting their negative view of sugar on hold for a night of enjoying a delicious dessert.

The two charts are essential tools for understanding what is going to happen, and what has happened in the last decade. It all stems from the 2008 global financial crisis (GFC), when the global economy looked set to crash on a scale that exceeded even 1929. Fearing a massive 1930s-style depression, the central banks of the world – the US Federal Reserve, the European Central Bank, and most others – reacted to the financial crisis and the shortage of money in the economy by printing money on an unprecedented scale.

This is referred to as Quantitative Easing (QE). In the 21st century, printing money doesn't mean running a printing press – it means creating numbers on the screen. But the effect is the same. The charts show how the amount of money in circulation has expanded. When the coronavirus came along, central banks ran the printing presses again. Between 2020 and 2022, the US Federal Reserve printed more money than it had done in the whole of the previous 10 years. This money was available for financial institutions to use to fund investment activity and stimulate the economy. This cash did keep the economy moving along, but it also resulted in a surge in asset prices. House prices surged in most countries; New Zealand, for example, now has some of the most expensive houses in the entire world. It also inflated stock markets: the US stock market reached its highest-ever value.

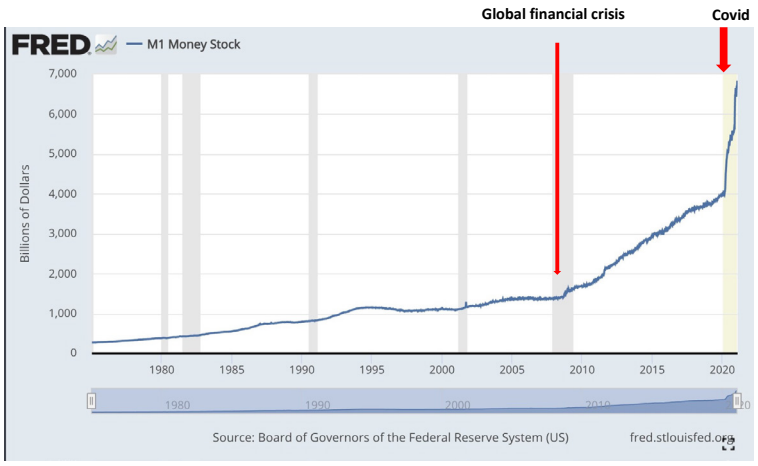
Awash with cheap money, investors embraced food and beverage start-ups with enthusiasm. All would-be entrepreneurs had to do was talk about plant based, alternative proteins, changing the food supply, reinventing the broken food system, or claim to have some kind of unique technology and money was thrown at them. As a result we've had a decade in which everyone and anyone could launch a business.

But with interest rates rising, central banks turning off the taps, energy and food costs growing and consumer incomes squeezed, this period of history, equivalent to the Tulip Mania in 17th century Netherlands, is coming to an end. An example is Beyond Meat, the maker of plant-based meat substitutes. It has never made a profit since it was created in 2012. It stands on the edge of a financial abyss. Oatly, which has stated its aim of getting to a billion dollars in sales ahead of making a profit (its losses are spiralling) stands alongside Beyond. They are just two examples of business models which never made sense and in a down economy make even less sense.

After an aberration we are returning to long-term thinking, careful strategy and figuring out how to justify our existence to consumers. "Jam tomorrow" business models are toast and it's established companies with the experience, the know-how, scale – and the ability to turn a modest profit – that will emerge in best shape from what lies ahead.

Chart 1: Central bank money printing has set us up for an economic crisis

The upper chart shows the huge expansion of the money supply in the US, by the Federal Reserve. The lower chart shows the same thing, for Europe, by the European Central Bank (ECB).



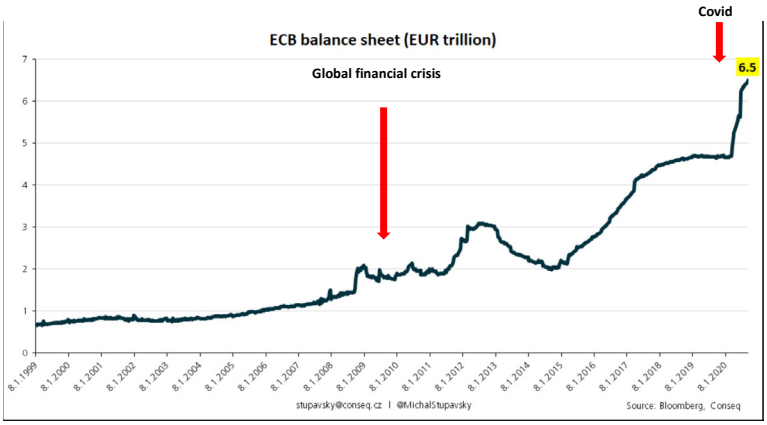
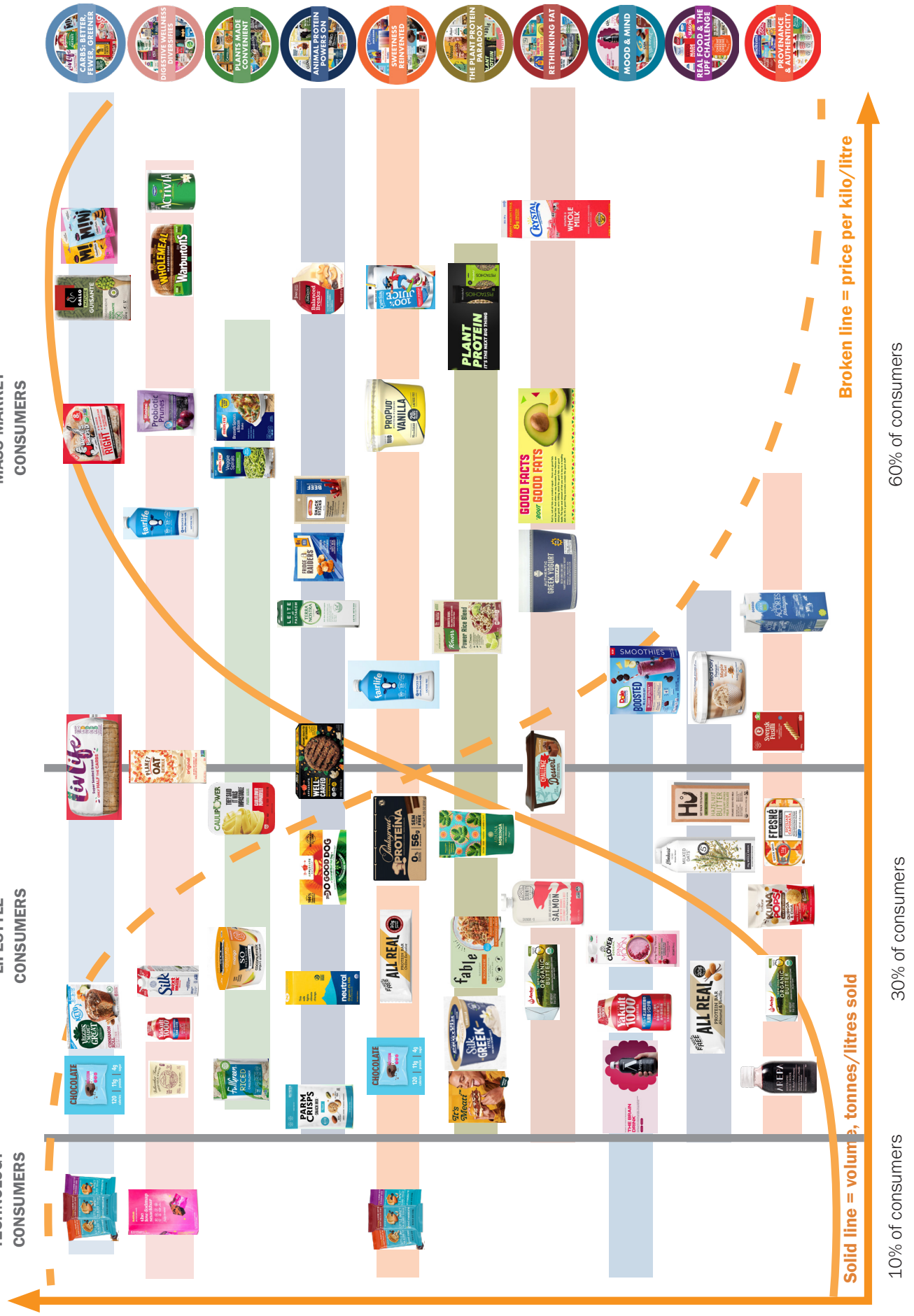


CHART 2: BRANDS IN THIS REPORT ON THE NUTRITIONAL PRODUCT LIFE-CYCLE



KEY TREND 1: CARBS – BETTER, FEWER, GREENER



- **Companies in carbohydrate categories have bright prospects:** Thanks to their ability to reinvent products they stay relevant to diverse and changing consumer beliefs about food and health – from more protein and vegetables to less grains or carbs.
- **Consumer motivations driving reinvention of carbs:** Weight wellness, digestive wellness, blood sugar control and simply "feeling better".
- **The additional benefits give people new reasons to continue enjoying familiar and favourite carb products:** People want to keep eating carbs (even if they've heard they should be cutting down) because many of these foods are a traditional and embedded part of our food culture – and offer comfort in uncertain times.
- **The strongly-growing trend towards fewer carbs in recent years has lost momentum for now.**
- **Permission to indulge:** Anything that companies can do to add to the health halo of their products – and give consumers "permission to indulge" in carbs – will be welcomed by consumers.
- **3 strategies for carbs**: 1. Grains with benefits 2. Greener 3. Fewer

KEY TREND 2: DIGESTIVE WELLNESS DIVERSIFIES



- **Around a third of us have digestive discomfort at any one time:** A happy digestive system is something consumers will always be motivated to seek – particularly over 40s, seniors and women.
- **Consumers can choose from a huge range of digestive wellness options:** And thanks to the fragmentation of consumer views, and industry creativity, there's a niche for all of these products.
- **Products that deliver a benefit people can feel will do best.**
- **The gut-brain connection is an emergent opportunity, addressing mood & mind:** But it's an opportunity best-suited to companies prepared to educate the niche of interested consumers.
- **Goat and sheep milk products are an innovation opportunity, particularly in the kids market.**
- **9 strategies in digestive wellness.** 1. Probiotics & fermentation 2. Fibre 3. Lactose-free dairy 4. Plant-based dairy alternatives 5. Gluten-free 6. Sheep & goat dairy 7. Grain-free 8. Emergent A2 dairy 9. Low FODMAPS

KEY TREND 3: PLANTS MADE CONVENIENT



- "**Plants made convenient" strategies offer as big an opportunity as plant-based dairy:** The opportunity is bigger than plant-based meat substitutes, and is more aligned with consumer preferences. These products offer convenience, appeal to food explorers, have a strong "naturally functional" health halo, and connect to multiple other trends.
- **Botanicals are quietly and steadily growing as an opportunity:** Many bring together a strong health halo with science-based benefits.
- **Convenient plants have wide appeal:** "Plant-based" by just one part of consumers' eating repertoire, and consumers have many other health interests. The word "vegan" on a product label is a turn-off for many consumers, suggesting poor taste – and in fact veganism and vegetarianism (only a small percentage of the population) have very little to do with the Plants Made Convenient trend.
- **4 strategies in Plants Made Convenient:** 1. Plants as heroes 2. Real vegetables replace starchy carbs 3. Health halo of botanicals 4. Profitable powders

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KEY TREND 4: ANIMAL PROTEIN POWERS ON



- **Demand for animal proteins is strong and growing:** This is particularly the case for dairy, with its powerful naturally healthy halo. Dairy businesses have excelled at reinvented traditional foods, from Greek yoghurt to cheese snacks, to deliver dairy's nutritional benefits.
- **Consumer demand for meat appears unshakeable in most countries:** Companies in meat or who use meat-based products or ingredients are embarking on the same path as dairy and are learning that even the most leading-edge young consumers will embrace meat-based products if they deliver a compelling benefit (such as collagen for skin health).
- **Strong sustainability positioning:** Dairy and other animal protein producers are driving towards better sustainability performance, such as achieving carbon zero status. This gives consumers "permission to indulge" in animal proteins. Particularly valuable for premium, niche brands, for most of the industry it will become a must-have message that does not enable you to get a premium price or extra volume, but is an insurance policy.
- **Plant-protein threat?** For 90% of consumers, it's not an "either/or" choice of animal vs plant proteins. They include both in their repertoires, depending on the meal occasion and their personal nutrition and health beliefs. The growth in the number of meat reducers is slowing sharply.
- **7 strategies in Animal Protein Powers On:** 1. Sustainability gives permission to indulge 2. Communicate animal protein's many quality advantages 3. Grass-fed 4. Nutrient density 5. Cheese reinvented as a healthy snack and meal centre 6. The successful snackification of meat 7. New directions in collagen

KEY TREND 5: SWEETNESS REINVENTED



- **Consumers' interest in sweet foods isn't going away:** products with high sugar content keep selling well, even though people consistently tell consumer surveys that "avoiding sugar" is their number one behaviour to support their health. People value sweet foods for pleasure, indulgence, celebration and a comforting mood boost,
- **Consumers will reward you for giving them permission to indulge in sweet products:** Industry has found a raft of creative solutions to the sweetening challenge, and they tick a range of consumer motivations – from natural to low-calorie.
- **A category standard in the kids market:** Many parents choose sweeteners they perceive as more natural and therefore healthier, such as date paste or honey.
- **4 strategies in Sweetness Reinvented:** 1. Reduce, replace, eliminate 2. Keep it natural 3. Sugar for energy and sports 4. Emergent – better blood sugar

KEY TREND 6: THE PLANT PROTEIN PARADOX



- **Protein is the nutrient that can do no wrong – and proteins from plants, notably nuts and legumes, have an extra halo of health:** Anyone marketing plant proteins or formulating them into packaged food has many things on their side: fragmentation of consumer beliefs, the 'plants are best' movement, and people's interest in the new and different.
- **The plant protein paradox:** Plant proteins have strong consumer pull and a positive image, but face significant technical and nutritional challenges. Inferior in many respects to animal proteins (in quality, bio-availability and micro-nutrients), they also deliver carbs to a product as well as protein. This paradox makes strategy a challenge; for some categories achieving significant growth will be difficult. These factors have already created a commercial disaster in plant-based meat substitutes, one of the biggest fails in food industry history. We set out better strategies for this category.
- **5 strategies in Plant Protein Paradox:** 1. Natural plant proteins 2. Plant proteins for a health halo & convenience 3. Gen 2 plant proteins – better nutrition, fewer ingredients 4. A better strategy for meat substitutes 5. Opening new protein ingredient niches

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KEY TREND 7: RETHINKING FAT



- **Consumers are gradually overcoming fear of fat:** The US market has led the way – sales of whole milk, for example, grew from $2.8bn in 2011 to $5.4bn in 2022, while sales of low-fat milk declined. The full-fat milk category in the US is now bigger than the plant milk category. This shift is slower in Europe, the Middle East and Asia.
- **Changing science is changing perceptions of fat:** Research from half a century ago attacking saturated fat has been discredited, and some consumers are realizing this (even if dietary guidelines haven't changed to reflect new science). But the improved image of fat that has been growing in consumers' minds may be plateauing, reflecting fragmentation of consumer beliefs.
- **Expect even greater fragmentation of consumer beliefs around fat:** Dairy is now a health fat for some consumers. However, the "healthy choice" status of some vegetable fats such as canola or soy will increasingly be under attack. This will confuse many consumers.
- **There are 3 strategies in this trend:** 1. Fat for health & indulgence 2. Keto friendly 3. Emergent seed-oil free

KEY TREND 8: MOOD & MIND



- **Universal need:** Consumers in most countries are interested in benefits such as alertness and focus, energy, improved mood and sleep, and managing stress and anxiety – particularly younger consumers who've felt the effects of the pandemic most strongly. However, as populations age (47% of Europeans are already over the age of 50), seniors will become the more important market.
- **Everyday foods for mood:** People have always used food to influence their mood, sleep and mental performance – and often everyday foods like chocolate or coffee that don't need any claims or deep science to back them up, what matters is people feel better after consuming them.
- **More of a challenge for foods and beverages with added ingredients:** Success is rarer for these products because of the challenge of delivering a dose that allows consumers to feel the benefit and that also tastes good.
- **There are 3 strategies in this trend:** 1. Natural health halo 2. Deliver a benefit the consumer can feel – or show consumers how to "feel the benefit" 3. Emergent gut-brain axis opportunity

KEY TREND 9: REAL FOOD & THE UPF CHALLENGE



- **Avoiding UPFs is only early adopters for now:** But it is starting to build mainstream awareness – in media, academia and among consumers. Few consumers would disagree that ultra-processed equals unhealthy (although many still want the convenience that processing brings). Media coverage of UPFs is uniformly highly negative. There is no shortage of academic researchers providing evidence to back up this point of view. Do not expect to be able to resist this tide of perception.
- **Consumer desire for a more authentic world:** Partly in response to the stridency of plant-based anti-meat advocates who appear to consumers to have pushed man-made, over-processed solutions on them. People prefer, for example, something from cows in a field, especially if it has a sustainability angle, to a processed meat substitute with 20 ingredients. This desire is what is powering the growth of messages such as "grass-fed".
- **"Real food" has no definition, it's what means "real" in the minds of consumers:** Broadly that means fewer ingredients, simpler ingredients, less processed, even artisanal and closer to home made. Consumers' expectations that convenient, packaged foods will be simpler and less processed – like home-made –will become a more important force. The good news is that industry already has know-how, processing skill to deliver less and better.

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KEY TREND 10: PROVENANCE & AUTHENTICITY



- **A growing and proven way to grab consumers' attention:** Provenance – a back-story anchored in place, culture, heritage, trust, perhaps made in a traditional way – has been growing in importance since about 2010, driven by the steadily-increasing number of people who want foods from 'somewhere', not just 'anywhere' (research shows 26% of people look for the country of origin on food and drink labels).
- **Creates confidence in your brand or ingredient and achieve sales growth:** Marketers are increasingly making specific and positive links between foods, cultures and good nutrition.
- **Multiple drivers:** These include consumers' love of a back story and consumer curiosity (we are all "food explorers" now).
- **The trend is extending its influence beyond brands to ingredient suppliers:** There's value in ingredients having a positive back story about health and about traditional usage, as shown by growing demand for turmeric, matcha tea and others. In a world where ingredients can be 'from anywhere', people find it reassuring that they come 'from somewhere'.
- **There are 4 strategies in this trend:** 1. Provenance from here, local and authentic 2. Provenance, authentically made "in the style of" 3. Provenance from there 4. Provenance guarantees the benefit.

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OPPORTUNITIES BY CATEGORY

High-growth opportunities, the market is not saturated, there are opportunities to innovate and differentiate.

Medium-growth opportunities, because the market is approaching maturity or is overcrowded with both emerging and established players.

Low-growth opportunity – the strategy has become a "hygiene factor" in the category, is no longer a point of difference (gluten-free snacks for example). Or the strategy is wrong for that category, or the space is so competitive it would be hard to create a point of difference.

**We have left blank those strategies which don't fit well with the category.*

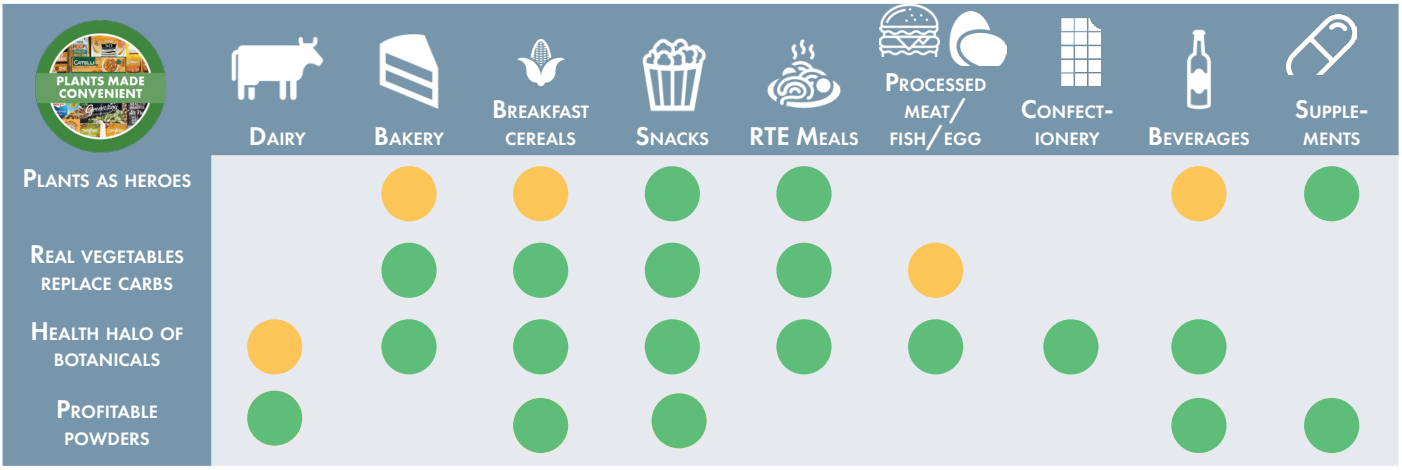


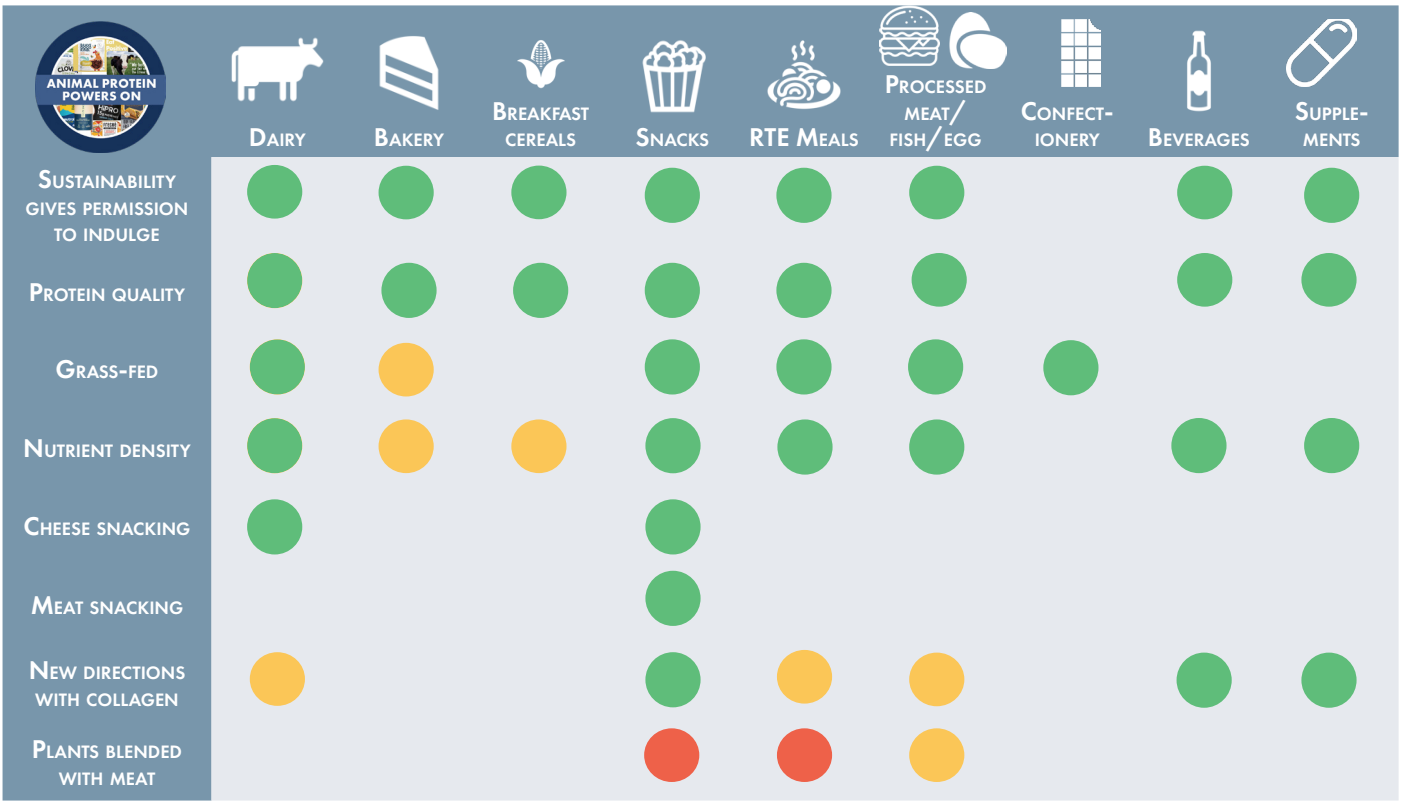
	Dairy	Bakery	Breakfast cereals	Snacks	RTE Meals	Processed meat/fish/egg	Beverages	Supplements
Better grains with benefits		●	●	●	●	●	●	
Greener		●	●	●	●	●	●	
Fewer carbs/keto lite		●	●	●	●	●	●	

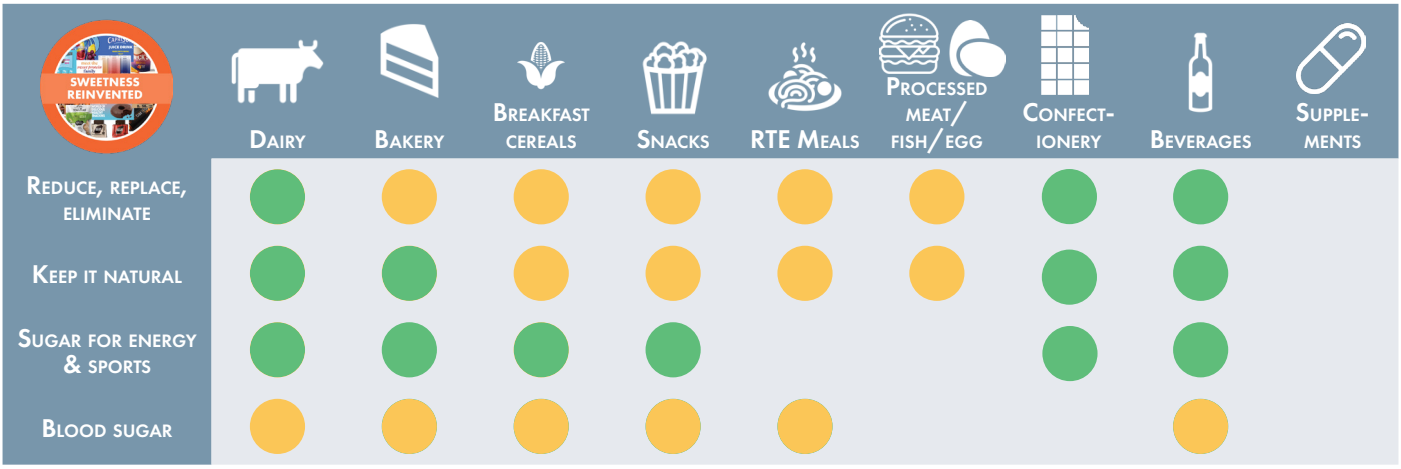


	Dairy	Bakery	Breakfast cereals	Snacks	RTE Meals	Processed meat/fish/egg	Beverages	Supplements
Probiotics & Fermentation	●	●	●	●	●		●	●
Fibre	●	●	●	●	●	●	●	●
Lactose-free dairy	●		●	●	●	●	●	●
Plant-based dairy alternatives	●		●	●	●	●	●	●
Gluten-free		●	●	●	●	●	●	
Sheep & Goat Dairy	●	●	●	●	●	●	●	
Grain-free	●	●	●	●	●	●	●	
Emergent A2 dairy	●							
Low FODMAP	●	●	●	●	●	●	●	

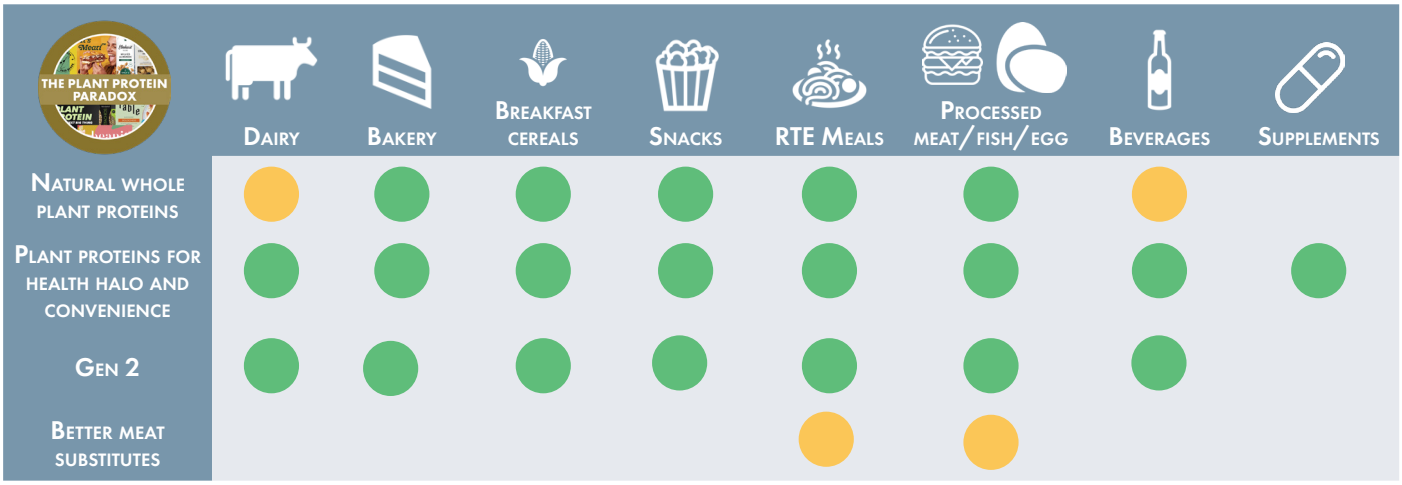
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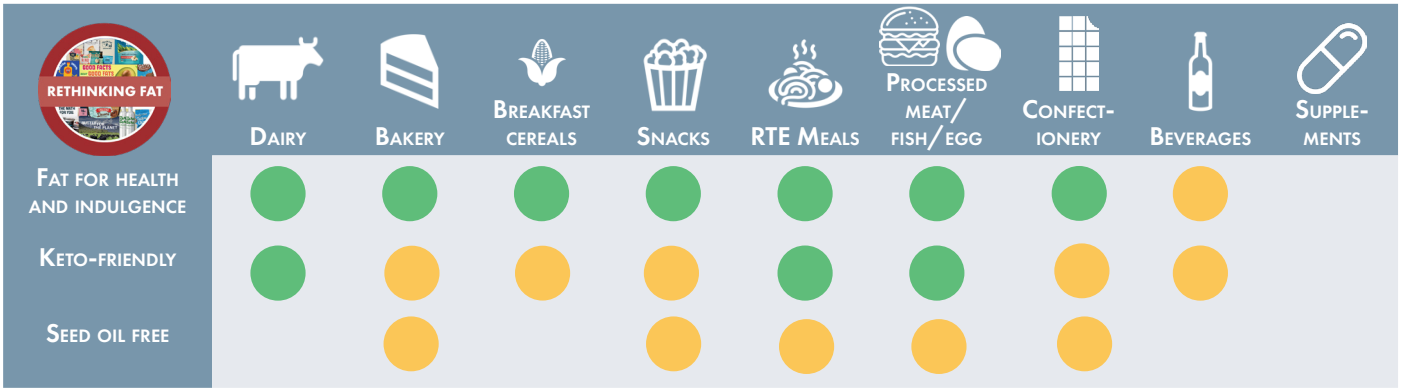


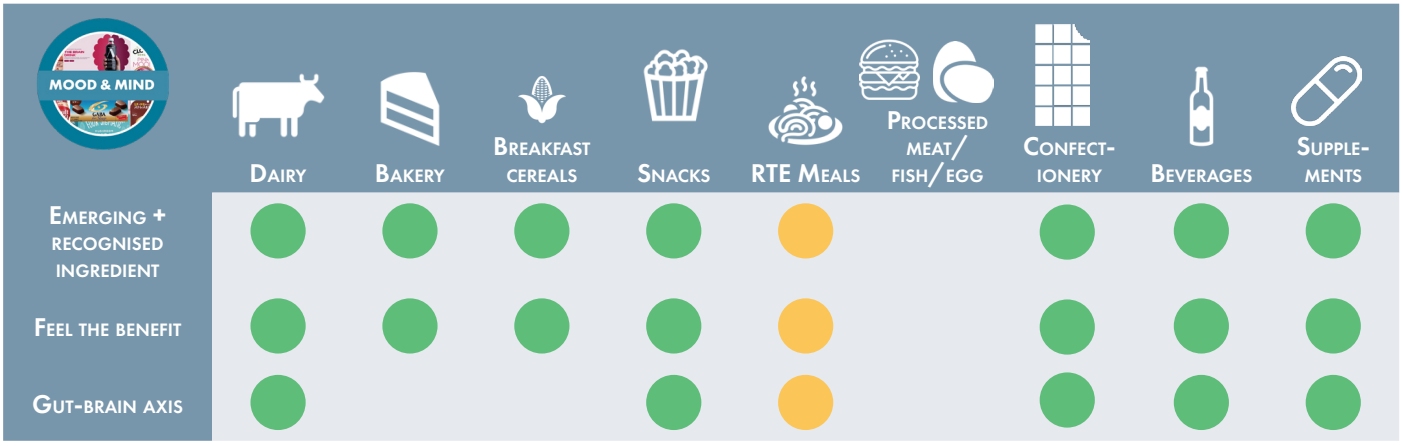




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THE PLANT PROTEIN PARADOX
Dairy
Bakery
Breakfast cereals
Snacks
RTE Meals
Processed meat/fish/egg
Beverages
Supplements
Natural whole plant proteins
Plant proteins for health halo and convenience
Gen 2
Better meat substitutes


RETHINKING FAT
Dairy
Bakery
Breakfast cereals
Snacks
RTE Meals
Processed meat/ fish/egg
Confect-ionery
Beverages
Supple-ments
Fat for health and indulgence
Keto-friendly
Seed oil free


MOOD & MIND
Dairy
Bakery
Breakfast cereals
Snacks
RTE Meals
Processed meat/ fish/egg
Confect-ionery
Beverages
Supple-ments
Emerging + recognised ingredient
Feel the benefit
Gut-brain axis



	Dairy	Bakery	Breakfast cereals	Snacks	RTE Meals	Processed meat/ fish/egg	Confect-ionery	Beverages	Supple-ments
	●	●	●	●	●	●	●	●	●



	Dairy	Bakery	Breakfast cereals	Snacks	RTE Meals	Processed meat/ fish/egg	Confect-ionery	Beverages	Supple-ments
From here	●	●	●	●	●	●	●	●	●
Provenance from there	●	●	●	●	●	●	●	●	●
Provenance "in the style of"	●	●	●	●	●	●	●	●	●
Provenance guarantees the benefit	●	◐	◐	◐				●	●



MEGA TREND 1: FRAGMENTATION OF HEALTH BELIEFS (I)

David Bowie told us what was going to happen, back in 1999. In an interview with the BBC, the visionary creative explained that "the internet shows us that we are living in total fragmentation" and that "there are always two, three, four, five sides to every question". He continued: "I think the potential of what the internet is going to do to society, both good and bad, is unimaginable. I think we are in the cusp of something exhilarating and terrifying. It's an alien life form...I'm talking about the actual context and the state of content is going to be so different to anything we can really envisage at the moment."

As Bowie predicted, one of the biggest drivers of change of the past 25 years is how dominant the internet and social media have become in consumers' thinking. And that applies to food, nutrition and health as much as to any other area of life.



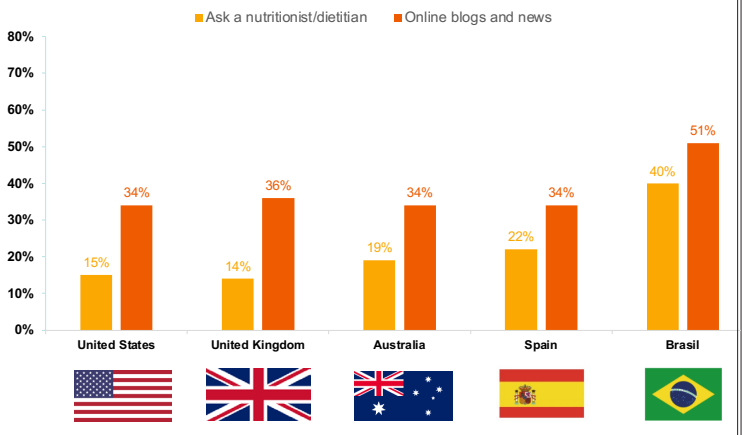
To watch this interview: https://www.youtube.com/watch?v=FiK7s_0tGsg

Dr Internet is where people go first for their information, as Chart 3 shows. People are able to do their own research, whenever and wherever they want, accessing more information and more opinions about food and health than has ever been possible in the whole of human history. Unlimited access to information - the revelation, if you like, that there are four sides to every question – has helped undermine the credibility of experts and will go on doing so. This is thanks in part to frequent changes in dietary orthodoxy – such as the flip-flops of advice about whether eating eggs is healthy or not. There is also the 'discovery' that there is no scientific basis for people to avoid consuming dairy fat, as we have been advised to do for 40 years.

And what are people to think when they can read dietary advice from a health authority saying that a low-carb and high-fat diet is potentially harmful for your health - and two minutes later read that in another part of the world low-carb and high fat diets are part of mainstream medical advice and are used to successfully treat obesity and diabetes? In this world of information, anyone who sets themselves up as the expert in possession of 'the truth' makes themselves look foolish.

Chart 3: Consumers turn to Dr Internet for health & nutrition advice

"Where do you get your information about food & health?"



Source: NNB 5-country consumer survey 2022

Changing views on saturated fat: from enemy to ally

1961



Influential researcher Ancel Keys: "Eat less fat meat, fewer eggs and dairy products."

2022



"...there is no scientific ground to demonize SFA as a cause of CVD. SFA naturally occurring in nutrient-dense foods can be safely included in the diet".



MEGA TREND 1: FRAGMENTATION OF HEALTH BELIEFS (II)

Increasingly people do their own research, and make up their own minds about what foods work for them. They personalise their diets and – and as with other areas of our world, notably politics and culture – we are splitting up into tribes, often with very strong and conflicting beliefs. Consumers' fragmented beliefs about health have in turn driven the fragmentation of markets. As IRI, the gatherer of supermarket sales data, said in 2019: "Average first-year sales of successful brands have settled at a lower level than in the past - the average new brand now has about half the level of sales of five years ago." That is why so many new niches and opportunities have arisen, and why markets have fragmented as the targets have got smaller. Big rapid successes are now outliers.

The power of the fragmentation mega-trend shows up in every growth trend and every category. While some consumers are embracing more plants, and looking for products with plant proteins, others embrace more dairy protein or bovine collagen for skin health. Some consumers seek "better grains", others fewer grains. Some consumers embrace high levels of fat, provided it's from a source they consider healthy, such as avocado oil. Others embrace more dairy fat. And some people do both.

What it means for strategy is that it will be harder for new brands to become mass successes in the way that was conventional 20 years ago. Brands will succeed, but at a much lower level of sales than many senior managements and shareholders would like. The fragmentation mega-trend is both a challenge and an opportunity. It's a challenge because the audiences for individual benefits and brands are smaller, and an opportunity because there's a niche for every idea. What is already key and will remain so is that the brands that succeed are more likely to be the ones that address multiple consumer trends and can appeal to multiple tribes.

Nestlé's Life Cuisine ready meals brand in the US is a good case of a company effectively embracing the fragmentation of markets. Life Cuisine was launched by Nestlé to offer "an extensive portfolio of entrées that fit evolving definitions of wellness". It is an intelligent approach to personalisation, offering something for everyone – regardless of the diet you follow or the lifestyle you lead. The reward for its focus on taste, and on consumers' diverse needs, was to be one of the 10 most-successful new launches of 2021, earning $72.8m (€71.1m) in year 1 retail sales. The original range featured 15 frozen RTE meals and has grown to 21 SKUs:

1. Low carb (6 SKUs)
2. High protein (3 SKUs)
3. Meatless (3 SKUs)
4. Gluten-free (9 SKUs)



Burgo de Arias is one of the most popular cheeses in Spain. Made with only 100% natural ingredients, it makes an excellent dessert (served with chopped walnuts and honey for example) and naturally delivers about 11g of protein per 100g. This traditional brand is one of many that has adapted itself to the multiplication of consumer's needs. Alongside the traditional product there are variants that are: low salt, reduced fat, 0% fat, lactose-free, organic and one made with goats milk.





MEGA TREND 2: NATURALLY FUNCTIONAL

What people want, more than anything else, is for their foods and beverages and ingredients to provide a benefit they perceive as natural and intrinsic to the food. Naturally functional is one of the biggest innovation drivers of the past 20 years, because consumers want naturally functional, and because of the skill of NPD teams in taking traditional foods and ingredients and delivering them in new products, with better taste and greater convenience. This Mega-Trend has been one of the biggest innovation drivers of the past 20 years. It has driven the reinvention of almonds, avocados, blueberries, Greek yogurt, chia seeds and many more foods and food ingredients. It is powerful and over-arching, influencing all the other trends and affecting all categories.



"Our yogurts are naturally creamy & good for you too."



"The best days start naturally".



POWERFUL DRIVER for ingredients and brands

"Extra virgin olive oil - packed with goodness and full of medicinal like qualities."





"Avocados contain the good stuff"



"Good health in a nutshell".



"Known for protein and fiber, Wonderful Pistachios is a smart snack…a tasty little power-house of heart-healthy goodness."

"Our vibrant emerald-green tea powder comes from tea leaves grown and ground in Japan."





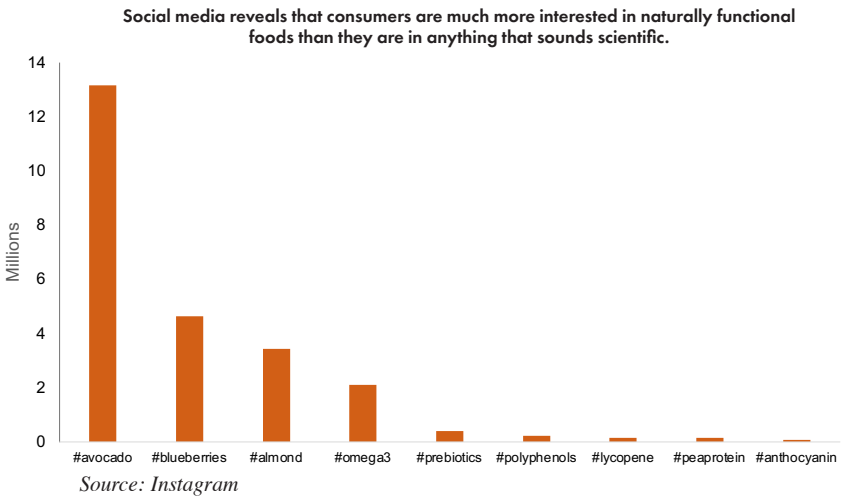
British Columbia blueberries: "Nature's candy".

"Naturally functional" is behind the success of almonds, Greek yoghurt, olive oil, blueberries and many more

What naturally-functional means for brands: A wealth of ingredients signal "health" to consumers. Brand owners can choose naturally-functional ingredients as the core of the product, or use a much smaller percentage in the final product to provide a health halo.

Powered by media attention: The media give naturally functional ingredients constant and positive attention. Media is about generating clicks - for advertising revenue - and journalists have learned over the last 20 years that articles about the intrinsic health benefits of natural foods get clicks. The endless flow of mainstream and social media attention helps raise consumer awareness and create new desires.

Chart 4: Instagram reveals consumer interest in naturally functional



Source: Instagram

No health claim needed: Consumers love everything from dates (natural sugar and fibre) to chia seeds (protein, fibre and omega 3) because they perceive these foods as being natural carriers of the benefit. Naturally functional foods don't need to be backed up by scientifically-proven health claims. When consumers can draw their own conclusions (thanks to constant positive media attention) no scientifically-proven health claims are needed. The health halo is enough of a message.

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MEGA TREND 3: WEIGHT WELLNESS

Weight wellness is the powerful consumer motivation behind most of the trends in this report. More protein, more fat, less fat, less sugar, fewer and better carbohydrates, intermittent fasting, more plants – all are fuelled by consumers' desire to lose or maintain weight, to look good and feel good about themselves. This desire is an underlying, even subliminal, aspect of most people's daily eating decisions. And for many people, better health is merely a happy side effect of looking more trim.

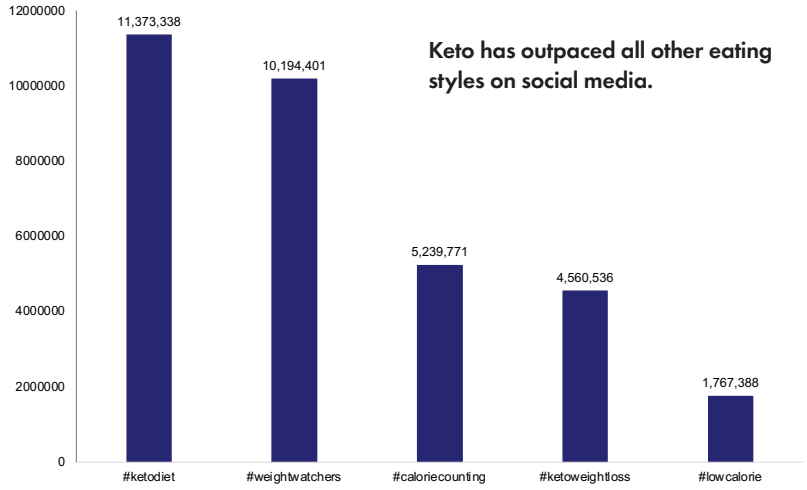
Weight wellness has shifted from being about a special category of foods to being an everyday part of people's lifestyles. For many people, it is about using "real" foods to lose or manage weight. Some are also starting to embrace the message that "avoiding ultra-processed foods" helps with weight wellness, factors contributing to the emergence of Key Trend 9, Real Food & the UPF Challenge. Consumers' wish for weight wellness influences the decisions of product developers every day, even when products are not sold with any stated weight management benefit. Regardless of what messages it is hidden under – be it "low calorie" or "high protein" – the key aim for most food and beverage companies is to create products that have as few negatives as possible for a weight-conscious consumer – in other words, most consumers.

Promoting your brand as being explicitly for weight loss won't get you very far; much better to connect to one of the trends that signifies weight loss in people's minds. A good example is Slim-Fast, one of the biggest dieting brands in the western world back in the 1990s. Today it's a brand with falling sales – except for the products connected to protein.



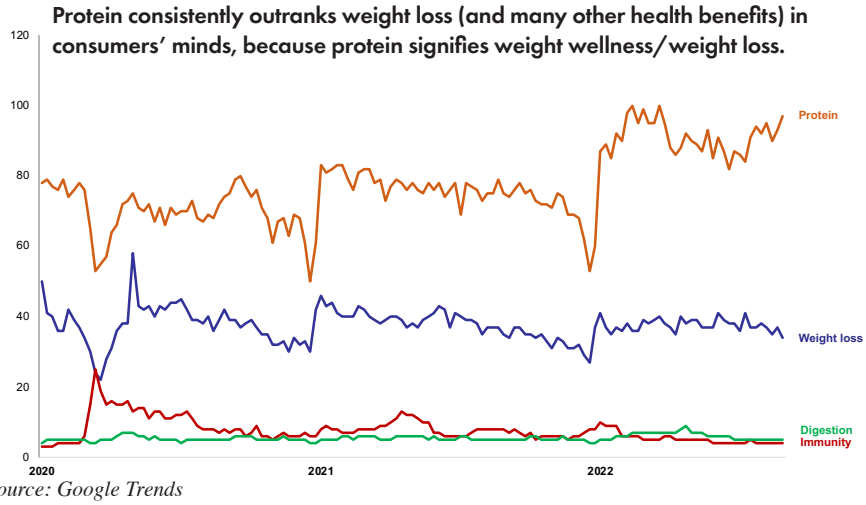
Few customers want products overtly for 'slimming'. In the hands of Unilever, sales of the SlimFast dieting brand fell from $611m in 1999 to $212m in 2017, when it was bought by Irish dairy giant Glanbia. In 2021 Slim Fast had sales of $228m. However, in the first half of 2022 SlimFast's sales fell by 12%, prompting Glanbia to say it plans to relaunch the brand. The only successful launch from SlimFast is its Keto Fat Bombs, which achieved $26.1m in 2021, accounting for 10% of the SlimFast brand's total sales.

Chart 5: Instagram weight loss hashtags, YTD Sept 2022



Source: Instagram

Chart 6: Worldwide Google searches for weight loss



Source: Google Trends



MEGA TREND 4: SNACKIFICATION AT THE HEART OF STRATEGY

If a snack version of your product isn't already part of your strategy, you should go away and rewrite it. Most of the biggest successes of the last 20 years have been brands selling primarily single-serve products. If you want to drive growth, make it a snack. Consumers love to experiment with new products and taste experiences, but buying something new is risky. Will it taste nice? Will it be worth the money? A single-serve format reduces that risk, because snacks are usually sold at a low price per unit (even for premium products). If the product disappoints, the loss for the consumer is not significant.

The current market for protein-based products, for example, arose because companies found ways to deliver protein in good-tasting single-serve forms, not because of family packs or bulk packs. Snacking is no longer about consuming between meals, it is becoming meals – meals for one, meals consumed on-the-go. Consumers are very willing to buy all types of innovative snacks offering all kinds of ingredients and benefits, thanks largely to the fragmentation of consumer beliefs about health and nutrition (see Mega-Trend 1).

Retailers are often willing to give shelf-space to new snack products – particularly in convenience stores and the grab-and-go section of larger stores – because the commitment of shelf-space is less, their commercial risk is lower and it's easy to replace an under-performing snack brand with another one.

Snacking also has low barriers to entry, hence the explosion of new snack brands since 2010. Most of these products are simple me-toos – particularly in segments such as bars and bites and healthier chips. That means that the snacking space is more competitive than ever. Companies have to work harder to create a product that brings a real point of difference for the consumer. Below we set out a checklist for a successful snackification strategy.

8 elements of a successful snacking strategy

1. **Give people "permission to indulge"**



2. **Be unashamedly premium**



3. **Connect to the key growth trends**



4. **No limits on NPD**



5. **Make a traditional food convenient**



6. **Make what's old new again**



7. **Be unashamedly indulgent**



8. **Sustainability gives permission to indulge**



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MEGA TREND 5: SUSTAINABILITY (I)

Over the past 10 years sustainability has become part of every company's strategy, no matter what category you are in. Sustainability is no-longer a competitive advantage. It is just what consumers expect our industry to do and – except for about 10%-15% of consumers – they will not reward you with a higher price, nor will they buy (much) more of your products. Your company should do it because it is the right thing to do.

CHECK-LIST FOR SUCCESS WITH SUSTAINABILITY

1. Actions should be specific and measurable. It is better to do a few things well than try to be 'all things to all men'. The more specific you are, the lower the risk of looking like green-wash.
2. It creates value when used by brands that are premium priced and lifestyle oriented. The early adopter consumer is willing to pay a premium for sustainability, the mainstream consumer is not.
3. Consumers expect industry 'to do the right thing' and the mass market shows no sign of rewarding us for it. In a survey of 10 European countries by the European Consumer Council, in more than half of the countries consumers were unwilling to pay more for sustainable food. The coming 3-5 years of economic difficulty will only reinforce this.
4. Consumer research from the International Food Information Council (IFIC) and many others shows that consumers rank sustainability below price, convenience, taste and health benefits. For all brands it is just one part of their positioning and less important than connecting to the key growth trends (such as snacking, protein, plants) and taste.
5. Sustainability messages are more interesting for consumers when they link benefit to me & benefit to planet ('grass-fed', 'organic').

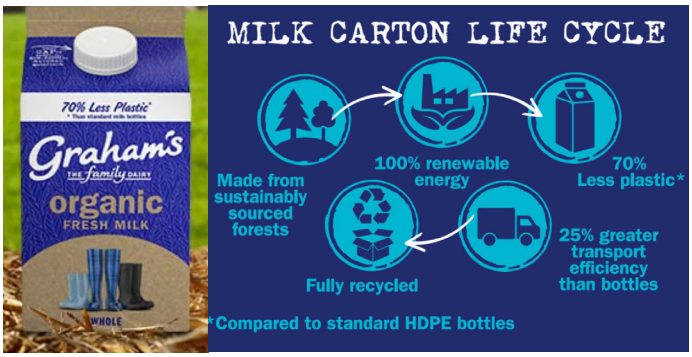
So how do you communicate sustainability? Step 1, avoid making big claims. The bigger and bolder the claim, the more suspicious it seems to many people. And if you do make a claim, make sure you can back it up with concrete evidence. Consumers are bombarded with hundreds of sustainability claims every week – from airlines, car companies, holiday providers, banks – and this has made them a little immune and a little sceptical. Instead, take baby steps and stick with sustainability messages that are credible and supportable with facts. Making a claim specific for an environmentally responsible approach to packaging is more credible to consumers than a big claim that you are a 'net zero' company. You can take a similar targeted approach with a range of other steps that support planetary health – investing to support bio-diversity on farms, improving soil health, protecting bees, improving animal welfare, increasing the percentage of energy you use from renewable sources. Over time, these will build up a picture for consumers of things they can easily understand.

PACKAGING

Packaging is the first way consumers see a company's commitment to sustainability, and it may be the most important.



US family-owned dairy **Clover Sonoma** introduced a post-consumer recycled (PCR) milk jug to support a closed loop recycling system. Starting with 30% PCR content on its organic milk line, the company has committed to increasing PCR content across all Clover Sonoma milk jugs by 2025.



UK family dairy **Graham's** offers its organic milk in cartons made from renewable materials, produced with 100% renewable energy. This way, it uses 70% less plastic than the standard UK milk bottles while ensuring at least 25% greater transport efficiency.



MEGA TREND 5: SUSTAINABILITY (II)

PERMISSION TO ENJOY

While consumers want environmental sustainability, they also want to go on enjoying favourite foods. If they can see that you are making serious steps with sustainability that's the permission they seek. Meat and dairy companies have begun to focus on sustainability (see KT4). And because meat and dairy appeal to the majority of consumers in so many ways – taste, texture, familiarity, nutrition, versatility, food culture - most consumers want to hear positive stories about animal welfare and farms caring for the planet. Positive stories take away the sense of guilt that anti-animal food campaigners are trying to create.

A very good example of this strategy is the latest launch in the US market from **Fonterra**, the New Zealand dairy group. It combines the attractions of provenance, grass-fed cows, carbon zero and organic, all terms that signal sustainability to the consumer. These terms also signal 'healthier product'.



Neutral Foods, said to be America's first carbon neutral food company, has secured investment of $12m and is selling its Carbon Neutral Organic Milk in Target, Kroger and other supermarket chains. Its presence on the shelf reminds consumers that even a category demonised in the media in relation to emissions can be part of the solution to climate change and not just part of the problem.



THE FUTURE OF SUSTAINABILITY

1. It's a motivation to purchase in the health-active lifestyle segment of the market (usually associated with higher incomes).
2. But there's limited/no evidence of it becoming a strong reason-to-purchase in the mainstream. The sustainability messages that are the most effective in the mainstream relate to packaging, but at little/no price premium.
3. Difficult economic conditions will be the strongest driver of consumer decision-making and limit the urge to pay more for a product with sustainability credentials



KEY TREND 1



CARBS - BETTER, FEWER, GREENER

Consumers willingly embrace "better grains" of all kinds. There's a wealth of opportunities to renovate carbohydrate categories with provenance, more protein, less sugar and fewer simple carbohydrates.

Creative NPD continues to deliver products that give consumers 'permission to indulge' in carbs.

"Wholegrain plus"



Pasta with vegetables



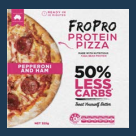
Snack with vegetables



Successful brands link to multiple trends



Keto lite



3 STRATEGIES IN CARBS

BETTER GRAINS WITH BENEFITS

- Health halo of "wholegrain plus"
- Smaller portion sizes
- Carbs deliver on energy benefit



FEWER CARBS + KETO LITE

More protein, less sugar





GREENER CARBS

A percentage of vegetables gives permission to indulge



Economic challenges will see people turning more to carbs which are affordable and satisfying.

Companies in carbohydrate categories – breakfast cereals, bread, cookies, pasta and even potatoes – have bright prospects. This is thanks to their willingness to:

- reinvent their products in ways that keep them relevant to consumers' diverse beliefs about food and health (see MT1).
- connect to the key consumer growth trends.

Whether consumers are looking for more protein, more vegetables, more fibre, fewer carbohydrates, better grains or fewer grains, NPD teams find ways to creatively deliver these needs.

Consumers have responded by embracing these new products. The additional benefits give people new reasons to go on enjoying their favourite cereals, breads or even cakes, providing them with 'permission to indulge'. Around the world, carbohydrate-based foods are deeply-embedded in every food culture and have been since humans first took up agriculture thousands of years ago. They were traditionally a large part of meals (and dietary guidelines still tell people they should be 45%-65% of daily calories) and a cornerstone of people's energy intake. They are also about convenience, pleasure and comfort, as was shown by the surge in demand for carbohydrate foods, from bakery to pasta, during the lockdowns of 2020-21. Anything that companies can do to add to the health halo of their products will be welcomed by the majority of consumers.

"Based on what happened during past economic crises, notably 2008-10, people will be turning more to carbohydrates as the economical, satisfying and nutritious option."

Partly as a result of the way that carbohydrate categories have worked hard to keep themselves relevant, and partly because fashions have moved on (food, even in the nutrition and health area, is strongly influenced by fashion), the low-carb movement appears to have peaked in many countries. Our 5-country survey found that around 26% of consumers say they are trying to consume fewer carbohydrates – which is down from 29% in 2020. It's an eating pattern that skews more female (30%) than male (21%).

The 'bad carb' that people say they most want to cut back on is, of course, sugar. Reducing sugar consumption is one of consumers' biggest interests. Although low-carb eating styles almost always mean reducing sugar intake, we address sugar separately (see KT5).

Over the past 30 years there has been a steady shift by consumers towards choosing better carbs, and in particular better grains, driven since the early 1990s by strong and consistent messaging by both industry and public health authorities about the health benefits of whole grains and fibre.

Whole grain labels have become a standard in breakfast cereals, breads and other categories – a basic must-have to be in the category, but no longer something that creates a point of difference. In NNB's consumer survey, 84% of respondents perceived whole grains as good for digestion. Whole grains share the positive digestive health connection with fibre, also an everyday message in many categories.

Chart 7: The most successful brands link to multiple growth trends



One factor which will be very supportive of carbohydrate categories is the emerging economic crisis. People will be faced with high inflation, or economic downturn and financial insecurity, or both. Pasta, bread and most other categories are affordable, filling, comforting options. Based on what happened during past economic crises, notably 2008-10, people will be turning more to carbohydrates as the economical, satisfying and nutritious option.

The past decade has seen steady growth in sales of artisanal, sourdough and other premium breads. But in a weakening economy customers with stretched budgets turn to lower-priced options. White bread, for example, is familiar and affordable and sales are rising. In the UK, upscale supermarket chain Waitrose reported a 17% jump in sales of white bread in 2022. Despite the marketing and popularity of whole grain breads, white bread has regained a 62% market share.

What does it mean for strategy?

It's very clear that if you are operating in a carb category there's both an opportunity and a need to find more ways to upgrade your products. Some of the strategies you can adopt are outlined on the following pages.

There are three strategies for carbs, each of which has its own tactics and variations:

1. **Better grains with benefits**
2. **Greener**
3. **Fewer**

CONSUMERS' FEWER CARB MOTIVATIONS

There is a wide range of consumer motivations for eating fewer carbs. Weight wellness and digestive wellness are the two biggest drivers of consumers' behavioural change.

1. Supporting weight wellness

a. Changing or reducing carbohydrate intake and swapping starches for vegetables as "better carbs" (at least some of the time).
b. Aiming to maintain a healthy weight by increasing protein intake in place of starches.
c. Maintaining a healthy weight by increasing fat and protein intake in place of carbs.
d. Maintaining a healthy weight by reducing sugar consumption – looking for something in place of cookies and cakes.

2. Improving digestive wellness: Avoiding products containing gluten or grains (grain-free is an emergent consumer interest) in order to avoid the risk of digestive problems such as bloating, gas or diarrhea.

3. "Feeling better": Continuing to eat some carbs, but removing one or two because they believe they "feel better" without them. These are people who believe they are "sensitive to carbohydrates" or sensitive to a specific carbohydrate, prompting them to reduce their carb intake. An example is eliminating potatoes and pasta while continuing to eat rice.

4. Managing blood sugar: People who are diabetic or pre-diabetic are increasingly turning towards low/lower carbohydrate diets – often prompted by diabetes patient organizations and forums — to help them manage a healthy and stable blood sugar level. The idea of maintaining stable blood sugar for health is gaining wider currency – perhaps more for its "steady energy" benefits than reducing diabetes risk. People try to cut out "fast carbs" and look for "slower carbs" to eat in their place.

In the UK, low-carb diets are now a mainstream medical treatment for diabetes management.



In the UK, the Royal College of Physicians is provnding training for doctors in how to use low-carb to reverse diabetes – and enable patients to come off medication. So far, 2000 UK family physicians have been trained.



UK family physician Dr. David Unwin: almost 100% success rate in reversing Type 2 diabetes and achieving significant weight loss in the first medical practice to pilot low-carb diets with diabetics. The practice lowered its annual drug bill by more than $100,000.

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STRATEGY 1: BETTER GRAINS WITH BENEFITS (I)

CONSUMERS

Over the past 30 years there has been a steady shift by consumers towards choosing better grains and fewer refined grains, driven from the early 1990s by strong and consistent messaging about the health benefits of whole grains and fibre. Most consumers know they should include more higher-quality grains in their diet (as defined in the mind of the consumer, not a technical or regulatory definition). Some are reducing their consumption of carbs while also making sure the ones they do eat are higher quality. Consumers have embraced 'better grains' of all kinds. Grains benefit from their link to digestive wellness – in NNB's consumer survey, 86% of respondents perceived whole grains as good for digestion. However, whole grain and fibre labels have become a standard in breakfast cereals, breads and other categories – a basic must-have benefit in the category and no longer something that creates a point of difference. Successful brands offer some benefit additional to those of whole grain or fibre.

MARKET DEVELOPMENT

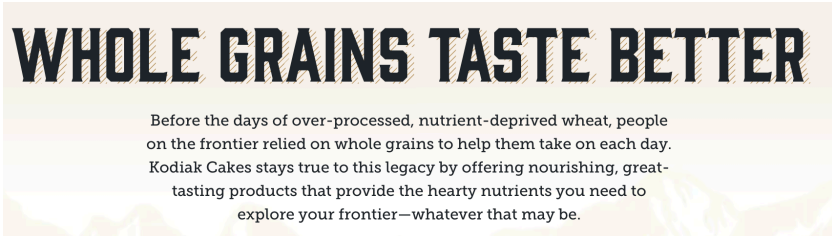
Ingredient companies, NPD teams and others have done an excellent job of building consumer interest in better grains. It can mean using grains with a strong 'naturally functional' health halo – with oats the strongest-performing example at present. It can mean using more unusual grains, grains with provenence or with a sustainability position. Many grains have strong credibility with consumers on sustainability, from quinoa to spelt to rye. It can also mean pairing grains with protein or ingredients for immunity, for example. Lifestyle brands such as Dave's Killer Bread, and also mainstream companies such as Grupo Bimbo, the world's largest bakery company, have created products that reinforce carbohydrate categories' position as being about both health and enjoyment, thus keeping their products highly relevant for the majority of consumers. This trend will continue.

COMPANIES AND BRANDS (I)

WHOLE GRAIN PLUS

The whole grain message is one that is widely recognized by consumers in many countries and has positive health associations. However, the whole grain message appears on so many products that for most people it has limited value as a motivation to purchase. At best it is a reassurance message.

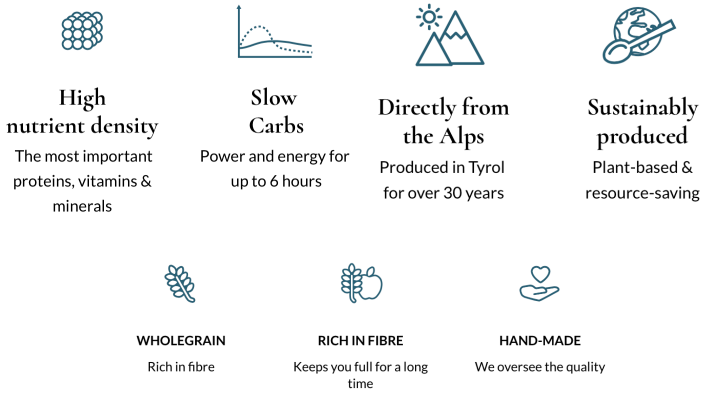
Kodiak Cakes has shown that the whole grain message has most value when it is combined with other (more compelling) consumer benefits, such as more protein.

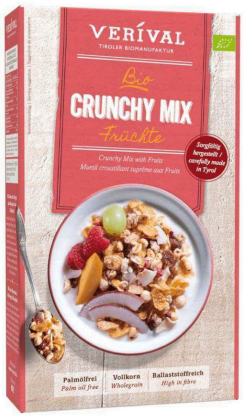


First ingredients: 100% whole grain wheat flour, 100% whole grain oat flour



Austrian breakfast cereal maker **Verival** has become a success in several Northern European countries by combining the whole grain benefits of its products with other attributes, such as nutrient density, provenance, real foods, protein, fibre and many others.





STRATEGY 1: BETTER GRAINS WITH BENEFITS (II)

WHOLE GRAIN PLUS CONTINUED

Nestlé is possibly the biggest marketer of whole grain benefits in Europe. Its **Fitness** breakfast cereal in Portugal is promoted as having whole grain as the No 1 ingredient. But like most whole grain brands it must offer something more. Fitness also communicates that it is a source of 'nourishing energy from whole-grain wheat and oats' and prominently shows that it is rated 'A' under Europe's Nutri-score system, which ranks foods from A to E (from most to least healthy). The label explains that: "For over 17 years we have been improving the nutritional profile of our recipe with the result that our cereals are: 58% whole grain and have 30% less sugar than similar cereal."







Nestle's Nestum cereal takes three routes to offer more benefits than just whole grain – in this case an immunity benefit, from vitamins C, B6 and B12, the Grain Smart logo and Nutri-Score A. GrainSmart logo products are those that deliver a ratio of 10:1:2 for carbohydrates, fibre and sugar. Nestum's package states: "The Grainsmart balance is a Nestlé guarantee that reflects a correct balance between 3 important nutrients to start the day – carbohydrates, fibers and sugars. Scientifically proven to provide a high-quality nutritional product, this composition is recommended by nutrition specialist to help consumers select nutritionally balanced products."



Dave's Killer Bread is the best-selling organic, whole grain packaged bread in the US. Launched by David Dahl, after his release from a 15-year prison sentence, the brand debuted in 2005 and in 2015 was acquired by US bread giant Flowers Food for $275m and is now also sold in Mexico and Canada. The brand's tagline is "bread, amplified" and it emphasises taste and the nutritional profile, which is highlighted front-of-pack. The brand's newest product line, Killer Bread Burger Buns, achieved Year 1 sales of $25.4 million. Overall brand sales grew 15% in Q1 2022, on volume gains of 5.3%. Messaging includes:

- 6g of protein
- 8g whole grains
- No bleached flour
- No high fructose corn syrup
- Artisan-style
- Organic
- Non-GMO certified







32g carbs, 8g whole grains, 6g protein per 62g bun





22g carbs, 5g protein per slice (45g)

"The best bread you've ever tasted, power-packed with organic whole grain nutrition." 21-grain mix includes oats, millet and amaranth.

STRATEGY 1: BETTER GRAINS WITH BENEFITS (III)

COMPANIES AND BRANDS (II)

NATURAL HEALTH HALO OF OATS

We use oats as the case study here, but oats illustrate a strategy that could be applied to many foods. Marketing a grain because of its health halo and its intrinsic health properties connects to mainstream consumers' positive views about grains. Oats were marketed as a good grain for 25 years – pioneered by Quaker first in the US, then in Asia, with the cholesterol-lowering health claim, and later the better-for-your blood sugar message. Oats have established a resilient naturally-functional position in consumers' minds. There is a surge in consumer demand, reflected in the number of new products launched, and oats are showing up as an ingredient in more and more categories. Over the past decade in Europe launches of bakery products featuring oats are up by 90%, snacks by more than 100%, and breakfast cereals by 150%. It's a classic example of the most successful strategy in the food industry, worldwide, which is 'traditional foods reinvented' – taking something natural and easily understood and making it available in new, more interesting and more convenient products. The surge in marketing for oat milks has undoubtedly helped, but that has come on top of 20 years of growing consumer awareness. Oats naturally connect to multiple consumer trends:

- A positive sustainability profile
- A natural and simple 'real food'
- Provenance and authenticity
- Naturally healthy
- A source of fibre – and for some consumers now also a source of protein (protein content of oats is low, but consumer perception gives it a higher score).



14g carbs, 10g total fat, 11g sugar per 25g bar

Trader Joe's 40% cocoa oat chocolate bars use a combination of ground oats and rice syrup: "Only, there's no milk! Nor is there any soy or gluten in these totally vegan Oat Chocolate Bars." This is a good example of how oats can create "Permission to Indulge".



1 slice is 13g of whole grains, and has 4g protein, 3g of added cane sugar. 25g carbs per 48g serve.



Ruokakaura, oats to be used in place of rice: 57g carbohydrate, 14g protein, 6.3g fat per 100g serve.

Brownberry's Oatnut bread incorporates hazelnuts and oats. They are only a small percentage of the product but provide a health halo.

Fazer, one of Finland's biggest food companies, is using oats to deliver a good grain that also meets consumer demand for more plant-based foods. Most of its **Willja** range of veggie bites, oat "rice", yoghurts and cooking products features oats in the top-3 ingredients. The range has a strong provenance and sustainability message, described as "powered by local Nordic oats": "First-class oats are grown in the same place where our mills are located, making it a sustainable option."

STRATEGY 1: BETTER GRAINS WITH BENEFITS (IV)

TRIM THE VOLUME

Reducing portion size by making a product thinner, smaller or less bulky gives consumers "permission to indulge" and consistently produces sales success.



A slice of **Dave's Killer Bread** has only 70cals. "Big nutrition in a little slice! Our Thin-Sliced breads deliver the same killer taste and texture in a smaller, thinner package."



3g protein, 2g fibre, 16g whole grains, 60mg omega-3 per 28g slice

Sweden's biggest cookie brand, **Gille**, has launched a 'snackable' mini version of their best seller. The cookies are made with oats and dark chocolate and retail in 130g bags.

Carbs 62g, protein 5.1g, fats 26g per 100g



Chocolate Oat Crisps in bite-size.

CARBS FOR ENERGY

Consumer interest in good carbs to deliver energy and support sports and fitness is strong and shows no sign of weakening. Delivering these benefits is a worthwhile platform for any brand, even if only as an extension of an existing brand rather than a major proposition in its own right. Wanting more energy is a key reason why consumers try out new diets, and energy is positively associated with carbs by consumers. "Real food" is becoming more sought-after by regular consumers, such as weekend cyclists, in preference to highly-processed multi-ingredient products, to fuel their fitness. This is reflected in the ability of real foods such as those below to establish a market.





Per 100g, carbs 57.8g (of which sugars 14.4g), energy 1234kJ/291kcal

UK: **Soreen** cake brand shows how to take an unappealing traditional cake and successfully reinvent it as a snack brand with a health halo. The 70-year-old brand was relaunched in 2010, with an emphasis on energy and everyday fitness, targeting week-end cyclists and runners. New products were snack-size and intended to compete with bars. With sales of only £15m ($17.3m) in 2010, in 2021 the brand reached over £40m ($46m) in retail sales, achieving 2.8% growth that year in a cake category which grew by only 0.6%.

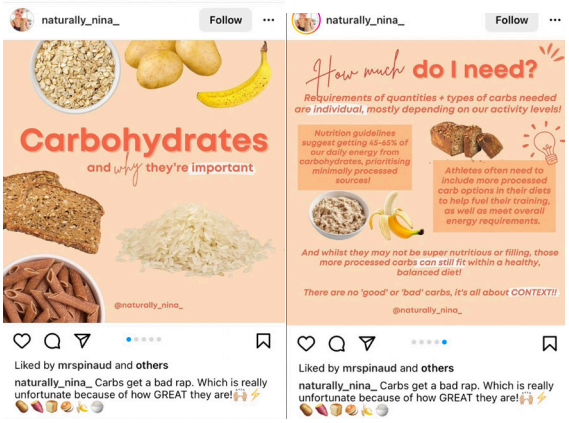


Honey Stinger waffles – first ingredient organic wheat flour – are aimed at people wanting fast energy for sports. "With carbs designed for quick uptake, waffles are the perfect pre- and mid- workout snack to give you a boost of energy without weighing you down."

Energy 130cals, carbs 18g, sugars 9g, protein 1g, fat 6g per 25g serving (3 mini waffles)

Many health and nutrition online platforms praise carbs for their energy benefits, and celebrity nutritionists and dietitians tell consumers that carbs are an important source of energy for brain and body.

Influencer Naturally Nina has 154,000 followers on Instagram. "Carbs...are our primary energy source and our brain's main fuel source".



STRATEGY 2: GREENER CARBS

CONSUMERS

Adding a percentage of vegetables or fruit (or both) are among the ways that companies can meet consumers' desire for 'more plants' and also, depending on the category, create permission to indulge. As the plants are replacing some of the grains, people who are interested in fewer carbohydrates can also choose these type of products and feel they are making a step towards their goals.

MARKET DEVELOPMENT

The concept was originally pioneered by lifestyle brands around 2010 and mainstream brands began to test the idea from around 2014, beginning with Finland-based **Fazer**, the biggest bakery group in the Nordic countries. Fazer launched a whole grain bread that was 33% vegetables and which became a success. NPD teams have increasingly focused on the 'greener' opportunity and it's possible that a few years from now, almost every brand will have a product in the portfolio that delivers a percentage of vegetables. This development is also being made possible by the ingredient industry's increasing ability to deliver a growing range of powdered vegetables and fruits that are easy to work with and retain some nutritional integrity. Sustainability is an angle that companies are developing – ingredients can be sourced from upcycled waste and this adds to the 'permission to indulge' aspect for some consumers. This strategy overlaps strongly with KT3, Plants Made Convenient.

COMPANIES AND BRANDS



"Made with zucchini and carrots. Veggies: our #1 ingredient"

1g sugar, 5g protein, 5g net carbs per 57g serving

16g Carb - 5g Fiber - 6g Allulose = 5g Net Carb

Zucchini is the first ingredient in these **Veggies Made Great** muffins. The brand debuted in 2009 and has by now proved the validity of its idea of bakery products that deliver a dose of vegetables. The company has kept up with the keto trend, with consumer demand for more protein, and still delivers on its promise of vegetables as the number one ingredient. It offers muffins, such as this product, as well as vegetable cakes and frittatas. The fact that the brand is in Costco, with its high expectations of product volume, suggests it is doing well. This is one of the better plant-based strategies.



Contain over 35% vegetables (blend of carrot, sweet potato and beetroot), 121 calories per pack, high in fibre.

Per 100g: 21g fat, 55g carbohydrates of which sugars 23g, 6g protein

In the UK, **Rootles** is a range of veggie-infused sweet chocolate snacks (called biscuits in the UK). "During a brainstorming session, one of the team suggested adding vegetables to biscuits – seriously? We have veg in cakes, so why not biscuits? We settled with carrot and sweet potato..." Rootles are said to be lower calorie, lower sugar and higher in fibre than many mainstream chocolate snacks, but taste like a traditional chocolate cookie.

Founded in 1946, **Pastas Gallo** is the leader in the pasta market in Spain with a market share of 36%. It exports to 40 countries. It opened the first dedicated gluten free pasta factory in Spain which produces 21 pasta lines. Recently it introduced the Gallo Nature 100% Legumes range made with red lentils, garbanzo beans (chickpeas) and peas.



"As appetising and versatile as a pasta dish and as nutritional as a legume dish. Pasta or legumes? You don't have to choose anymore!"

"+50% of the protein we consume should come from plant foods such as legumes."



Garbanzo variant: 52g carbohydrates, 9.8g fibre, 21g protein per 100g

One ingredient, chickpea flour

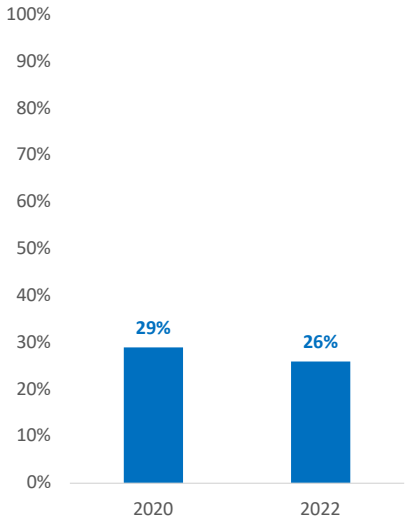
STRATEGY 3: FEWER CARBS & KETO LITE (I)

CONSUMERS

Sugar has become the worst carbohydrate, avoided by over 40% of consumers. But 26% of consumers are also trying to cut down their consumption of other carbohydrates, such as cakes and cookies, potatoes, bread and pasta. The trend to choose products with fewer carbohydrates might have stalled, but the eating pattern isn't going away. It has taken 20 years – since the days of Dr. Atkins– to evolve to where it is now, a way of eating followed by around 26% of consumers in America (only 14% in the UK). In a world in which beliefs about food and health are fragmented (see MT1) this stall is to be expected. Some behaviours enter the mainstream, but in our fragmented societies that does not mean that they are taken up by more than a large sub-group of the mainstream. For comparison, the percentage of people who say they are reducing their meat consumption (24%) is similar to that of the people who are trying to consume fewer carbohydrates (26%) and both trends have plateaued. Hand-in-hand with fewer carbs is the keto (low carb and high fat) movement. We address keto specifically in KT7. The reality is that only a small percentage of consumers who said they were eating keto were following strictly keto rules (which call for 60%-80% of the diet to be fat). Most people were using the term as a shorthand for consuming less sugar and also fewer carbohydrates. This behaviour will continue, even if the keto label appears on fewer products. The popularity of a strict keto diet is fading. Most consumers will adopt a keto-lite approach, selecting low-carb for some meals (in the way that people choose gluten free even if they're not on a gluten-free diet) but other times giving themselves permission to indulge in their favourite carbohydrate (such as rice in a Thai meal).

Chart 8: The carb avoidance trend is losing momentum

Percentage of consumers who say they are trying to consume fewer carbohydrates:



Source: NNB 5-country survey, 2022

MARKET DEVELOPMENT

The message that consuming fewer carbohydrates could have a health benefit, particularly for weight management, began around 2000 with the diet popularised by Dr. Atkins in the US. It was a fad that soon faded but returned as new supportive science emerged from around 2010. In 2023 the trend may have peaked, but it isn't going away. The 'fewer carbohydrate' consumers will remain a group worth serving. As with most opportunities, successful products are not only about fewer carbs, but bringing a combination of other benefits that consumers are looking for, such as more protein, more vegetables, fruits or nuts, snacking and indulgence.

COMPANIES AND BRANDS (I)

Panifactum low carb bread, bar, cracker and cakes range from Germany. Bars and cakes are sweetened with xylitol.



"Significantly less carbohydrates and sugar compared to conventional cakes."



"Carbohydrate content reduced by 80% compared to conventional bars"

Gluten-free low carb bread: "Carbohydrate content reduced by 92% compared to conventional mixed breads."

17.5g protein, 1.8g carbohydrate per 100g

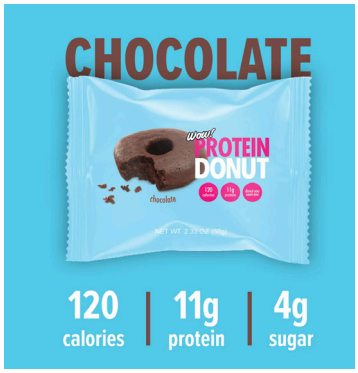
STRATEGY 3: FEWER CARBS & KETO-LITE (II)

COMPANIES AND BRANDS (II)



10.2g carbs, 25.9g protein per 100g

LivLife in the UK describes its bread as a "game changer". "Our Super Seeded loaf transforms your healthy lifestyle, making it easy to enjoy the food you love, feed your body the good stuff and reach healthy diet goals. Packed with linseed, pumpkin and sunflower seeds, LivLife allows you to experience the same great nutty flavour and nutritional benefits of regular seeded loaves without compromising your dietary requirements."





66g donut delivers 11g protein, no more than 130 calories, 18g total carbs with 4g of sugar.

Wow protein donuts deliver "permission to indulge" with dairy protein, less sugar and extreme indulgence. The start-up has listings in the US (in Walmart, GNC stores, Kum & Go, and Hyvee), the UK and Singapore. Appealing to a more mainstream consumer demanded a product that would go beyond providing high protein and meet consumers' taste and texture expectations. The donuts are sweetened with erythritol and apple puree.



15.8g carbohydrates, 16.6g protein, 7.6g fat per 100g

Provenance, fewer carbs, animal protein, plant protein and plants made convenient – **FroPro** protein pizza from Australia is connected to five of the top-10 growth trends. It even gets a high rating on the Australian equivalent of NutriScore. Whether the very long ingredient list might be a turn-off for some consumers is another matter.





10.3g carbs per 100g

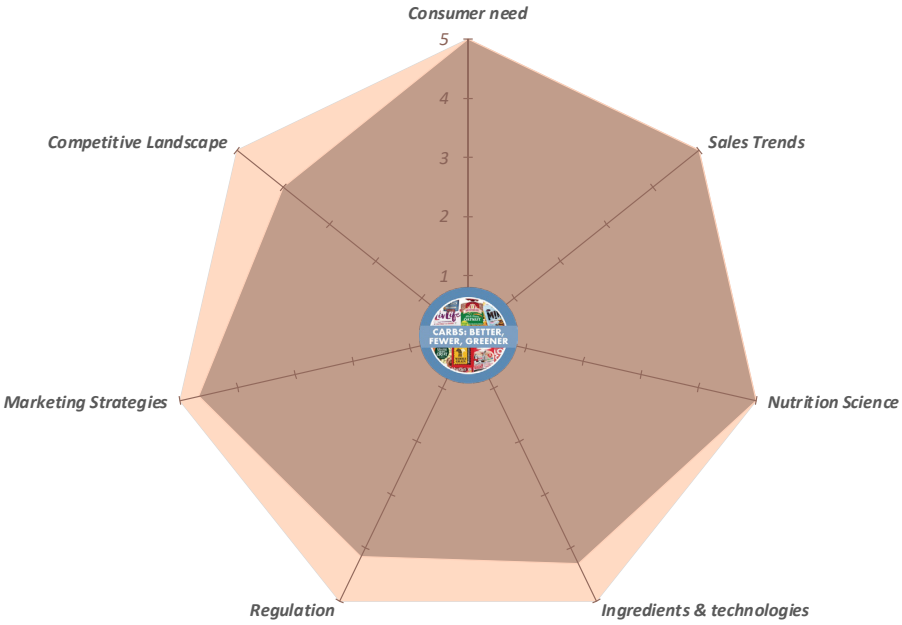
Based in Australia, **Mitolo Family Farms** grows a Low Carb potato that's said to be better for blood sugar management. Mitolo's potatoes are based on the Carisma potato, which has been found to have a lower glycemic response (GR) meaning it does not cause the rapid spike in blood sugar that normally comes from eating carbohydrate-rich foods. The company's website provides tips such as "If you're using Low Carb Potatoes in salads and want to lower your glycemic response, consume them when they're cold."



10.8g carbohydrates per 100g

Lotatoes, marketed in New Zealand by **Turners & Growers**, have 40% less carbs and fewer calories than other potato varieties. Lotato seeds have a shorter, more sustainable, growth cycle using less water than traditional spuds making them better for the environment.

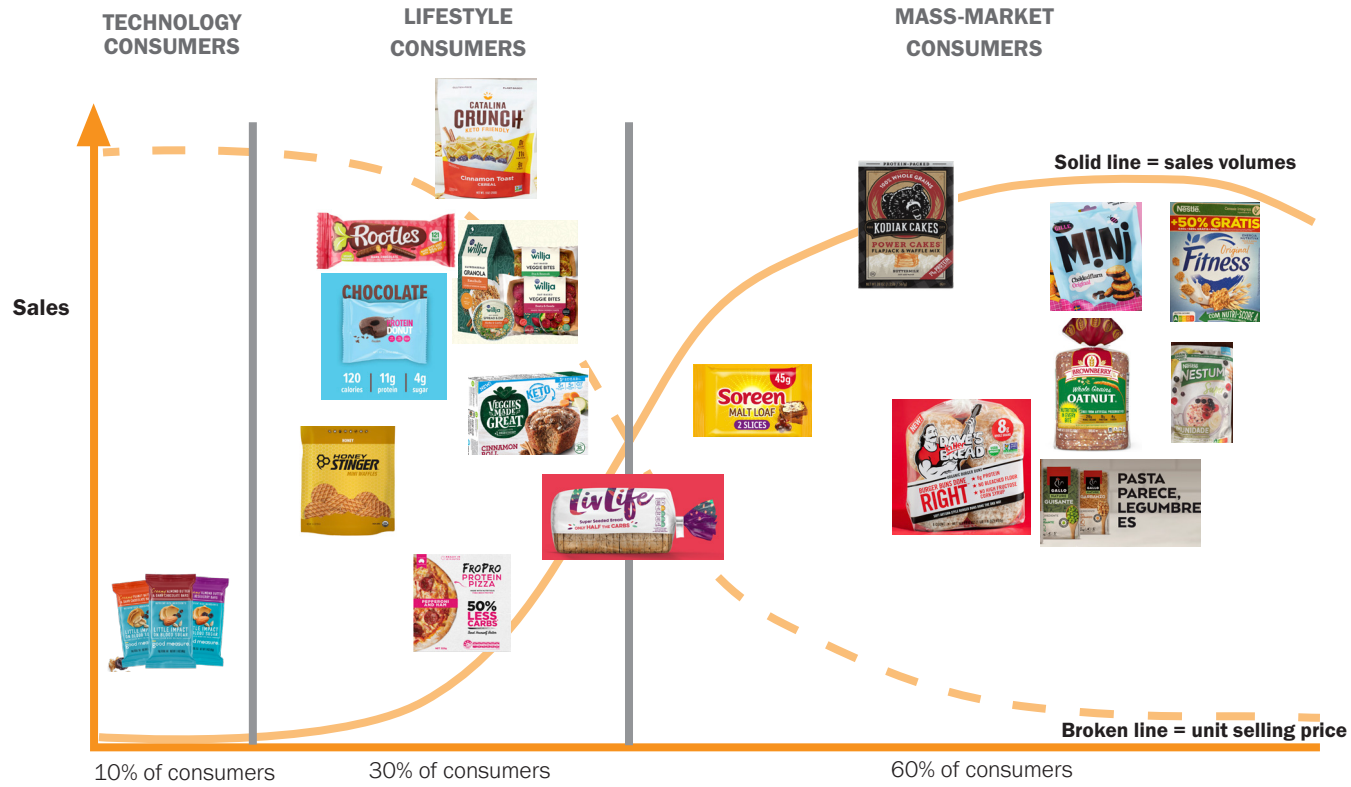
CHART 9: TREND DIAMOND – KEY TREND 1, CARBS



CARBS CONNECTS TO 9 OTHER KEY TRENDS



CHART 10: PRODUCT LIFE-CYCLE – KEY TREND 1, CARBS



KEY TREND 2



DIGESTIVE WELLNESS DIVERSIFIES

Wide appeal

At any one time, around one third of us are experiencing digestive discomfort (WHO). Core buyers are seniors, women and over 40s.

Powerful shaper of markets

Has created entirely new categories – plant-based milks & lactose-free dairy – and new growth niches such as grain-free and sheep milk.

Highly competitive

Fragmentation means consumers can choose from a huge array of products. A series of niches and big niches.

MANY ROUTES TO SUCCESS

People are open to new ingredients, new types of avoidance and to making the old new again.



RULES FOR SUCCESS

1. Deliver benefits in a credible format:

✓ Probiotics in yogurt

✗ Probiotics in cereal

2. Harness "**feel the benefit**" as a powerful marketing tool

The 9 routes for digestive wellness



1 PROBIOTICS & FERMENTATION



3 LACTOSE-FREE DAIRY



5 GLUTEN FREE



7 GRAIN FREE



9 LOW FODMAP

2 FIBRE



4 PLANT-BASED DAIRY



6 SHEEP & GOAT



8 EMERGENT A2 DAIRY



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Digestive disorders (ranging from diarrhoea to constipation, bloating and discomfort) are felt by everyone from time-to-time. According to the World Health Organisation (WHO) 1-in-3 of us will have a digestive disorder – ranging from bloating to a medical condition such as Irritable Bowel Syndrome (IBS) at any one time. While digestive health has wide appeal, the core buyers of products for digestive wellness skew strongly towards:

- **Women**, who are three times more likely than men to suffer from constipation. Bloating is a pervasive issue for women worldwide and is linked to hormonal health. One of the elements of its strategy that helped make Danone's Activia probiotic yoghurt a global success were its advertisements that cleverly used an image of a balloon inflating to convey bloating and then deflating to convey Activia's part in solving the problem.



- **Over-40s**, because digestive health becomes a more important issue for people as they age. Episodes of constipation become more frequent, this trend being continuous in women and more marked in men over the age of 60.
- **Seniors**, who are becoming a major part of the population in every advanced country, from China to Italy. Looking at demographics it's clear that the digestive health market will thrive as populations age: the rapid aging of the baby-boomer cohort is occurring in the West and many Asian countries are experiencing a rapid rise in the numbers of over-50s (20% of Asia is >50 years old now, rising to 40% by 2030).

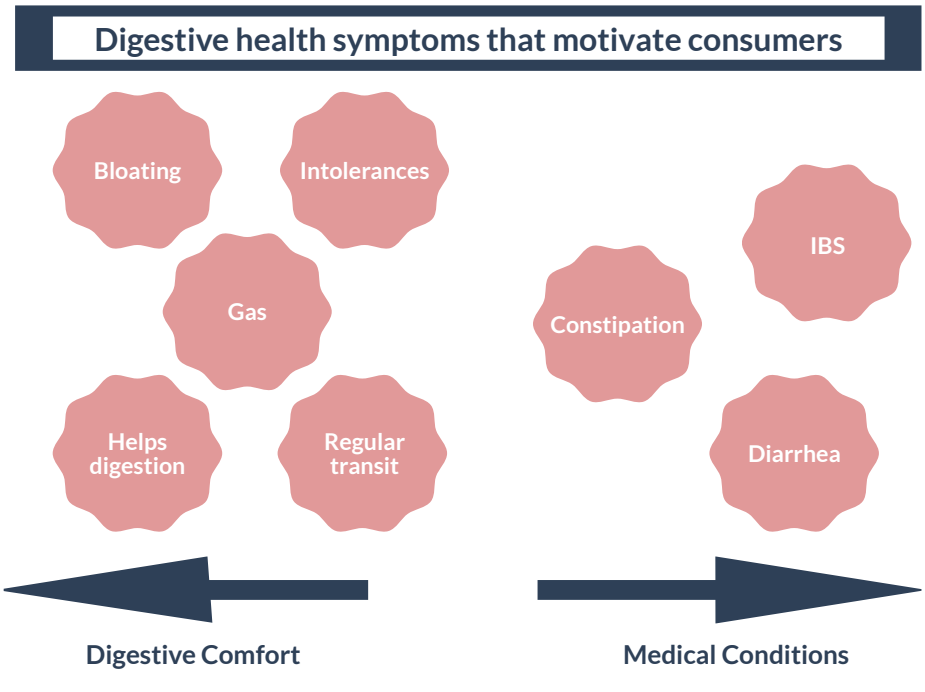
DRIVERS OF THE DIGESTIVE TREND

Besides the fact that digestive wellness is one of the biggest human needs, there are other important drivers – developing science, media attention and new product development.

Science: The body of published studies is large, constantly expanding, and heading in new directions. In particular it's telling us that "what happens in your belly doesn't stay in your belly" and that the gut is a "second brain" capable of influencing a variety of processes in the body – even how happy or sad we feel. Increasing numbers of studies are linking the digestive system – including the gut microbiome – to anxiety, depression, weight management & obesity, diabetes, auto-immune disorders and allergies and stress.

Media attention: Today's media – both mainstream and social media – is driven by getting clicks, which drives advertising revenue. Health and wellness content gets clicks. The media are always eager for new stories about scientific studies on the gut, how it influences our general health, and how foods support or challenge our digestive wellness (even though most journalists have no understanding of the science they are writing about). The media is thus constantly engaging and informing consumers about the latest on digestive wellness.

New product development: Companies are always thinking up new ways and new products to deliver a digestive benefit. It doesn't matter if most of these fail, because they act as a billboard on the supermarket shelf for certain eating patterns and serve to familiarise the consumer and normalise the message. When they are familiar enough, more of these products succeed.



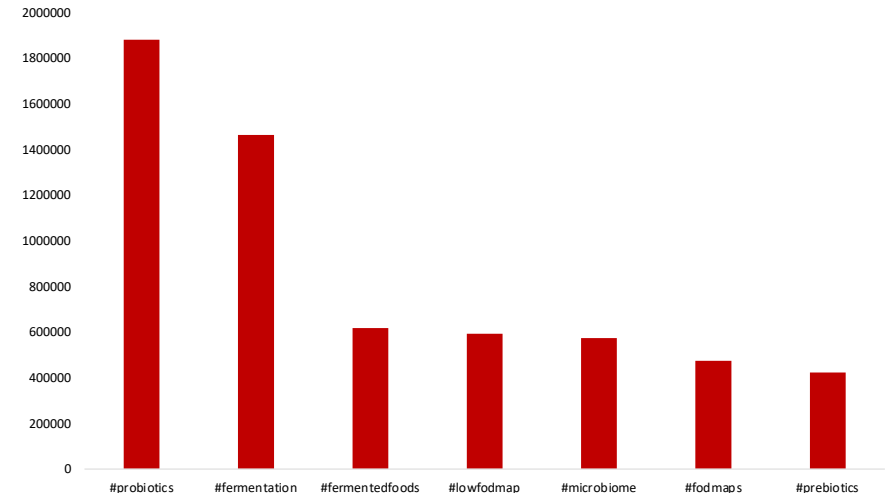
DIGESTIVE WELLNESS - FRAGMENTATION AT WORK

Digestive wellness provides one of the best illustrations of the power of the Fragmentation Mega-Trend. There has been a steady increase in the number and type of solutions and products available to consumers. People can choose from at least nine ways eating to make themselves feel better inside – all of them with some basis in science. This reflects how science & technology and creative NPD teams are creating more choice and how people's beliefs about health are diversifying. It also reflects how willing people are – now that we are all food explorers on an endless quest for new flavours and textures – to try new products, from kefir to kimchi to kombucha.

As a result, digestive wellness is an area of intense competition for consumers' attention and their dollars. Brands mostly perform as niche or 'big niche' at best. Don't expect to make a mass-market success in digestive wellness in today's fragmented market without a lot of effort.

It's well-established in the business of nutrition and health that delivering a 'feel the benefit' effect is one of the most powerful marketing tools, the basis for repeat purchase and successful brands. The success of Danone Activia, for example, was partly because it offered a feel-the-benefit promise and used this extensively in its advertising. If you want to succeed with a digestive health promise, enabling consumers to "feel the benefit" is essential.

CHART 11: CONSUMER INTEREST IN 'PROBIOTICS' AND 'MICROBIOME' ON INSTAGRAM



Source: Instagram

Looking at how much attention terms such as 'microbiome' get on social media such as Instagram – the primary information channels for many people – gives us a clue as to how motivating to the consumer they are. Compared to "probiotics", at present other terms such as "prebiotics", for example, scarcely register. And 'microbiome' is far from being strong enough to be a useful label for more than a niche of consumers.

What does it mean for strategy?

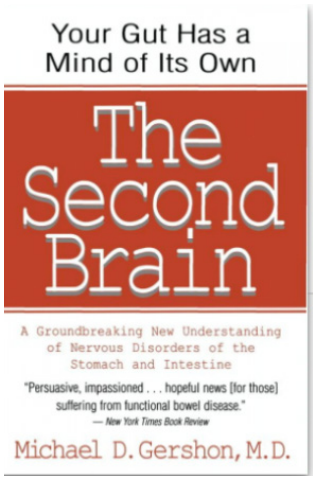
There are nine possible strategies in Digestive Wellness:

1. **Probiotics & fermentation**
2. **Fibre**
3. **Lactose-free dairy**
4. **Plant-based dairy alternatives**
5. **Gluten-free**
6. **Sheep & goat dairy**
7. **Grain-free**
8. **Emergent A2 dairy**
9. **Low FODMAPs**

SCIENCE WILL INCREASE IMPORTANCE OF GUT HEALTH

The link between the health of a person's gut and other aspects of their health is only just starting to be understood by science. What is beginning to be revealed is that the gut influences our health, wellbeing and resistance to disease to an extraordinary extent.

So powerful is the emerging evidence that it prompted Dr Michael Gershon, a professor of anatomy and cell biology at Columbia Presbyterian Medical Center in New York, to choose the title *The Second Brain: The Scientific Basis of Gut Instinct and a Groundbreaking New Understanding of Nervous Disorders of the Stomach and Intestine* for his book, in which he sets out the role that "the brain in the gut" plays in human happiness and misery. The term "The Second Brain" today has respectability enough to be in widespread usage in the scientific community.



STRATEGY 1: PROBIOTICS & FERMENTATION (I)

CONSUMERS

Digestive wellness is the benefit that consumers associate most strongly with probiotics (51%), with immunity in second place at 33% (IFIC Gut Health and Probiotics Survey 2022). Consumers think of probiotics under other terms, such as 'live cultures', and perceive a variety of fermented foods – from kefir to kimchi – as delivering digestive benefits. These products may of course contain no strain of bacteria that meets the scientific definition of probiotic. But that's not how the consumer sees it – fermented, live, probiotics, these all mean the same thing to most people and are primarily associated with foods for digestive wellness.

It is dairy which is established in consumers' minds as the product that's most credible for probiotic benefits. In most countries there has so far been only limited creation of probiotic brands in other categories. In part that's because the idea of bugs alive and well in bread or breakfast cereal or teas is just not credible to most people.

However, probiotics have become an everyday message in the yogurt aisle, no longer providing much differentiation. You certainly cannot differentiate by calling out a special, science-backed strain of bacteria (only about 10% of people will recognise it, maybe less). This is because, as one dairy executive explained it, "Most people do not know their acidophilus from their bifidus". The word 'probiotics' is as technical as most people get. Engaging consumers and creating growth requires creativity.

SCIENCE

No matter how good the science, any probiotic that is new to the market and discussing digestive health is a me-too, bringing nothing new to consumers. A wealth of science-based probiotic ingredients are commercially available and the market's future probably lies in the hands of companies like Chr Hansen and DuPont, which already have scientifically validated strains in their portfolio and extensive sales and marketing networks. Any 'my science is better/best' strategy for digestive wellness is unlikely to succeed and is now high risk but if the probiotic delivers a benefit the consumer can feel, that is the best basis for a product.

MARKET DEVELOPMENT

The number of new products (largely dairy) launched each year that are probiotic has slowed significantly.This reflects how probiotics have become a background reassurance message and no longer a point of difference. The period when it was possible to bring a new probiotic product to market and create significant mass market success (as in 1995-2010) is over in western markets. In Asia, however, the probiotic dairy market is still expanding and there are many growth opportunities. The number of probiotic dairy products launched in Asia Pacific in 2017 was 25, but this had jumped to 46 in just the first nine months of 2022.

The advent, from 2012, of the restrictive health claims regime in Europe resulted in no probiotic products being allowed to make any health claims. However, the regulations have had limited effect. Consumers were already well aware of probiotics prior to the regulatory clamp-down and the days of high growth for probiotic brands were already coming to an end.



A science-based strategy and a long-term strategy. Consumer awareness of the gut-brain connection is low – only 8% of Americans according to IFIC research, but that means that it is also Day 1 of a new opportunity. It is one of the few probiotic-and-digestive-wellness-linked growth opportunities that is available. It will likely reward companies willing to take a long-term view. Probiotics are likely to grow as science makes it possible to connect them to new benefits such as Mood & Mind (KT8), as Yakult 1000 does in Japan.

The future is bright for probiotics and digestive wellness (and the related benefit of immunity), but only when they appear in products that connect to other– possibly more important – growth trends, such as less sugar, more protein, provenance and others. Consumers are over-supplied with choice, and finding success requires more creativity than ever before.

The long-term growth opportunity for probiotics is to raise consumer awareness of other benefits beyond digestion. There is, for example, some consumer awareness of the link between the gut and sleep, mood and mind, and weight-wellness. However, these links are only emergent. Communicating these additional benefits is best suited to brands that target the niches of most health-active consumers and are willing to invest in long-term consumer education.

STRATEGY 1: PROBIOTICS & FERMENTATION (II)

COMPANIES AND BRANDS

DIGESTIVE WELLNESS + MULTIPLE GROWTH TREND CONNECTIONS

The days of achieving high volume sales success in the mass market are over. Digestive wellness from probiotics is an everyday message in the supermarket and no-longer creates a point of difference. Successful brands offer other benefits alongside digestive wellness.



US kefir pioneer **Lifeway** is also the kefir market leader. But in the US digestive wellness benefit is an everyday benefit for probiotic dairy brands and as a result Lifeway sales stalled. It revived growth by differentiating itself strongly with provenance, immunity, mood & mind benefits and a focus on taste. As a result sales grew by 33% between 2020 and 2022.



Graham's Family Dairy makes Icelandic Skyr in Scotland and has secured UK wide retail listings by delivering a range of benefits from probiotics to provenance to protein. "It is made with pure Scottish milk from 100 farming partners, live cultures and fruit. It is high in protein, fat-free and has 30% less sugar than other flavoured yogurts in the market. Made from all natural ingredients."



UK brand **Biotiful**, created by a Russian-born ex-figure skater in 2012, has been profitable since 2015, unusually for a challenger brand. Biotiful has become the number one brand in the UK kefir niche by offering multiple benefits alongside digestion – protein, provenance and immunity – and focusing on excellent taste. Retail sales are thought to have grown by 30% to £36 million ($41 million) in 2022. Pro rata these numbers to a much larger market like the US and it is equivalent to a $200 million brand.

INGREDIENT, PRODUCT & BENEFIT MUST TOGETHER MAKE SENSE

Companies have been trying to take probiotics into new categories beyond dairy and supplements for 25 years. There have been few successes – probiotic juice brands Pro Viva in Sweden and Gefilus in Finland – reflecting successful connections to local culture. But 95% of attempts to create new probiotic categories (in cereals, pizza, bread, bars or teas for example) have failed. We don't see this changing. A food+probiotic pairing must make sense in the consumer's mind – it must be a credible product in which to find probiotics and a digestive benefit. According to IFIC, 47% of US consumers associate probiotic benefits with fruits and vegetables (not something found in many other countries). This has enabled some fruit products where the fruit has an association with digestive health (such as prunes) to successfully offer added probiotics.



Since 2018, **Mariani**, the leading prune brand in the US, has been marketing a line with probiotics. This brings together a digestive benefit in a product form – prunes – that is credible to consumers. The probiotic used is Ganedan's shelf-stable *Bacillus coagulans GBI-306086*, supplied by Kerry Ingredients.



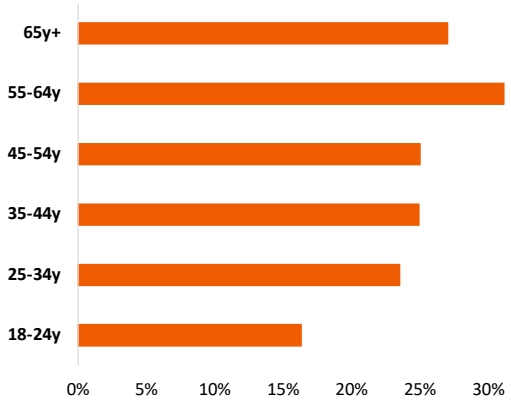
US fruit bar maker **That's It**, which uses "simple and easy ingredients made from real plant foods", markets five varieties of bars that are both pro- and prebiotic. The probiotic used is the same as in Mariani prunes. The prebiotics referenced on the pack above are only the fibres naturally present in the fig. Fig is a credible carrier for digestive wellness benefits.

STRATEGY 2: FIBRE (I)

CONSUMERS

Fibre is a nutrient that is simple, easy to understand and has a clear positive association with digestive wellness for most people. Any product that can, should mention its fibre content. The presence of fibre is part of the health halo and a reassurance message. However, it's notable that in the 5 countries we survey each year, consistently about 20%-30% of consumers say they are trying to get more fibre in their diet. Given the level of communication about fibre and the 'fibre gap' you would expect that to be higher. It's a number which underscores that fibre as a primary motivation has a limit to its value. **Whole grains** are also widely recognised by consumers and tied up with fibre in most people's minds. Around 84% of consumers view whole grains as "good for digestion" according to NNB's five country consumer survey. **Soluble vs insoluble** is an important technical distinction, but consumers don't know the difference. **Prebiotic** is a term that has been promoted for over 20 years as a way of flagging up soluble fibre's gut health benefits. But it is a term with many challenges. As social media attention shows (see Chart 11) the word prebiotic has meaning to only a few consumers (perhaps 8% of Americans for example). People struggle to differentiate between 'probiotics' and 'prebiotics' despite 20 years of industry efforts to explain prebiotics as "what feeds the good bacteria in the gut and makes them grow".The consumer for fibre skews older (see Chart), since digestive wellness becomes more challenging as people age.

Chart 12: The consumer for fibre skews older



Source: NNB 5 country survey 2022

MARKET DEVELOPMENT

Messages about fibre have become so common on labels that they have ceased to be a point of difference. In categories such as breads, breakfast cereals and bars, flagging up fibre content has become a basic requirement. Fibre is a 'good nutrient' – but by itself it's no longer a growth driver. Consumers need other benefits – more protein or less sugar – alongside fibre, and they find these more motivating. It was possible to create a high-fibre product 20 years ago which created a point of difference and earned mass-market sales (such as Fiber One in the US). Those days are over. The fibre benefit is now communicated by so many products in so many categories it's hard to stand out – unless you are finely targeting a niche of motivated (usually older) consumers. Prebiotics, such as inulin, are attractive to NPD teams because they deliver a 'feel the benefit' effect and have other strong consumer-connected benefits such as their ability to replace or reduce sugar. Inulin arguably plays a more valuable role in enabling a product to connect to consumer interest in 'less sugar' and 'fewer net carbs' – and thus weight wellness – than digestive wellness.

Emergent in Europe, a Nutri-Score strategy: Fibre will become even more prominent in places such as Europe, where the algorithm underpinning the Nutri-Score front-of-pack labelling system incentivises brands to raise the fibre level. Put very simply, the weighting it gives to fibre means the more you add, the more likely your product is to get an A or B ranking. Whether these scores result in higher sales of products is not known, as Nutri-Score has never had a real-world evaluation.

COMPANIES AND BRANDS (I)

In Japan, **BarleyMax** has become a major success since its debut in 2016. Marketed by the company Teijin, it can be found in around 20 products such as granola and also onigiri rice snacks sold by the convenience store chain Family Mart. BarleyMax is a grain with twice the dietary fibre and four times the resistant starch of barley. It was developed by CSIRO, the Australian government research organisation. Marketing in Japan focuses on the resistant starch and promotes the fact that BarleyMax "reaches deep into the colon".





STRATEGY 2: FIBRE (II)

COMPANIES AND BRANDS (II)

FIBRE PLUS CONNECTION TO MULTIPLE GROWTH TRENDS

A high-in-fibre message must be one of a number of benefits offered in order to achieve wide appeal.

GoodWheat: Arcadia Biosciences has developed naturally fibre-rich wheat varieties. The wheat contains 94% amylose, a resistant starch that acts as a prebiotic. Ordinary wheat contains about 30% amylose. In 2022 GoodWheat introduced its first consumer product, a single-ingredient pasta with four times as much fibre as regular varieties, qualifying for on-pack fibre claims. The pasta contains 8g of fibre per 56g serve, compared to 2g in regular pasta, plus 9g of protein, about 25% more. GoodWheat entered the US market in about 500 retailers, primarily Hy-Vee stores. It is available in five varieties priced at $3.99 per 12oz (340g) pack.



Bay State Milling's Healthsense flour uses Arcadia's wheat. The company says growing awareness of the relationship between fiber, the gut, and immunity, coupled with the keto wave, have sparked interest. It is seeing demand for its Healthsense high-fiber wheat flour in everything from noodles to ice cream cones, such as leading ice-cream brand Enlightened's cones.



INULIN ALLOWS BRANDS TO REDUCE SUGAR & BOOST FIBRE



In Singapore, New Zealand dairy group **Fonterra** markets a low-sugar, vitamin-fortified, probiotic dairy drink for digestion and immunity. After skimmed milk, inulin is the second biggest ingredient, and the brand delivers 7g dietary fibre and 10g total sugars per 220ml serve.



9g fibre, 0g sugar per 36g serving

US challenger brand **Catalina Crunch** uses inulin to deliver fibre which, with protein, helps satiation. "Our blend of plant proteins and fibers is designed to keep you full longer and promote gut health."



"Chicory Root Fiber is packed with gut-beneficial prebiotics."

16g fibre, 2 g sugar per 58g serving

Start-up brand **Resist Nutrition** focuses on better blood sugar control for women who are managing their hormone health. Using inulin in the recipe helps lower total sugars, add fiber and reduce blood sugar spikes.

STRATEGY 3: LACTOSE-FREE DAIRY (I)

CONSUMERS

Lactose-free dairy growth is driven by a big niche of consumers (around 10%-12%) who have digestive issues when they consume milk. This percentage rises to 17% in Spain and 21% in Brazil. Consumers' primary problem is with liquid milk – fermented products such as cheese and yoghurt have a lower lactose content and hence for many people cause no digestive issues. Consumers were for many years limited to plant-based milk alternatives largely because volume-oriented milk processors thought their niche too small and because lactose-free milks often under-performed on taste. Consumers who buy lactose-free milk also buy regular cheese, yogurt and other dairy types, which are naturally lower in lactose.

MARKET DEVELOPMENT

Thanks to more companies offering better products, sales of lactose-free dairy are growing in many markets. The best example is the US, where sales of lactose-free milk are growing 300% faster than plant milks and lactose-free milk outsells almond milk, oat milk or any other plant-based milk. Supermarket data reveals American consumers' preferences:

- The growth rate of the $2.6 billion (€2.6 bn) plant milk category was 3.5% while that of the $1.87 billion (€1.87 bn) lactose-free cows' milk category was 10%. If this continues, our 2019 prediction that by 2025 lactose-free cow's milk could overtake plant milks may yet come true.
- As we forecast back in 2017, US sales of lactose-free dairy milk now exceed almond milk sales.
- Lactose-free's performance is all the more impressive because its average price per litre is a 22% premium to the average price per litre for plant milks. Lactose-free milk sells at a 100% premium to regular cows' milk.
- In some European countries, lactose-free remains niche, partly due to failure to differentiate and connect to multiple consumer benefits as Fairlife has in the US. However, it is progressing rapidly in others.

AUSTRALIA



In Australia, lactose-free milk has a 9.4% share of the total milk market. It is growing rapidly. Sales were up 8.7% in 2022.

SPAIN

In Spain, supermarket sales of lactose-free milk in 2022 were more than €380 million, a 2.8% share of the liquid milk market. By comparison, total plant milk sales were €350 million. Oat accounts for 30% of the market. Oat milk sells at a 150% premium to lactose-free dairy. Plant milks are smaller than lactose-free milk, by both volume and value. Their total share of the milk market is just 2%.



SWEDEN

Although only 6.8% of Swedes are lactose-intolerant, around 18% of total milk sales in Sweden are lactose-free. Swedish supermarkets have more space devoted to lactose-free products of all kinds (see below) than any European country, except Finland.



STRATEGY 3: LACTOSE-FREE DAIRY (II)

COMPANIES AND BRANDS

Fairlife can take the credit for reinventing the US lactose-free milk category. It is an ultra-filtered, lactose-free milk, launched in 2016. By 2022 it had become a $1 billion annual sales brand. Fairlife delivers on three of consumers' biggest desires – more protein, less sugar and digestive wellness. It also tastes good.

- a higher protein content than regular milk (13g per 240ml compared with 8g for ordinary milk)
- half the sugars of regular milk (6g versus 12g)
- no lactose



Fairlife has been the American dairy industry's successful response to the rise of plant milks that are still getting all the media attention and publicity. Fairlife has helped drive total sales of the lactose-free milk category to $1.9bn in the US in 2022, according to IRI supermarket data. That total made lactose-free milk a bigger category overall than almond milk, oat milk or any other plant-based milk. Fairlife took away the competitive advantage of plant milks, which are bought by people who want to avoid the digestive discomfort they associate with cows' milk. Fairlife also beats plant milks on naturalness with a very short ingredient list compared to the 10-plus ingredients common in plant milks (Danone's latest Silk brand offering has 20). So for many consumers it is the butter to plant milk's highly processed margarine.



US cottage cheese and sour cream brand **Good Culture**, part of General Mills, is one of many dairies now offering lactose-free variants under their existing brands. Good Culture offers multiple benefits, a necessary strategy in a market of fragmented consumer beliefs: "Your favorite ridiculously good lactose free cottage cheese, now certified organic. Simple ingredients – organic milk from pasture-raised cows, and probiotic cultures brought together to make a thick and creamy cottage cheese that you'll want for breakfast, lunch, and dinner."

LACTOSE-FREE A CATEGORY STANDARD IN SPORTS

Lactose-free dairy is an increasingly common message on high-protein dairy products for people motivated by sports and fitness and in many countries is almost the category standard.



Danone's HiPro range of spoonable and drinkable high-protein sports & fitness products are all lactose-free. It has annual sales of over $200m in 15 countries.



Lactose-free Spain.



"Simple and satisfying, Chobani® Complete Vanilla is lactose-free and easy to digest, with 17g of complete protein, 3g fiber, and no added sugar.*

Australian brand **Rokeby Farms'** milk drink is low-lactose and offers 30g of protein.



STRATEGY 4: PLANT-BASED DAIRY ALTERNATIVES (I)

CONSUMERS

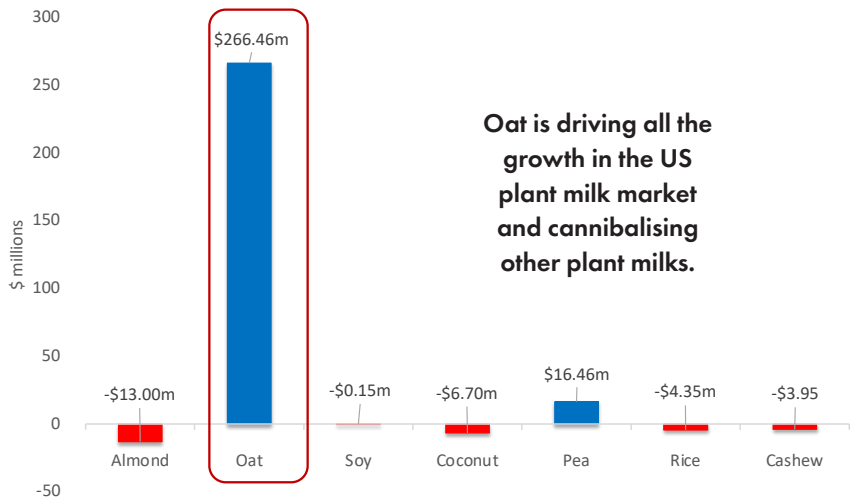
Consumers' desire to avoid the digestive discomfort they associate with cow's milk remains the key driver of growth for plant-based beverages. Environmental concerns and wanting to increase plant-based food consumption are drivers for only a small number of consumers. Taste and texture are the other big driver in plant milks. It was only when almond milk debuted back in 2007 with its superior taste to soy's somewhat beany and grassy tastes that the plant milk market took off. Soy milk sales have since fallen by 60%. Oat's rapid growth since 2016 is because for many consumers it performs better than almond (or any other plant milk) in coffee, in smoothies and in cooking. Improvements in taste and texture of plant-based milk alternatives means that many consumers can now experiment with such products, even if they don't necessarily stop having dairy foods. Vegans account for just 4% of US consumers and it's a similar low number in other countries - and it's not increasing. The consumer who buys both oat milk and Greek yoghurt is real. Danone has said in a press statement that, "Dairy-lovers out there like the idea of plant-based beverages but are unwilling to give up the taste and texture of traditional dairy. In fact, in one survey, 53% of people said they wouldn't purchase plant-based."

MARKET DEVELOPMENT (I)

The US plant milk category grew by 6% in 2022, according to IRI data, to a value of $2.3bn, with growth driven entirely by oat milk. As Chart 13 shows, oat milk sales grew by 50.5%, adding an impressive $266.46 million. However, around half of oat milk's growth came from cannibalising sales of other plant milks. The reason for oat's success is that for many consumers it performs better on taste and texture in coffee than any other plant milk or even dairy. It's beginning to look like a repeat of the years 2007-10, when almond milk was introduced and, thanks to its superior taste performance, rapidly cannibalised the soy milk market. Sales of soy went into a decline from which they never recovered.

Plant milks are not mainstream, they are 'big niche', accounting for a 16% share by value of US milk sales (10% by volume). Their share of liquid milk markets will continue to grow. However in other categories, such as yoghurt and cheese, plant-based is much smaller (around 3%). Sales are growing more slowly, and in the case of plant-based cheese actually fell in 2022. These categories are held back by poor taste and texture and a weak nutrition profile. Outside plant milks and creamers, plant-based dairy replacements have under-performed – which was the reason that the CEO of Danone, the world's biggest maker of plant milks, was let go.

Chart 13: Sales gains and losses of plant milks, 12 months to June 2022



Source: SPINS



The market leader in oat milk is **Planet Oat**, a brand owned by the HP Hood dairy group, with more than 35% of the $527m oat milk segment. Oatly is in second place with about 20% share. And new players and supermarket own labels are pouring in. Almond milk until recently had an 80% share of the US plant milk market. It's not impossible that within a few years oat will become as dominant.



The No 3 brand in oat milk in the US is from **Chobani**, best known as the dairy company that that created the Greek yoghurt market in the US in the early 2000s. Chobani Oat is one of the fastest growing brands in its category. It is possible that Chobani will overtake Oatly in 2023.

STRATEGY 4: PLANT-BASED DAIRY ALTERNATIVES (II)

MARKET DEVELOPMENT (II)

Chart 14: Oatly financial performance global ($m)

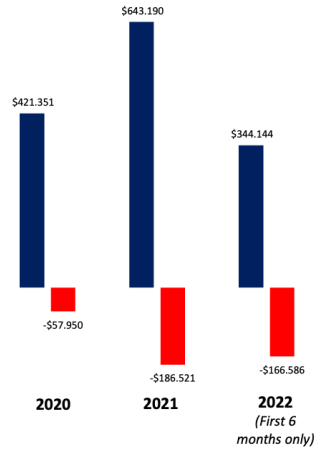
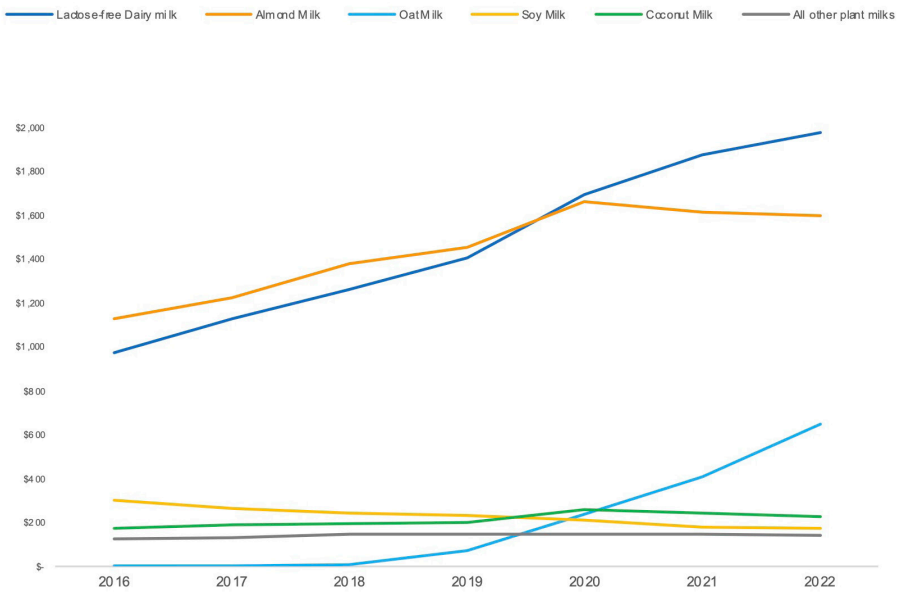


Chart 15: Lactose-free dairy milk outsells every type of plant milk



Source: IRI

Dairy companies make a profit selling plant milks, but most plant-milks specialists do not. **Oatly**, see above, is struggling. Every $1 of product it sells costs $1.49 to make. It made an operating loss of $165m in the first half of 2022. Europe is Oatly's main market, accounting for 52% of sales. It was also the company's only profitable market. But now it makes growing losses even in Europe.

Our industry focuses strongly on plant milks as an opportunity and a success story in the US. In reality, lactose-free dairy milk outsells plant milks in the US and is growing faster. The **Fairlife** lactose-free milk brand, for example, is bigger than any plant milk brand and double the size of Oatly. For the mainstream consumer, plant milks are akin to margarine and lactose-free dairy akin to butter – more natural and with a shorter ingredient list.

COMPANIES AND BRANDS (I)

The plant milk market is filling up with me-toos that fail to achieve any point of difference. In 2021 **Nestlé** launched its **Wunda** brand in France, Portugal, the UK and the Netherlands. The brand is based on yellow split peas and has a Nutri-Score A. However, by late 2022 the brand had disappeared in Portugal and France and Nestlé had announced a re-launch in the UK, suggesting that all was not going to plan. Nestlé said that it was "putting its hero ingredient, the yellow split pea, front and centre of pack". This is clearly a mistake, since yellow pea has no strong awareness or health halo with consumers. And consumers who have tried pea milk already know that pea milks have a taste challenge. It's common for companies to over-estimate the size of the plant milk opportunity and under-estimate the importance of taste.





Coca-Cola has recognised that many consumers are deterred by the long ingredient lists that are the norm in this category. In 2020 it launched Simply Almond, an extension of its Simply Beverages brand, Coca-Cola's second largest US brand, after the Coca-Cola brand itself. Sales of Simply Almond reached $24.3m in its first year on the market. The brand focus is on "honestly simple" ingredients without additives, gums or thickeners. Packaging features messages such as "simply made" and "all natural".

STRATEGY 4: PLANT-BASED DAIRY ALTERNATIVES (III)

COMPANIES AND BRANDS (I)

NotCo NotMilk: The only plant milk other than oat to show any growth was pea milk, which even after a 27% sales increase in 2022 is still a niche in the market with sales of $60 million. Much of this growth can be attributed to a heavy push of pea milk by Amazon and its Whole Foods Markets supermarket chain (Amazon founder Jeff Bezos is a significant investor in the NotCo pea milk brand). Pea milk, however, has some taste challenges and it's unlikely to be a threat to oat anytime soon.



Danone: "Plant-based for you who love milk" reads an advertisement for Alpro's new Not M*lk range of oat drinks. Danone brands Alpro, in Europe, and Silk, in the US, are upping the emphasis on taste and promoting new variants as having the taste and texture ofdairy. It's a move aimed at attracting regular dairy consumers who are more motivated by taste than by the plant-based message or the digestive wellness benefits of plant-based milks. **Alpro Not M*lk** claims that it has "all the rich & creamy taste you love, amazingly 100% plant-based and made from... oats! Shh, just don't tell those bedazzled taste buds." Communications further state: "We call it 'whole' because with 3.5% fat, it delivers deliciously full-on creamy taste."

In the US, Danone's **Silk Nextmilk** line is using the same positioning to win new customers, with the tagline "so rich and creamy, you won't miss dairy". Nextmilk is labelled 'whole' and the fat content is a primary selling point alongside the 'just like dairy' message. While the European product relies on sunflower oil to deliver the fat, the US product uses coconut cream and coconut oil in addition to some sunflower oil. By using coconut oil, almost all the fatty acids are saturated, with very little MUFA and no PUFA. The US product's saturated fat content is – at 6g per 240ml serve – much higher than the 1g in the European product, reflecting consumers' fading fear of fat, a change in which the US is ahead of most of Europe.



"This is not milk. It's got all the rich, creamy taste you love, 100% plant-based and made from... oats!"



"We used our special flavor-matching savviness to make a dairy-free blend that tastes so rich and creamy, you won't miss dairy."

Chobani oat creamer: Oat's taste advantage is also translating into the coffee creamers market. This makes perfect sense, since they are used like milks. Sales of oat-based creamers jumped by 132%, to $134.5m (€134m), in the year to August 2022. As result, oat by itself was responsible for 75% of the growth in the plant-based creamers market, which now has a retail value of $560m (€559.5m).





"Made from gluten-free oats, our non-dairy creamer with natural flavors and very real vanilla extract gives every sip of coffee a pleasant sweetness."

Fat 0.5g protein 0g sugar 4g per 15ml serve

STRATEGY 5: GLUTEN-FREE

CONSUMERS

Consumer interest continues to increase, but modestly compared to 10 years ago. Gluten-free is a widely-accepted reassurance message in many markets, with the exception of Asia. Although only 10%-12% of consumers say they are avoiding gluten (NNB 5-country survey), the term gluten-free has a health halo, and around 20%-25% of people choose a gluten-free product sometimes. They are not 'eliminating', just 'reducing'. It's a strategy that consumers apply to many health benefits, dpping in and out depending on how they feel. A gluten-free label signifies digestive wellness, and for some people it signals weight wellness, because of the bloating they get when they consume gluten.

MARKET DEVELOPMENT

Gluten-free is used as a reassurance message and most manufacturers settle for communicating that their product is "(naturally) free from gluten", without tying it to any specific benefit. It is most often mentioned in a check-list of other 'free-from' benefits such as: "the product is free from gluten, dairy and soy". Communicating gluten-free can be part of your messaging – it will appeal to many consumers – but don't expect it to be a major driver of growth or profitability. It's worth noting that gluten-free hasn't been as easy as expected for some companies. This is partly because it is technically difficult to achieve in some categories such as bakery, where brands depend on expensive speciality ingredients and struggle to deliver on taste. In the UK, for example, the Genius bakery brand has not made a profit since it was founded in 2007 and has cumulative losses of £34m ($39.3m/€39.2m) on its balance sheet. The brands that can do well with gluten-free will be:

- larger companies for whom gluten-free is just one part of a bigger business
- strong niche players with a clear identity and a focus on good taste and texture

COMPANIES AND BRANDS

Long-established UK bakery brand **Nairns** built its business by focusing on oats, offering oat crackers and cookies and avoiding other grains such as wheat. From about 2012 it sourced gluten-free oats and created gluten-free alternatives of its oat lines. The "gluten-free oats" positioning is easy for consumers to understand. Nairns has also added the benefit of less sugar. Sales now exceed $40m a year.



"With all the benefits of gluten free wholegrain oats."

"Taste so good, you'd never know they were gluten free."



Sugar 6.8g per bar

"We've compared our Apple & Cinnamon Oat Bar to over 150 branded fruit and cereal bars...they contain 40% less sugar than the average bars."



Schär is Europe's biggest gluten-free brand. Schär's **Vitality Loaf** isn't just gluten-free – back-of-pack messaging emphasises that it also contains chestnut flour, quinoa and sorghum, is made with sourdough and contains "only the best ingredients".



Taking out gluten meant that gluten-free bakery **Genius** had to resort to a 17-strong list of speciality ingredients such as gums and stabilisers to make its products hold together. The resulting complexity of the product meant a retail price that was 100% higher than regular bread. Taste was still only appealing to hardcore gluten-free consumers. This constrained the brand to a niche.



STRATEGY 6: SHEEP & GOAT DAIRY

CONSUMERS

In many parts of the world, products based on goat and sheep milk are traditional and 'unexciting'. In others, such as the US, they appeal only to a niche of early adopters and food explorers. But goat and sheep milk are benefiting, slowly and steadily, from consumers looking for alternatives to cow's milk. Compared to cow's milk, they are said to be easier to digest and have a positive sustainability message of a lighter environmental footprint. Taste issues that once put people off appear to have been addressed. Mainstream media have begun discussing the health benefits and advantages of goat's milk vs cow's milk. The most discussed health benefits of goat's milk include:

- Digestive benefits – sheep and goat dairy is said to be easier to digest than cow's milk due to a low lactose content and easy digestible fats and proteins
- Fewer allergenic proteins than cow's milk
- Skin health
- High in calcium, minerals and vitamins

MARKET DEVELOPMENT

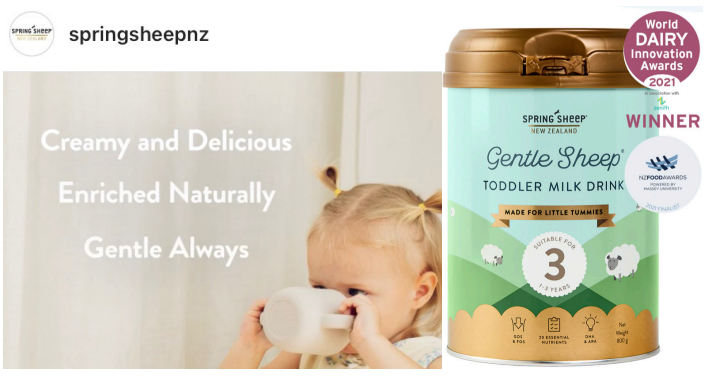
For creative companies, products based on goat and sheep milks are an innovation opportunity – particularly in the kids' market. With their 'easy to digest' message, demand will grow for the next decade and while it will be a niche, it will be a profitable one. The digestive wellness message is particularly relevant in the kids' market. Goat and sheep milk infant formula have seen impressive growth in several markets, and goat accounts for more than 10% of the infant formula market in Australia. China is the single-biggest market for goat products, which account for less than 5% of the Chinese infant formula market, but it's a premium niche that's growing fast, perhaps by 30% a year. The growth of formula and toddler products in Asia signposts the emerging potential for both sheep and goat milk and yoghurt to create differentiated products for children in the 1-6 age range, and not just in Asia – there's also an opportunity to get in on the ground floor in Europe, the Middle East and the US. There is a white-space opportunity for spoonable dairy products for kids, made from sheep or goat milk and marketed with messages such as 'easier to digest' and greater sustainability.

COMPANIES AND BRANDS

"GENTLE" ON DIGESTION + QUALITY PROTEIN MESSAGES

Bellwether Farms communicates that its sheep milk has 33% more energy than cow milk. It has double the protein and more "good fats", calcium, iron, magnesium, phosphorus, and zinc. It has more than twice as much Vitamin C, and double or triple the other essential vitamins.





Spring Sheep's Gentle Sheep formula and toddler drink range is naturally A2. "We believe our natural New Zealand farms provide one of the gentlest and most nutritious milk products in the world."



Greek dairy **Kourellas** markets full-fat sheep and goat yoghurt with added probiotics. The company connects to the health halo of the Mediterrannean diet with its "eat like a Greek" tagline. It also communicates about provenance, sustainability and real food. Goat dairy has multiple advantages, "easy to digest", lower lactose than cow's milk, and a good sustainability platform.

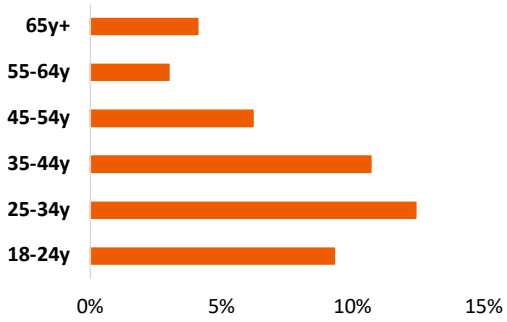
STRATEGY 7: GRAIN-FREE

CONSUMERS

Grain-free is a small but steadily emergent opportunity, with more appeal in the English-speaking countries than elsewhere. Grain-free eating can be viewed as a version of gluten-free eating as it excludes also gluten-free grains such as rice and oats. Most grain-free diets permit small amounts of quinoa, amaranth, and buckwheat. Consumers are attracted to it for:

- Digestive health
- A way to consume "better carbs"
- Weight loss
- Blood sugar management
- Avoiding potential inflammatory effect of grains

Chart 16: Grain-free is favoured by younger consumers



Source: NNB 5-country survey, 2022

In our 5-country survey the percentage of people saying that they tried to eat grain-free doubled during 2020-21 to about 7%-8% of consumers. In 2022 this number was unchanged.

MARKET DEVELOPMENT

Grain-free product launches are slowly increasing. Of all launches in 2015-2021, 66% were in North America. Breakfast cereal is the most common category, followed by bakery and snacks. Economic challenges are likely to restrict the growth of grain-free for the next 2-3 years. Grain-free products usually have more expensive ingredients and a premium-price compared to regular grain-based products. A new wave of products based on cassava/tapioca flour and chickpea flour allow products to be both gluten-free and grain-free.

COMPANIES AND BRANDS



Hu Kitchen, now owned by Mondelez, is America's most successful vegan chocolate brand. Its diversification into bakery was led by these grain free crackers: made with a blend of almond, whole cassava, and organic coconut flour.

Against the Grain is the brainchild of Hu Kitchen co-founder Jason Karp. It is a dedicated grain- and gluten-free bakery with a focus on "simple, real, easy to pronounce" ingredients.

LOSE THE GRAIN. KEEP THE JOY.
EAT THE BREAD (AND PIZZA!).





In Australia, the 30-year-old **Carman's** muesli and granola brand has carved out a place by meeting a wide range of dietary needs. Its grain-free product is 83% nuts and seedds (almond, macadamia, cashew and pecan) and less than 4g sugar per 45g serve.



"Your go-to grain-free chip"

Thrive Market is a successful US ecommerce food retailer, focused on natural and organic food products. Its own-label grain free & paleo tortilla chips are made with a blend of cassava & coconut flours plus chia seeds, fried in avocado oil.

The **Mikey's** brand, created by a trained chef, offers a range of frozen snacking and handheld products for different dietary lifestyle – gluten-, grain-, dairy- and soy-free. Sold in over 7,000 grocery stores in the US.



"In place of grain flours, we use gluten-free alternatives like cassava, coconut, sunflower, almond, and chickpea flours for delicious flavor and unbeatable texture."



STRATEGY 8: EMERGENT A2 DAIRY (I)

CONSUMERS

Since around 2004, A2 milk has become important in the infant formula market, particularly in China. Every parent knows how an infant's digestive problems can disrupt both baby's and parents' sleep. Parents are keen to find something that will produce a happier baby, a better night's sleep – and a chance of performing reasonably well at work the next day. Formula based on A2 milk seems to have delivered this solution. Interest in adult products based on A2 milk is niche even in the most advanced markets, like Australia. However the niche of consumers in the US is clearly growing and many consumers who choose A2 dairy associate it with 'real food' (see KT9) and link its benefits to its traditional, pre-modern agriculture heritage.

SCIENCE

Milk has two major proteins: casein and whey. There are different types of casein, one of which is beta-casein. A1 and A2 are the two variants of beta-casein. Historically, cows produced milk that contained only the A2 form of beta-casein. Today, milk from the dominant Holstein breed contains mostly A1 proteins, and the argument is that A1 protein causes many of the digestive discomfort symptoms that some consumers feel after having milk. They often associate these with lactose-intolerance, but they might in fact be A1 protein-intolerant rather than lactose-intolerant.

A2 milk is from cows that naturally produce only the A2 protein, such as Jersey, Guernsey and many other 'traditional' breeds. The structure of A2 protein is comparable to human breast milk, as well as milk from goats, sheep, and buffalo. The scientific position of A2 milk has become stronger in recent years, following positive human clinical studies.



MARKET DEVELOPMENT

The market was pioneered by the Australia-based **A2 Milk Company**, which launched its first product in 2004. Infant formula sold in China alone has become 45% of the A2 Milk Company's $1 billion total annual sales. A2's share of the Chinese infant formula market reached 2.4% and Danone, Nestlé and others launched their own A2 formula products. A2's share of the adult liquid milk market in Australia is an impressive 12.4%. It achieved this despite selling at a 100% price premium to regular milk.





In what may be a world-first innovation, the A2 Milk Company now offers liquid milk which is both A2 and lactose-free, addressing two digestive health benefits.

Over 100 dairies in the US currently use A2 as a point of difference and their numbers are increasing all the time. They mostly source from Jersey and Guernsey cows whose milk is naturally A2. Most are small regional or family businesses. Family-owned **Alexandre Family Farms** in California may be one of the biggest players. In Asia, there are a growing number of A2 brands, not only in milk but also infant formula, kids products, cheese and cream. In Europe, the A2 message is much less common. This may partly be down to uncertainties about its health claim status in Europe and partly to risk aversion by dairy producers. Many major international dairy groups have A2 projects.



STRATEGY 8: EMERGENT A2 DAIRY (II)

COMPANIES AND BRANDS





US A2 milk brand **Origin** was founded by entrepreneurs Adrian and Lauren Bota in 2015 in Ohio. It claims to be the first 'always local' regenerative A2 dairy brand in the US. The company markets a full range of A2 products, not only liquid milk, but cream, cheese, butter and ghee. The brand communicates that its milk comes from the Guernsey breed of cattle, which naturally produce A2 milk: "A2 milk harkens back to the way milk used to be natural & human intervention caused cows to develop A1 proteins in their milk. All other mammals produce A2 milk, including humans, which means A2 milk could offer a closer experience to drinking the milk that humans are supposed to have."



Kirkland Signature is the private label brand of Costco, a discount chain and the 4th-largest food retailer in the US. Costco takes products under its private label when it is confident that sales can meet its high internal targets. This suggests that A2 milk may be more popular in the US than is sometimes stated in the media.



Founded in 2013 by Atanas Valev, who migrated to the US from Bulgaria, **Trimona** Bulgarian style A2 yoghurt is made with organic A2 milk from grass-fed Jersey cows. The brand has a strong emphasis on provenance and transperency. The digestive wellness benefits come from both probiotics and A2 milk.





Tenn Finns Creamery, in the American mid-west, like Origin and most other A2 producers in the US, connects to ideas of heritage, sustainability, natural and 'real' food as well as the digestive benefits of A2 dairy.





Most dairy cows produce milk containing both A1 and A2 proteins. The A1 protein is often the cause of digestive discomfort in many milk drinkers. Our cows produce milk with only the A2 protein. It's that simple.

STRATEGY 9: LOW FODMAPS (I)

CONSUMERS

A way of eating for people with GI issues such as irritable bowel syndrome (IBS), which afflicts around 10%-15% of consumers, it is a niche, with only about 4% of consumers following a low FODMAP diet. It is growing in Scandinavia and the US and Australia, where the science-backed diet was born. Consumers' online searches on FODMAP are also increasing in European markets like Spain and Italy, likewise in LATAM countries like Brazil and Mexico.

The low FODMAP diet is gaining attention among people who do sports and fitness. Exercise-related GI problems are common among athletes, which is not a surprise considering that sports foods (energy bars, gels) often include high FODMAP ingredients like fructose, mannitol, inulin, apple juice concentrate, chicory root and honey. A small number of studies have shown that a low-FODMAP diet can help.endurance athletes with exercise-induced GI symptoms.

Bicycling

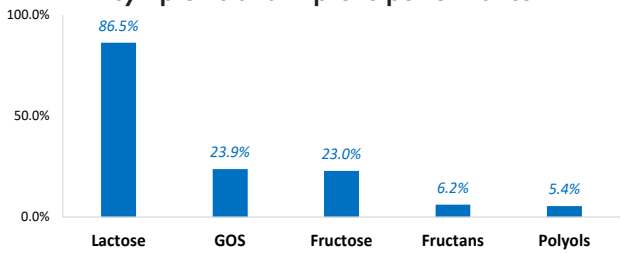
What Exactly Is the Low-FODMAP Diet and Can It Solve Your Stomach Issues?

LESS BLOAT AND FEWER GASSY DAYS—THAT IS THE PROMISE OF FOLLOWING THIS EATING PLAN. HERE'S WHAT CYCLISTS SHOULD KNOW BEFORE TRYING IT.

"The diet has caught on among an increasing number of athletes as a way to finally help stomach troubles that are negatively affecting training and race performance."

Sports and nutrition media increasingly discuss FODMAPs & its potential benefits for athletes.

Chart 17: High FODMAPs foods that athletes eliminate to reduce GI symptoms and improve performance



Source: Lis DM et al, Sports Medicine 2019

SCIENCE

Developed by Monash University in Australia, the diet is backed by gastro-enterologists and dietitians. Research by Monash University and others backs it as an effective treatment for IBS. FODMAP stands for Fermentable, Oligo-, Di-, Mono-saccharides And Polyols, and consists of groups of certain types of carbohydrates thought to trigger GI symptoms. FODMAP-friendliness depends on serving size – oat milk, for example, is fine in small amounts but not as a whole glass; some nuts are low-FODMAP at a certain serving size while others are high (almonds, cashews, pistachios). Some foods stand out as key high-FODMAP offenders – wheat and onions for example – but there are FODMAP culprits in almost every category, from fresh produce (avocado, asparagus, artichoke, apples, pears) to dairy (milk, yoghurt) and snacks (muesli bars, energy bars and biscuits).

MARKET DEVELOPMENT

FODMAPs will remain a niche served mostly by smaller companies. However, some larger companies are involved, such as Schär, Europe's biggest gluten-free brand. It offers a wide range of baked products which are certified low FODMAP by Monash Univesity and gluten free.

The main focus of activity from industry is in grain-based categories such as breakfast cereals, bakery and snacks. However, there is also attention being paid by NPD teams in sauces and ready meals.

Although there are some dedicated FODMAP-specific brands, these have so far had a somewhat niche, medicalized positioning. Mainstream brands are more likely to use FODMAP-friendly labelling in the way that many currently use "gluten-free" as a benefit to flag up on products that require little or no reformulation or as a benefit for new line extensions.



Schär low FODMAP foods

Schär have had a range of our foods including bread, rolls, Pizza Bases and Grissini certified as low FODMAP by Monash University. The...

APPROVED FOOD PRODUCT
FODMAP FRIENDLY

MONASH UNIVERSITY LOW FODMAP CERTIFIED™

FODMAP certification for branded products is available from two bodies, both in Australia – Monash University and Fodmap Friendly.

STRATEGY 9: LOW FODMAPS (II)

COMPANIES AND BRANDS

Belli Welli's range of low-FODMAP-certified snack bars, created by an IBS sufferer, aim for a brighter, more fun image than typical low-FODMAP brands. All are plant-based and have added probiotics.

"Have a sensitive gut and tired of sweet treats that hurt your stomach or leave you bloated? We get it."
"Probiotics in a brownie instead of a pill. That's right, BelliWelli delivers your daily dose in gluten-free, dairy-free, low-sugar, and low FODMAP snack bars."

INGREDIENTS: Gluten Free Flour (Oat Flour, Sorghum Flour, Oat Bran, Tapioca Flour, Oats, Chia, Acacia Fiber), Almond Butter, Chocolate Chips* (Cocoa Mass*, Cane Sugar*, Cocoa Butter*), Coconut Oil, Glycerin, Brown Sugar, Cocoa (with Alkali), Brown Rice Syrup, Vanilla Extract*, Rice Extract, Apple Cider Vinegar, Sea Salt, Mixed Tocopherols (antioxidant for freshness), Probiotic (Bacillus Coagulans GBI-30 6086), Baking Soda. *Organic





Australian family bakery **Alpine Breads**, founded in 1936 and a pioneer in FODMAP-Friendly breads, produces its breads by a process of slow sourdough fermentation that the company has been using since the 1930s. This processing reduces the levels of FODMAPs (specifically fructans), because the fructans are used by the yeasts and lactobacilli during fermentation. Grains in some variants are sprouted which Apline says makes its bread easier to digest. Lactic acids produced during fermentation are said to make the vitamins and minerals in the flour more available to the body by helping neutralise the phytates in flour that would interfere with their absorption.



This low-FODMAP bread was launched in Finland in 2020 by **Fazer**, the biggest bakery group in the Nordic countries. It was the first "stomach friendly bread" to be made using the company's patented LOFO enzymes for low FODMAP bakery. LOFO reduces the carbs in bread by 50% and breaks down the fructans contained in wheat. The range has since been extended and Fazer markets its enzyme system to other bakeries.

Scottish company **Fodilicious** has launched the world's first certified low-FODMAP energy drink. Made with carbonated spring water sweetened with stevia, it is zero sugar, zero calories, zero caffeine and delivers 15% of the RDA of vitamins B1,B3, B5, B6, B12, biotin and zinc. Fodilicious was launched in 2018 by Lauren Leisk, who had suffered from IBS since the age of 20. The company also markets granolas.



FODMAP specialist **Epicured** was launched in 2016 to provide a low-FODMAP and gluten-free meal delivery service. The company works with the Mount Sinai health system, which is a leader in gastroenterology care. Mt Sinai doctors and dietitians recommend Epicured foods as part of their treatment plans. The company has raised over $20m in investment.



Doctor-Recommended, Dietitian-Approved

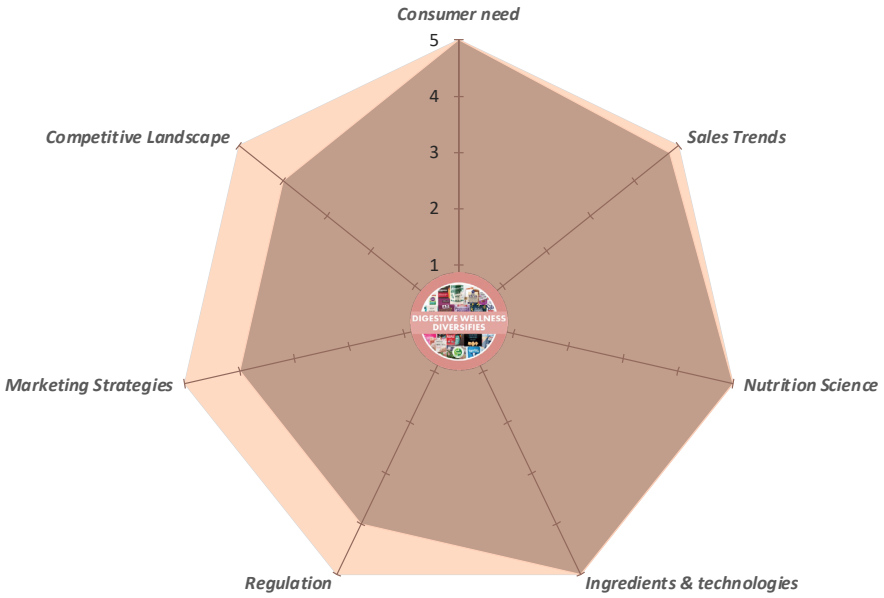
Every meal is 100% low FODMAP and gluten-free, clinically recommended and approved for people living with IBS, Crohn's, Colitis, Celiac and Non-Celiac Gluten Sensitivity.





"This dish contains 28 grams of raspberries and 28 grams of blueberries. According to Monash University, up to 60 grams of raspberries and 40 grams of blueberries are low in FODMAPs and should be tolerated by most individuals with IBS."

CHART 18: TREND DIAMOND – KEY TREND 2, DIGESTIVE WELLNESS



DIGESTIVE WELLNESS CONNECTS TO 4 OTHER KEY TRENDS



CHART 19: PRODUCT LIFE-CYCLE – KEY TREND 2, DIGESTIVE WELLNESS



KEY TREND 3



PLANTS MADE CONVENIENT

One of the biggest long-term growth trends, it offers many paths to success.

More than any other type of plant, botanicals have growth potential:

- A health halo
- Appeal to food explorers
- A growing body of science
- Colour, taste and health benefits
- Already embraced by major companies

Plants made convenient is a growth trend with mass-market appeal. For families, it can be a low-cost health choice.

Bird's Eye's plant-forward range was among the 100 most-successful product launches in the US.



Veggies Made Easy

Leave the washing, chopping, seasoning, and saucing to us.

4 STRATEGIES



1 PLANTS AS HEROES

Using a 'plants forward' strategy is perhaps the best way to appeal to the many consumers who want to eat more plants.

2 VEGETABLES REPLACE STARCHY CARBS

Vegetable versions of familiar carbs allow people to eat these without the high carb content.





3 HEALTH HALO OF BOTANICALS

Herbs and spices are familiar, easy to understand and naturally functional.

4 PROFITABLE POWDERS

For consumers, powders are a convenient way to get more greens. For manufacturers, powders are a profitable format.



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"Plants made convenient" strategies offer as big an opportunity as plant-based dairy, bigger than plant-based meat substitutes, and are the most aligned with consumer preferences. This trend has resulted from skilful new product development (NPD), making it easier for people to include more plants – and particularly vegetables – in their everyday diet. It should come as no surprise to anyone that 28% of American consumers define a healthy food as one that contains fruits or vegetables – almost the same percentage as those who say it's food that's a good source of protein (see Chart 20). Plant proteins have a different dynamic from vegetables and fruits, with different technological and market challenges and opportunities and with their own strategies, so we address them as a discrete trend (see KT6).

Elements that fuel the long-term growth of this trend include:

Extreme convenience: People have always known that fruits and vegetables are good for their health – but they weren't always convenient. It's easy for people to eat more fruit such as bananas or mandarins because they're sweet, tasty and often come ready-to-eat in their own packaging. Vegetables, on the other hand, often have a taste and a preparation challenge: they need to be peeled, washed, chopped and cooked before you can eat them.

Over the past 10 years product developers have found ways of incorporating higher percentages of fruits and vegetables into convenient packaged foods, making it easier for people to get more plants in their everyday eating routine.

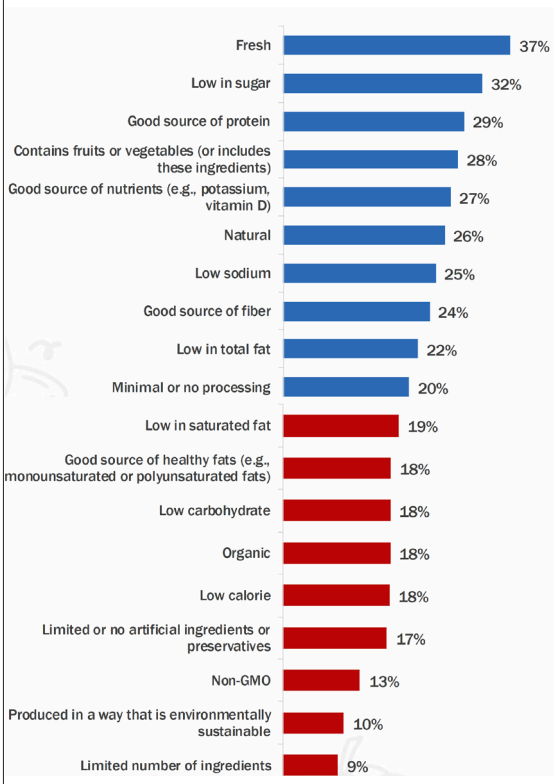
Consumers are very willing to accept a percentage of vegetables in convenient forms – inside bakery products such as bread, snacks, side dishes, and mini meals, or even replacing rice on the dinner plate with cauliflower 'rice'.

Food explorers: We're all food explorers now, and this plays a role in powering the growth of plant-based dishes. Everyone in advanced economies can choose from a massive array of cuisine types. People's quest for interesting flavours and combinations has been stimulated by food service outlets providing tasty plant-based dishes. NPD teams have filled supermarkets with a wealth of exotic flavour combinations and better-tasting products, which has fuelled the trend further.

Naturally functional: What's also powering plants is the powerful Mega Trend (see MT2) of "naturally functional". Plants have a strong health halo. Some of the biggest successes of the past 20 years, in terms of food types that consumers have adopted, are plants – almonds, blueberries, kale, chia seed, turmeric, and many more.

Chart 20: How American consumers define healthy foods

"Contains fruits or vegetables" is ranked almost as highly as "good source of protein".



Source: International Food Information Council (IFIC) 2022 Food and Health Survey

Multiple growth trend connections: Even more supportive of convenient plants' growth is that they connect with many other growth trends, from Good Carbs to Digestive Wellness and consuming less sugar. For example, according to IFIC's 2022 survey of American consumers:

- 64% believe that consuming more plants helps with weight management
- 59% believe they improve digestive health
- 55% believe they improve cardiovascular health
- 51% consume them to improve energy

Businesses are demonstrating real creativity in making the most of these connections. Take cauliflower, which we flagged as an ingredient with growth potential back in 2017. The Caulipower brand has become a $150-million-plus business using cauliflower in place of grains to create a gluten-free pizza base – delivering on digestive wellness and fewer and better carbs for weight management.

One point to note is that marketers of convenient plants need to focus on the benefits and/or recognised ingredients with a health halo. There has been a tendency to simply label everything 'plant-based' as the top benefit. As a result plant-based has become an umbrella marketing term loosely applied to many very different types of products in different categories – plant-based dairy, plant-based meat substitutes, vegan confectionery and much more. The term itself is overused by marketers and is now as likely to be treated warily by some consumers as it is to excite others.

An ever-increasing number of products carry the message "vegan" – but that's just a marketing shorthand for flagging to consumers that the product is 'all plants'. For some consumers the word is a positive and signals 'plant-based', but for

others it's a turn-off, suggesting poor taste.

In fact, veganism and vegetarianism have very little to do with the Plants Made Convenient trend, contrary to what you see in the media. In the US, according to IFIC data, vegetarians and vegans together account for only 5% of consumers. In the UK, vegans are just 1.6% of the population, according to The Vegan Society. In *NNB's* 5-country survey only 5% of people said they were following a vegan diet – a number barely changed since 2018.

For many people it's a difficult diet to stick to, with as many as 84% of vegetarians/vegans eventually abandoning their diet, according to the Humane Research Council.

Wise entrepreneurs and food executives understand that plant-based is just one part of consumers' range of preferences. It is for this reason that Mondelez-owned Hu Kitchen, the world's most-successful vegan chocolate brand, with over $100 million in annual sales, has added dairy milk chocolate products to its range, using a clear 'grass-fed' message. The new product comes in five flavours, all using organic-certified ingredients, as well as Fairtrade cacao.

Plant-based eating is just one part of consumers' eating repertoire, not the whole of it, and consumers have many other health interests.

What does it mean for strategy?

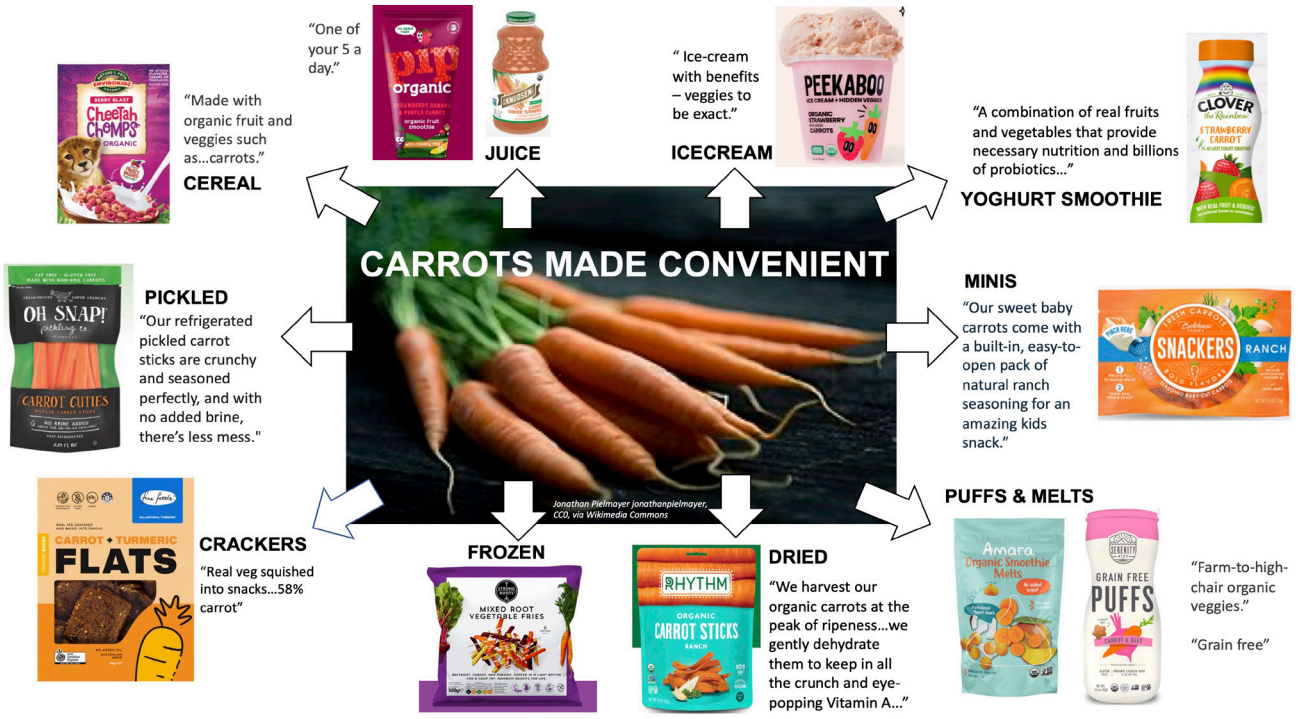
Strategies that companies are already using to create success with recognisable plants are:

1. **Plants as heroes**
2. **Real vegetables replace starchy carbs**
3. **Health halo of botanicals**
4. **Profitable powders**



For decades parents have been getting their kids to eat more vegetables by smuggling them into their favourite meals. The plants made convenient trend is about doing just that, but for adults too. Getting more vegetables into a family's diet in a way that's convenient, doesn't necessitate anyone changing their food habits and is in fact simply renovating estabished product types is a low-cost effort. Hence many 'more veg' products are mass-market priced, as this one is. **Heinz** has upgraded a 60 year-old product – pasta in tomato sauce in a can – boosting the vegetable content and "making it easier than ever to get your fix, just with that added bit of fun." The tomato sauce is 42% of the product and another 20% of the product is carrot, cauliflower and sweet potato, blended into the pasta.

CHART 21: CARROT'S HEALTH HALO, CONSUMER APPEAL AND ABILITY TO DELIVER SWEETNESS IN A PRODUCT HAVE MADE IT A MUST-HAVE INGREDIENT IN A VARIETY OF PACKAGED FOODS



STRATEGY 1: PLANTS AS HEROES

CONSUMERS

Because vegetables and fruits have a powerful health halo, adding them to any product in almost any category – from pasta, pizza, cookies, chips, baked products – gives consumers permission to indulge and enjoy them without guilt because they are getting some plants in a convenient way that may help them achieve their 5 a day. For many consumers, even just 5-10% of vegetables in a product makes it a permissible choice. Although people want to eat more fruit and vegetables, busy lifestyles, coupled with limited cooking skills in some countries, mean that they want them in a more convenient form. This need will fuel the trend for many years to come. It presents a significant opportunity for product developers.

MARKET DEVELOPMENT

This strategy is becoming more common in more categories in the supermarket and is a little-noticed success. But mainstream brands such as Birds Eye (see below) are beginning to earn significant sales with new launches. No category can ignore this opportunity, or consumers' interest in getting vegetables in a more convenient way. Making fruit or vegetables the hero of your product, presented in a tempting and convenient format, is a sure route to success.

COMPANIES & BRANDS



Per 100g: Protein 6.8g; Carbohydrate 11.3g; Fat 6.8g

Two of the 100 most-successful new product launches in the US in 2021 were **Birds Eye's** vegetable bakes, which saw sales of $33.4m (€33m), and its Buffalo cauliflower wings ($30.1m/€30.1m). The vegetable bakes alone accounted for 10% of total sales of Birds Eye, which is owned by **ConAgra**. The vegetable bakes are promoted on a taste platform, offering "restaurant-quality flavor". The brand uses a permission to indulge strategy, describing the vegetable bakes as creamy and decadent and "proof that vegetables are the key ingredient in some of the best comfort food around." Note that a signature vegetable is the number 1 ingredient in the products but they are neither vegan nor vegetarian.

Bonduelle is French group which is a leader in prepared vegetables and salads in Europe. In its Italian foodservice it has created a service for chefs and catering operators called Greenology: "to help you create tasty, healthy and sustainable plant-based dishes!" and "to unravel the potential of vegetables as ingredients capable of adding value to the recipe." The aim is to help caterers serve the needs of the 8% of Italians who are vegetarian or vegan and the 25% of Italians who are flexitarian and "looking for an original culinary experience".





Protein 5.7g; carbs 48g, fat 25.7g per 100g



"24 serves of veggie summery fun in each groovy bag."

Singaporean brand **Confetti** markets chips made from upcycled vegetables. It had revenue of $8.5m (€8.4m) in 2022. It plans to launch in the US and UK. Products are promoted as vegan, gluten-free and a good source of fibre. Ingredients include: Red radish, green radish, carrot, okra, shiitake mushroom and purple sweet potato. Nutrient density is a core part of marketing, with products described as "a powerhouse of taste and nutrients"; "Asian inspired recipes and dense nutrients" and "packed with goodness". All products have the words "nutrient dense" printed at the front of the packaging.

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STRATEGY 2: REAL VEGETABLES REPLACE STARCHY CARBS

CONSUMERS

Considering that around 26% of Americans, 28% of Spanish people and 25% of Australians are limiting their carb intake in some way (NNB 5-country survey) totally replacing the carbohydrates with plants in 'starch' categories - such as pasta -can be a successful strategy, as long as the product still delivers on taste and texture. This replacement strategy enables people to enjoy a favourite food without guilt as well as improving their intake of vegetables.

MARKET DEVELOPMENT

A strategy that emerged back in 2014, it has shown steady growth in the US and is emerging in Europe and other markets. Increasingly, companies are finding it is a reliable way to grow volume. It's one of the quiet success stories in the supermarket. Many companies in carbohydrate categories are adding a percentage of vegetables and fruits to their products to reduce the overall carbohydrate level and make bakery products (for example) more appealing both to the people who want to include more convenient plants in their diet and who want to consume fewer and better quality carbohydrates. We cover this in depth in Key Trend 1, Strategy 2.

COMPANIES AND BRANDS



"Each pouch contains 2 servings of veg, and as little as 4g of carbs."

UK-based **FullGreen's** cauliflower rice appeals to people who want vegetables with minimum preparation and maximum convenience, and also appeals to people wanting to eat fewer carbs. This small brand is producing steady 30% annual growth.







"Our Veggie Pasta is a delicious way to bring the nutrition of vegetables to traditional starchy pasta dishes. These pastas are made from 100% vegetables...it'a a great way to get your family to eat more veggies!"

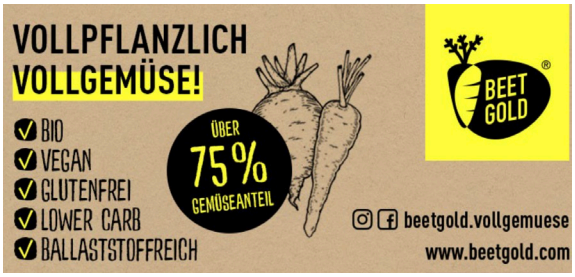
Birds Eye US has invested heavily in the plants space. Its Veggie Swaps line features alternatives to pasta, potato, rice and certain meat products. The Veggie Pasta range launched in 2020 and achieved sales of $11.6m (€11.5m) the same year. It features 'cook-in-the-bag' pasta dishes where the pasta is made from zucchini and legumes.

"Pasta made from vegetables
1 serving of vegetables per serving
No artifical ingredients"

In Germany **Beetgold** uses upcycled waste pomace from beetroot juice production to make gluten-free 80% vegetable tortillas with just five ingredients. They are said to be ideal for a low-carb diet, deliver a high dose of vegetables, and have reduced carbohydrates compared to standard wheat tortillas. They're sold in the chiller, which signifies fresher and healthier to most consumers. It's a 'plants made convenient' strategy.



Carbs 6.3g, sugar 5.3g, fibre 22 per 100g. First ingredient carrot pulp (98%).



STRATEGY 3: HEALTH HALO OF BOTANICALS

CONSUMERS

Perhaps more than any other type of plant, botanicals have a health halo in consumers' minds. Herbs and spices are familiar, easy to understand and perhaps most important of all: they are naturally functional (MT1). Botanicals can satisfy the percentage of consumers who are "food explorers" and they love to discover new and interesting flavours and ingredients. The number of scientific studies on the most common botanicals is increasing steadily. This builds credibility for their health halo which is reported both in mainstream and social media. This has the effect of growing consumer awareness, making them more attractive as a health halo ingredient.

MARKET DEVELOPMENT

The growth of this trend means that consumers can now find botanicals not only in supplements, but in anything from snack bars to confectionery and beverages. Adding botanicals to a product gives it a health halo and air of excitement – and creates a point of difference.

COMPANIES AND BRANDS





Ingredients: Organic Coconutmilk (Filtered Water, Organic Coconut Cream), Water, Mango Puree Concentrate, Pear Puree Concentrate, Rice Starch, Organic Cane Sugar, Fruit Juice Concentrate (For Color), Pectin, Starch, Calcium Citrate, Calcium Phosphate, Natural Flavors, Ginger Extract, Live And Active Cultures, Organic Turmeric Extract, Vitamin B12, Vitamin D2, Lemon Juice Concentrate.



Danone's **So Delicious** brand of coconut yoghurts, sold in the US, carry a front-of-pack logo that flags the use of botanical extracts, such as ginger & turmeric, elderberry, and chamomile. Botanicals are easy for people to understand and have a powerful health halo – no health claim is needed – even when, as in this case, they account for only a small percentage of the recipe. These products are made with coconut cream, which has a satisfying mouthfeel thanks to its saturated fat content.



Turmeric Co markets a range of 60ml shots in the UK. Products contain 15% fresh raw turmeric root and piperine (black pepper) which is claimed to increase curcumin absorption by up to 2000%. "We use raw roots and fresh ingredients to maximize nutrient delivery, so that you can enjoy all of the benefits of these naturally potent foods."

Dovedale is a leader in NZ in gluten free breads with no added yeast, using the traditional method of leaven fermentation. The brand uses filtered water, sea salt and natural ingredients and all its breads are free of eggs, dairy products and sugar.





Resist Nutrition, in the US, markets snacks for hormone and blood sugar health under the banner "powered by science-backed plant ingredients". Its Balance bar contains cinnamon, "an antioxidant known to help with blood sugar regulation", while the Recovery variant contains turmeric.



Catelli's turmeric pasta is made with just two ingredients: Canadian wheat and turmeric, said to be an excellent source of selenium. It delivers 1700mg of turmeric per 85g serving.



"Add some colour to your plate."

STRATEGY 4: PROFITABLE POWDERS

CONSUMERS

For consumers, fruit and vegetable powders are a convenient and "clean" way to get more greens in their life without having to worry about produce going off or being difficult to prepare. For many, powders are also an easy way to get extra protein, fibre and other nutrients. Powders used to be a primarily Asian and American habit but are now also growing fast in Europe. Millennials adopt them and they are part of many Gen Z consumers' habits, using them in morning smoothies. Health-forward consumers like the idea that they provide a "guaranteed dose" of plant nutrients – similar to dietary supplements. This market is likely to benefit from future growth in consumer interest in nutrient density.

MARKET DEVELOPMENT

For manufacturers, powders are a very profitable format in which to offer plants and there is an opportunity to then add other desirable nutrients such as protein and fibre to further increase consumer appeal. For brand owners, this category has advantages of long shelf life and low wastage and is ideal for a direct-to-consumer strategy. In the US many food brands sell powders as well as snacks and beverages and this will be seen more in Europe. There is an opportunity to combine Strategy 3 with Strategy 4, in the form of powdered botanicals. Such products are often referred to as "superfood powders" and this market alone is estimated to have a global value of around $4.5bn (€3.8bn).

COMPANIES AND BRANDS

Arepa's Neuroberry powder is promoted on a brain health platform, sold as "Nootropic brainfood powder".This is an example of how a company can be both in beverages (see KT8) and offer powders for a different consumption occasion. It is a mix of blackcurrant powder, pine bark extract and L-theanine. The New Zealand-based company is rooted in science and uses provenance and good taste to promote its product. Arepa is a case study of 'how to do it right'.





Aduna (UK) offers a range of superfood powders based on ancient African ingredients promoted as "some of the planet's most nutrient-rich foods". The brand offers powdered hibiscus, baobab, moringa and cacao intended for use in juices, smoothies, baking, cooking and sauces or dips. The products are promoted for being high in fibre and protein as well as a long list of vitamins and minerals.



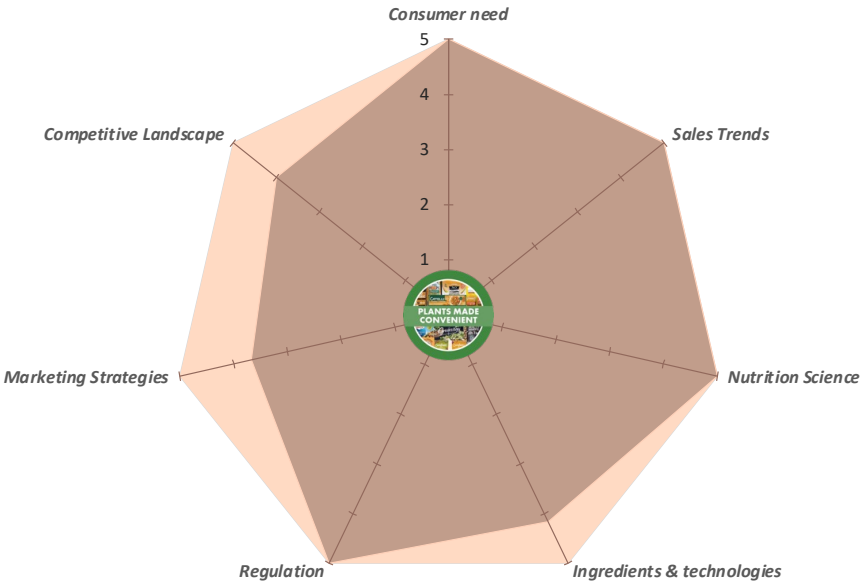


Swedish brand **PLOG** focuses on provenance, sustainability and versatility in promoting its range of fruit and vegetable powders. Each product is named after the region of Sweden it is sourced from. The portfolio includes powdered kale, carrot, lingonberry and sea buckthorn. The powders are promoted for use in smoothies, baking, yoghurt, juice and cooking to provide a natural daily nutrition boost. Parent company Inekogruppen saw sales growth of 11% in 2021.



Athletic Greens (US) targets sports people and promotes its greens powder as a way to "fill nutrient gaps". The powder features 20 different fruit and greens, ranging from bilberry and beetroot to spirulina, broccoli and rosehip. It also contains adaptogens like ashwagandha and reishi. It is said to offer "phytonutrients from nutrient-dense superfoods" and to support digestive health while providing immunity and metabolism, energy and stress support. The powder is to be mixed with water and consumed on a daily basis. It is available as a one-off purchase or on a subscription basis in the US, UK and Germany.

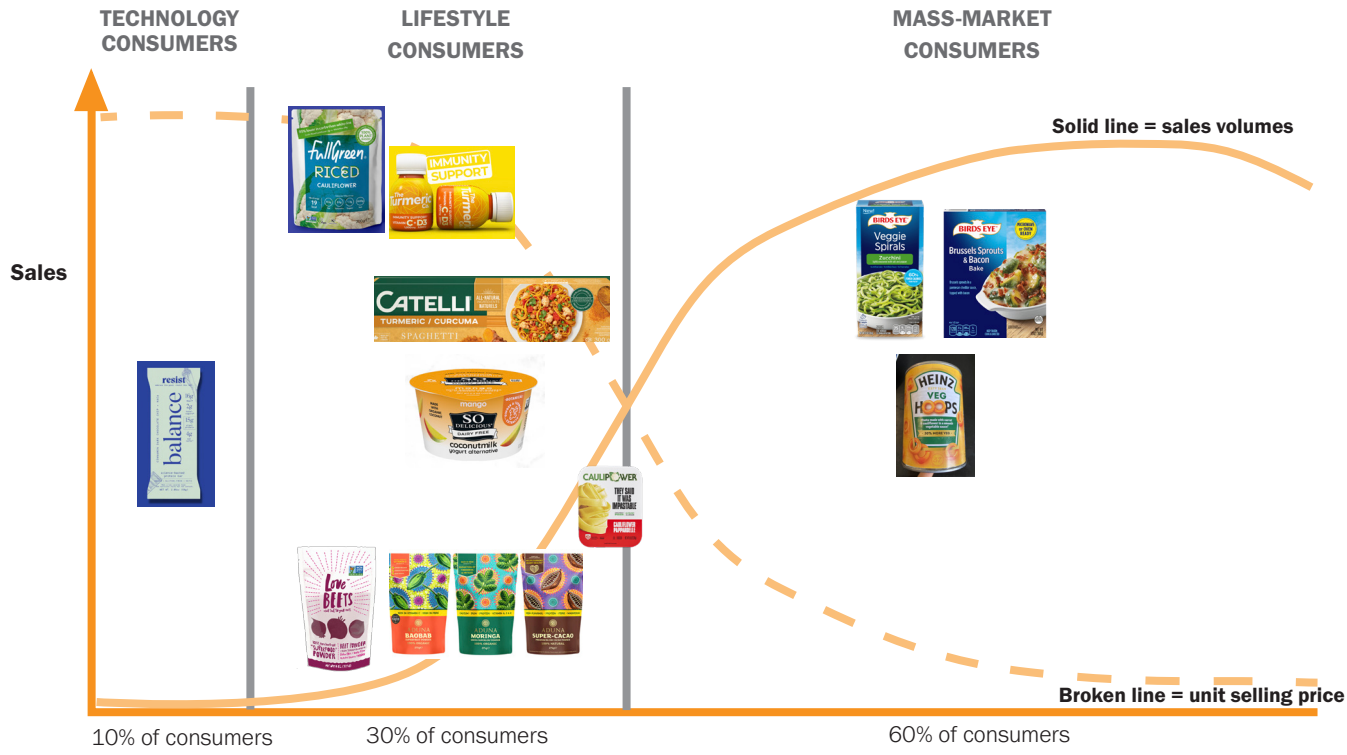
CHART 22: TREND DIAMOND – KEY TREND 3, PLANTS MADE CONVENIENT



PLANTS MADE CONVENIENT CONNECTS TO 5 OTHER KEY TRENDS



CHART 23: PRODUCT LIFE-CYCLE – KEY TREND 3, PLANTS MADE CONVENIENT



KEY TREND 4



ANIMAL PROTEIN POWERS ON

Animal protein is reinventing itself, and is set for long-term growth thanks to its natural advantages.

High-quality protein

Nutrient density

ANIMAL PROTEIN'S BIG ADVANTAGES

Familiar & versatile

Taste & texture

8 STRATEGIES IN ANIMAL PROTEIN

1 Sustainability gives permission to indulge

Commitments to sustainability give consumers permission to indulge.

NET CARBON ZERO BY NATURE™



2 Communicate the protein quality advantage

The next step for differentiating animal protein.





3 Grass-fed

A micro-trend has become a valuable strategy.





4 Nutrient density

An emergent idea among consumers, and animal protein's competitive advantage.





5 Cheese - a healthy snack & meal centre

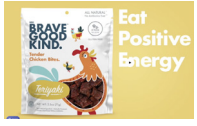
A new market segment where brands can grow.





6 Meat snacking

One of the fastest growing categories in the supermarket.





7 Collagen

Collagen's success shows people will embrace animal ingredients when they deliver benefits they want.





8 Plants blended with meat

Still in its infancy. Growth is low and slow.



It's very clear, both in the west and in Asia, that demand for animal proteins is strong and growing. This is notably true for dairy, with its powerful naturally healthy halo. Dairy businesses have excelled at improving our understanding of the health benefits of dairy proteins and at delivering those benefits in a wide array of good-tasting reinvented traditional foods, from Greek yoghurt to cheese snacks.

Companies who produce meat or use meat-based products or ingredients are also embarking on the same path – though still many years behind dairy – and are learning that even the most leading-edge young consumers will embrace meat-based products if they deliver a compelling benefit. The promise of better skin, hair and nails, for example, is driving the surging demand for bovine collagen, even among young consumers who define themselves as plant-based eaters.

Animal protein producers are also driving towards better sustainability performance, such as achieving carbon zero status.

Plant proteins are, of course, strongly in favour with most consumers, either in their whole form – such as nuts, legumes – or as a health halo ingredient inside baked goods, ready meals and snacks.

But for 90% of consumers, it's not an "either/or" choice of animal vs plant proteins. They include both in their repertoires, depending on the meal occasion and their personal nutrition and health beliefs (see MT1).

Wise businesses recognise that people are capable of doing two very different things. It's worth noting, for example, that the plant-based dairy alternative business is in fact dominated by dairy companies. Danone is the world's biggest maker of plant-based alternatives, and dairy company HP Hood has an oat milk brand, Planet Oat, which significantly outsells Oatly in the US market.

It's a similar story in meat. Meat processing giant Hormel's entire strategy rests on serving the full spectrum of consumer wishes. Meat producers have found that – contrary to what has emanated from the echo chamber of media, consultants and investors since about 2016 – consumer demand for meat appears unshakeable and meat producers out-perform the multi-billion-dollar-backed makers of plant-based meat substitutes (see KT6). This is simply because meat, like dairy, has many

"Meat producers have found that – contrary to what has emanated from the echo chamber of media, consultants and investors since about 2016 – consumer demand for meat appears unshakeable."

CHART 24: MULTIPLE CONSUMER MOTIVATIONS FOR CHOOSING PROTEIN

Consumers associate protein with many benefits, which means it can profit from increasingly fragmented consumer views about foods for health. Protein is a safe ingredient, with no history of conflicting messages (unlike fat or sugar). Together, these factors will keep protein demand growing steadily for many years.



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CHART 25: ANIMAL PROTEINS HAVE MULTIPLE COMPETITIVE ADVANTAGES AND BRANDS ARE BUILDING ON THESE



© New Nutrition Business 2022

competitive advantages and remains well-aligned with consumer preferences.

Since about 2016 food companies have been bombarded by the low-evidence noise from the echo chamber and misled into following strategies that downplayed the value and future of animal proteins and exaggerated the speed of impact of plant proteins. The risk of being misled hasn't gone away. For example, to listen to some consultants and conference speakers:

- You would never know that consumers have firmly asserted their preference for meat over plant-based meat substitutes, beginning in 2020 and continuing throughout 2022. In the US, for example, comparing July 2022 sales to July 2021 (IRI), grocery sales of plant-based meat substitutes fell in that month by $1 million. In contrast, sales of animal meat grew by $450 million. Both categories lost some volume as economically constrained consumers reined back on their spending. But the consumer preference was clearly stated, as it was every month in 2022.
- Nor would you know that meat snacking is one of the most successful categories in the grocery store – in the US growing by 19% in 2021 and 8% in 2022 to a retail value of $4.5 billion. In other words, this niche within the snacking business is 300% bigger than the entire plant-based meat substitutes market and growing much, much faster.
- Nor would you know that women of all ages – but particularly Gen Z and younger Millennials – have eagerly embraced collagen. That's both marine and bovine collagen, the latter harvested from scraping the hides of cattle. Collagen has become such a must-have in the morning routine of a growing percentage of young women – who add collagen powder to their morning smoothies to maintain healthy skin, hair and nails – that it is one of the top-selling items on Amazon. The buyers include many young women who describe their diets as plant-based, or at least flexitarian. Even Nestlé has gone into the collagen business.

ANIMAL PROTEINS, LEAD BY DAIRY, HAVE A WEALTH OF ENDURING COMPETITIVE ADVANTAGES

Familiarity: This was underscored by the pandemic, in which consumers turned to foods of all types that were familiar, had a reassuring taste and were value-for-money in the consumers' mind. Economic challenges for the next 3-5 years will also make people adhere to what seems reassuring and good value.

Taste & texture: Dairy proteins and meat can provide good taste and texture experiences that give people enjoyment.

Versatility: Dairy excels in presenting products with protein in a variety of convenient and good-tasting formats. Dairy also beats most plant proteins, for technical as well as taste reasons, as an ingredient in many products, from bakery to bars.

Animal protein is quality protein: Quality, as measured by the amino-acid profile, by bio-availability and beneficial effect in the human body, is animal protein's big untapped competitive advantage. So far, no widely-available alternative protein, with the possible exception of soy, comes close. In time, researchers in alternative proteins will commercialise a new protein source which equals dairy protein for quality, tastes good, formulates into products without problems, is reasonably priced and is acceptable to consumers. That may happen with dairy-identical proteins produced by fermentation, but there's a 5-year window for animal proteins to capitalise on quality as a competitive advantage.

Nutrient density: Animal proteins are nutrient dense. They come with a package of micro-nutrients which are either absent, or present in very low quantities, in most plant proteins. These nutrients are deficient in plant-heavy diets. The term 'nutrient density' is one that is not familiar to most consumers – but it is a concept that is important for human health, and it is an emergent idea among consumers, recognised by about 20% of Americans. Some brands are starting to use the term. It is a source of competitive advantage for animal protein products and a potentially powerful marketing message that has yet to be properly developed.



Family-owned UK cheesemaker **Ethical Dairy** has changed its business to incorporate a whole range of practices that respect aniamal welfare, the land and climate. Despite being in a remote corner of rural Scotland, the ethical positioning has resulted in huge demand for its cheeses among Gen Z and Millennials in the London area.

Sustainability: Often cited as the Achilles Heel of animal protein. Meat and dairy have been consistently criticised in recent years. But now dairy and meat producers are making tangible commitments to achieving sustainability and producing results. These efforts are welcomed by the majority of consumers. Most people enjoy the taste and texture of animal proteins and appreciate their versatility, and want to go on doing so. They are open to messages that give them permission to do so.

Consumers have access to a variety of information and can learn about the companies making huge strides with sustainability and make up their own mind. Most will continue to favour animal proteins.

Food culture: There is a saying that culture eats strategy for breakfast. It is a simple truth about the power of culture which applies in many situations. Animal proteins are embedded in most food cultures. They are in traditional dishes, in recipes, in daily habits, in national diets, in family customs. Dislodging these deep associations is not easy.

Fashion: This appears at the bottom of the list, but arguably should appear close to the top. The pendulum of fashion is a driver of change on the food industry. There is a leading edge of consumers, living in major cities, who are the first to embrace new ideas, and their peers follow them. Members of Gen Z and younger Millennials who embraced plant-based in the period 2016-22 were mostly doing so because that was the zeitgeist in which their generation was marinaded. But it is said that for every action there is an equal and opposite reaction. The leading edge adopted oat milk – and in some places the leading edge are already moving away from it. Young flexitarians will get just as enthusiastic about sustainable animal-sourced foods as plant-based, provided they align with some of their beliefs. Take the example of UK cheese-maker Ethical Dairy, a company that lives up to its name. And its biggest market? Online sales to younger consumers living in the London area, to young people who want sustainability, but who also want to enjoy cheese with a clear conscience.

SPORTS INFLUENCERS ARE SHIFTING BACK TOWARDS ANIMAL PROTEIN

From about 2014, social media was filled with influencers from the world of sports and fitness proclaiming that they were going vegan, or at least giving up meat. That fashion is over, and the pendulum is swinging the other way. For example, Norwegian-born Manchester City footballer Erling Haaland has attributed some of his success to his love of meat, particularly heart and liver. Bear Grylls, adventurer, mountaineer (he has climbed Mt Everest) and sailor, has publicly said he's given up veganism and speaks favourably of the benefits of grass-fed meat, eggs and dairy. Many food trends start out in the world of sports and fitness and spread to the wider population. Protein, for example, was of interest to only hard-core sports people 20 years ago but today everyone wants it.

Mail Online

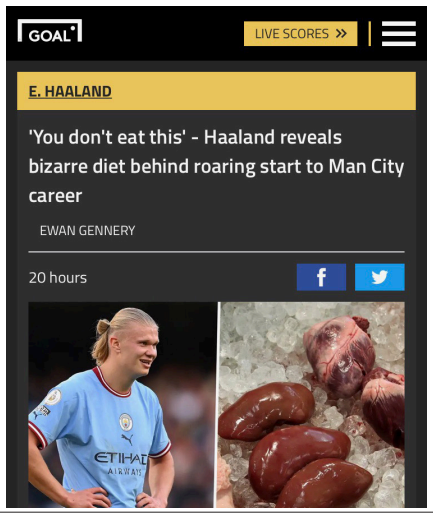
Cow's heart, liver... and filtered water! Erling Haaland reveals his unusual diet which has helped take his game to another level, having hit his 20th goal of the season already for Manchester City

- **Man City star Erling Haaland has revealed his bizarre diet of heart and liver**

Haaland: "I think eating quality food that is as local as possible is the most important. People say meat is bad for you, but which? The meat you get at McDonald's? Or the local cow eating grass right over there? I eat the heart and the liver."



dailystar.co.uk
Haaland feasts on hearts and liver because he wants to 'take care of my body'



"I've started incorporating quality grass-fed steak and liver. My lunch is meat, eggs and dairy, a lot of butter, and fruit. I have liver probably every other day. I started to get strong again."



Bear Grylls ✓
@BearGrylls

Bear Grylls Gave Up Veganism for Butter and Liver | GQ



gq.com
The Real-Life Diet of Bear Grylls, Who Gave Up Veganism for Butter and Liver

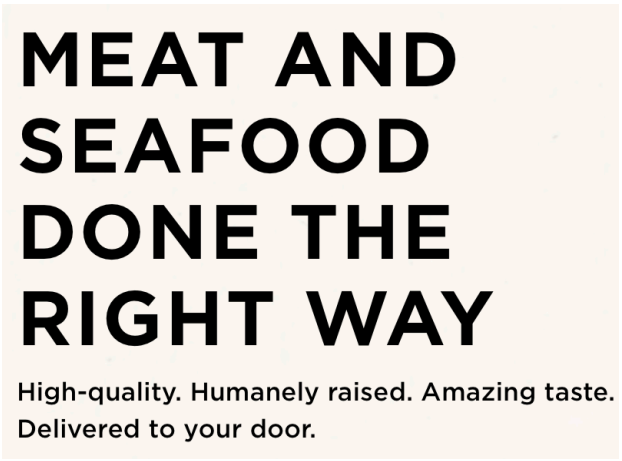
What does it mean for strategy?

In this trend we set out the following strategies that companies can embrace:

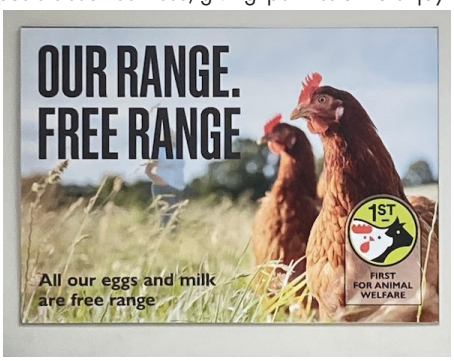
1. **Sustainability gives permission to indulge**
2. **Communicate animal protein's quality advantage**
3. **Grass-fed**
4. **Nutrient density**
5. **Cheese reinvented as a healthy snack & meal centre**
6. **The successful snackification of meat**
7. **New directions with collagen**

ButcherBox has taken the simple concept of branded, grass-fed beef, delivered direct-to-consumer, and turned it into a success in the U.S. market in just seven years, becoming a $550 million (€510 million) brand. It is a reminder that most consumers want to enjoy animal proteins and see them as a healthy choice. The opportunity lies in addressing consumers' sustainability and animal welfare concerns to give them 'permission to enjoy' meat. "Grass-fed" is rapidly evolving from a message about how animals are raised to signifying "healthier for me". ButcherBox also shows how a well-conceived and vigorous presentation of animal protein can thrive amid a wave of media attention to plant-based substitutes.





The pendulum swings: shoppers at upscale UK grocery retailer Waitrose tend to be higher income, higher education and more liberal. In response to the plant-based fashion among this group Waitrose was strongly 'plant forward' in the years 2017-20, expanding shelf-space for meat substitutes and heavily promoting plant-based. Now the pendulum of consumer belief is swinging back towards 'real food', the walls of its stores are decorated with posters such as these, giving 'permission to enjoy' animal proteins without guilt.







STRATEGY 1: SUSTAINABILITY GIVES PERMISSION TO INDULGE (I)

CONSUMERS

Most people enjoy the taste and texture of animal proteins, appreciate their versatility and want to go on enjoying them. Fortunately, dairy and meat producers are increasingly focusing on improving the sustainability of their operations, whether that's moving to grass-fed practices, regenerative agriculture, achieving carbon zero, better animal welfare, recyclable packaging or a combination of these. Within 3-5 years, credible sustainability messages will become common in the meat and dairy aisles. And that is what the consumer wants – reassuring messages that give them "permission to indulge" in meat or other animal proteins with a clear conscience.

MARKET DEVELOPMENT

A clear sustainability position will be valuable for premium, niche brands targeted at consumers who are higher income and health active. For the other 90% of the industry, it will become a must-have message that does not enable you to get a premium price or extra volume, but is an insurance policy, giving consumers a reason to continue to buy your product. In the US, 10% of meat products already carry labels such as grass-fed, from regenerative agriculture, organic or carbon neutral. That sustainable animal protein is aligned with consumer preferences can be seen from the contrasting fortunes of **Butcher Box**, a supplier of 100% grass-fed beef, and meat substitute maker Beyond Meat. It is Butcher Box which has become the success and Beyond Meat which (at the time of writing) stands on the edge of failure. One of the steps that companies are taking which is beneficial for sustainability and easy for the consumer to understand is changing what cattle are fed to reduce their methane emissions.

CHART 26: A TALE OF TWO PROTEIN STRATEGIES

Beyond Meat			VS	ButcherBox		
Company launched: 2012	**Products**: Plant-based meat substitutes, processed products with 20+ ingredients.			**Products**: Single ingredient natural foods.		**Company launched:** 2015
Consumer insight basis: No connection to food culture. Conjecture that meat reducers would prefer a meat-like alternative.						**Consumer insight basis:** Strong connection to food culture, to emergent consumer interest in quality protein and to emergent US consumer belief that 'grass-fed' means 'better".
Investor backing: $1 billion	**Annual sales:** $464.7 million in 2021	**Profitability:** Has never made a profit. Losses worsening. $179.68 million loss in 2021.		**Profitability:** About $10 million and improving	**Annual sales:** $550 million	**Investor backing:** $0.3 million of the founder's own money.

California-based **Straus Family Creamery** took part in a commercial trial that added red seaweed (*Asparagopsis taxiformis*) to cattle feed. During the two-month trial, emissions were reduced by an average of 52% and sometimes as much as 90%. This meant a reduction of five tonnes of carbon dioxide equivalent emissions over 7 weeks, according to a published peer-reviewed study. Tthis and other technologies to reduce methane emissions are becoming more widely-adopted and within a decade carbon-neutral dairy farming will be the "new normal".



In Australia, **Future Feed** – a partnership between **Meat & Livestock Australia** and two research institutions – is driving the commercialisation of a seaweed-based food additive called asparagopsis. It naturally prevents the formation of methane and has been proven to lower methane emissions by more than 80%. "Low methane" steaks from animals fed with the seaweed additive have already been produced and are commercially available. The red meat industry in Australia has already halved its GHG emissions since 2005 and plans to achieve carbon neutrality by 2030.

If 10% of the livestock producers added 1.0% of Asparagopsis Seaweed Meal to the daily feed intake of ruminant livestock, it is like removing 100 million cars off the road.



STRATEGY 1: SUSTAINABILITY GIVES PERMISSION TO INDULGE (II)

COMPANIES AND BRANDS

Selling out in its first week in the supermarket, Sweden's first methane-reduced beef aims to address sustainability concerns and roll back the tide of negativity around meat. Sweden-based **Volta Greentech** partnered with food company **Protos** and national supermarket chain **Coop** to run a 3-month market test of the beef, promoted as "your new meat". The product is sold under the **Lome** brand, which stands for "Low on Methane". It retails mainly as ground beef, priced equivalent to regular meat. By supplementing the cows' diet with Volta Seafeed, made from red seaweed, the company achieved an 80% methane reduction. 19% of Swedes are reducing their meat consumption for environmental reasons. "This paves the way for future Swedish meat production. With the right production method we show that meat is a high-quality food even from a climate point of view", Protos' CEO Thomas Östlund said in an interview.



Silver Fern Farms, New Zealand's leading red meat producer and exporter, has added "net carbon zero by nature" to its long-standing grass-fed credentials. Its USDA-approved Net Carbon Zero by Nature 100% Grass-Fed Angus Beef launched in 134 Jewel-Osco supermarkets across the Midwestern US. It says the Net Carbon Zero by Nature product takes it closer to becoming a "nature positive" food brand.

"Our cattle browse outside in nature all year-round on a diverse diet of rich clover and rye grasses, on farms that can increasingly offset the emissions they produce. This is truly beef made better."
– Silver Fern Farms CEO Simon Limmer.

NET CARBON ZERO BY NATURE™

PASTURE RAISED GRASS FED

Our grass-fed beef is always great tasting.



PLANET-FRIENDLY EGGS

Many consumers no longer fear eggs for their cholesterol content, and now doubts over animal welfare standards for egg production are gradually being addressed by some producers.

Vital Farms markets eggs from chickens that live on pasture and are produced by small family farms. It has produced 1 million regeneratively-raised eggs to date. "We've been working with five initial farms to implement regenerative farming practices...We believe this is farming the way mother nature intended...promotes rich, nutrient-dense soil and grazing animals."



Vital Farms' new Restorative Eggs are produced with regenerative farming practices.

UK supermarket chain **Morrisons** is the first to launch its own line of carbon neutral eggs as part of its commitment to be directly supplied by 'zero emission' British farms by 2030. The carbon neutral status of the eggs is certified by a third party. The eggs have mainstream pricing. Hens are fed a soy-free diet of insects which are in turn fed on food waste from Morrisons' bakery, fruit and vegetable operations. The farm supplying the first stock of Planet Friendly Eggs has a wind turbine and solar panels and a programme of carbon sequestration to offset other emissions, with 20% of its land planted with trees. Morrisons – a mass-market chain, competing on price – intends that its supply of beef, lamb, fruit and vegetables will take the same route to carbon neutrality by 2030.



Source: Morrisons

STRATEGY 1: SUSTAINABILITY GIVES PERMISSION TO INDULGE (III)

COMPANIES AND BRANDS



After 10 years in which high profile investors have shown interest only in plant-based dairy and meat alternatives, disappointment with their investments is prompting the pendulum of investment fashion to swing to sustainable dairy. **Neutral Foods**, said to be America's first carbon neutral food company, has secured investment of $16m from Japanese food group **Kirin**, venture capital firms Breakthrough Energy Ventures and Mark Cuban, an American billionaire who is known for his appearances on TV programme Shark Tank. Breakthrough Energy Ventures was co-founded by Bill Gates, who was an investor (until he sold his shares) in ill-starred plant-meat maker Beyond. Neutral's Carbon Neutral Organic Milk is sold in two varieties – Whole and 2% – in Whole Foods Markets, Sprouts Farmers Market and Target supermarkets. Its presence on store-shelves reminds consumers that dairy can be a force for good. It has been successfully marketing its milk since 2019. "Neutral is a game-changer," said Mark Cuban in a media statement. "Neutral works with farmers to deploy on-farm carbon reduction. It's a unique solution that can feed us while protecting us."



Waitoa is New Zealand's only independently certified producer of net carbon-zero chickens. The company has been a trailblazer in the free-range chicken market and was awarded SPCA accreditation for animal welfare practices in 2013.

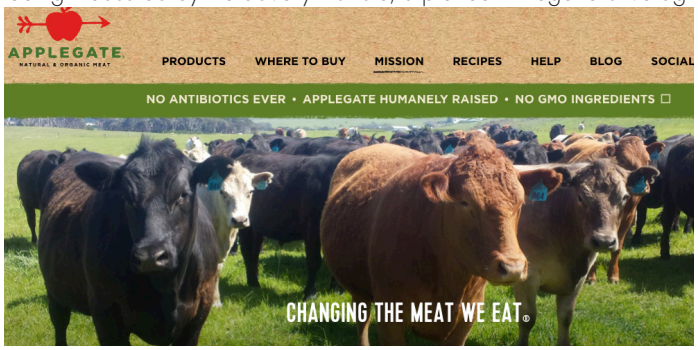
Powering trucks with poop



Arla, the world's 8th biggest dairy group, based in Denmark and Sweden, has already reduced its emissions by 23% and its farmers are ranked among the most climate-efficient dairy farmers in the world. The company communicates its commitment towards achieving net zero.

Arla's CO2e emissions are about 1/2 the global average

Hormel-owned Applegate Farms, America's leading natural and organic meat brand, has launched a new line called The Do Good Dog, the first nationally-available hot dog made with beef raised on verified regenerative US grasslands. It is described an essential part of the company's mission: "Changing The Meat We Eat". Applegate's size and experience scaling specialized supply chains in the meat category is to be deployed to make regenerative agriculture familiar and accessible in the mass market. "It's fashionable to argue that the only way to fight climate change is to eliminate meat. In fact, the opposite is true," said John Ghingo, president of Applegate, in a statement issued by the company. "Animals have a vital role to play in restoring soil health, sequestering carbon and safeguarding the land against drought, wildfires, erosion and other devastating results of climate change." The supplier of its beef – SunFed Ranch – has doubled its grass-fed cattle production, diverting cattle away from the much-criticised commodity feedlot system. SunFed Ranch, which manages more than 1.5 million acres of U.S. grasslands is committed to being 100% carbon neutral across all on-ranch operations, from production to product, by 2024 and fully carbon negative by the end of 2027. Applegate's contribution to regenerating grasslands and healthy soil is being measured by the Savory Institute, a pioneer in regenerative agriculture.





STRATEGY 2: COMMUNICATE ANIMAL PROTEIN'S QUALITY ADVANTAGE (I)

CONSUMERS

Protein is connected in consumers' minds with weight wellness and a healthy body shape and increasingly with other benefits. However, consumers remain focused on quantity rather than quality. There is still-untapped growth potential for dairy protein to introduce consumers to the importance of protein quality, one of dairy's competitive advantages. With its natural, positive and easy-to-understand image, demand for dairy protein is set to continue growing. Dairy has already shown how protein is valued by consumers in products positioned for health and also in ice-cream and indulgent yoghurts, where it provides 'permission to indulge'. Meat also signifies quality protein to many consumers and there is major potential for its nutritional qualities to be more widely appreciated in consumers' minds. That quality is not yet a key selling message for meat reflects the historically very low standard of marketing by meat producers, and a complacency that they've been forced to abandon by the highly vocal plant-based movement of recent years.

SCIENCE

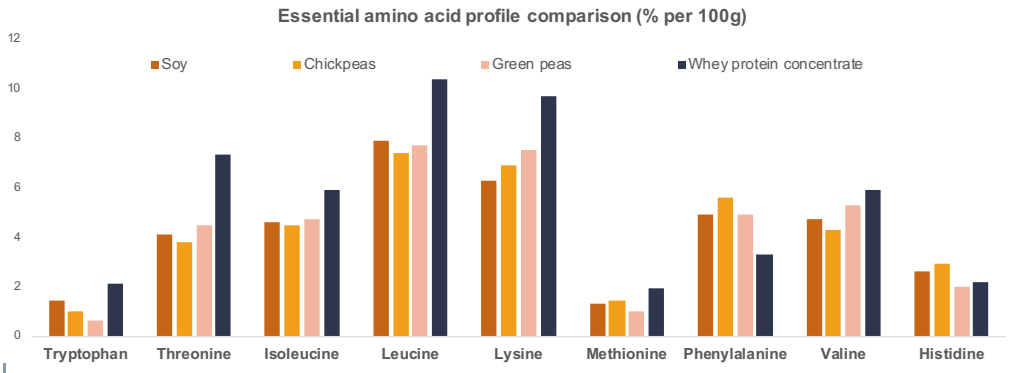
Many animal foods are complete sources of protein containing all nine essential amino acids and considered the highest quality protein sources. Examples of animal products which are complete sources of protein are fish, eggs, dairy products, red meat and poultry. Meats have DIAAS amino acids scores of >100, making them high-quality proteins, comparable in quality with dairy proteins. Most plant proteins, by contrast, are incomplete. Animal proteins are also sources of important nutrients, such as vitamin B12, vitamin D, DHA and zinc, which are absent from most plant proteins.

DIAAS scores of various proteins (%)

Protein powder	DIAAS
Milk protein concentrate	120
Whey protein concentrate	107
Whey protein isolate	100
Soy protein isolate	84
Pea protein concentrate	62

DIAAS=Digestible Indispensable Amino Acid Score Reference: Mathai et al. *Br J Nutr.* 2017.

Chart 27: Whey protein has a superior amino acid profile to any plant protein



Source: Compiled by NNB from various journals

MARKET DEVELOPMENT

Dairy created the protein trend and did so in particular by upcycling what was previously an under-appreciated waste stream (whey from cheese-making), thus making it an early example of sustainability. Dairy has been both the biggest beneficiary of the protein growth trend and the category with the most creative innovations which have helped drive growth. Dairy has multiple advantages as a protein source, including:

- Natural and logical source of protein in the mind of the consumer
- Versatility – lots of convenient and good-tasting ways to deliver protein (on-the-go drinks, spoonable yoghurts, cheese snacks)
- Connects to "permission to indulge" through creamy textures and endless taste possibilities
- Potential for strong provenance and authenticity claims from traditional products that are naturally a good source of protein, such as Greek yoghurt and skyr
- Versatile ingredient – dairy protein can easily be added to other product types, from bars to beverages

Meat shares many of these competitive advantages and such is their strength that plant-based substitutes have so far made only limited inroads into meat's market (in the US for example, they have achieved a 1.4% market share and in 2022 delivered zero growth). **But meat (and dairy) can do so much more in communicating the nutrient-rich nature of these foods, a message that will be new to many people.**

STRATEGY 2: COMMUNICATE ANIMAL PROTEIN'S QUALITY ADVANTAGE (II)

COMPANIES AND BRANDS

PROTEIN QUALITY ADVANTAGE



Chobani is the market leader in the US yogurt market. Its Chobani Complete range, which features spoonable and drinkable yogurts, is targeted at consumers who have an active interest in nutrition and fitness. Complete has been a pioneer in communicating the quality protein message to this influential consumer group. People into sports and fitness are early-adopters of new benefits which will help them perform at their best. Once this group adopts an idea it then spreads out to the wider population. This is how today's dairy protein market was created. Back in the 1990s only serious body builders were interested in dairy protein, today it's a mass-market "must-have" nutrient. Complete's communications underscore dairy protein's "advanced nutrition" value, explaining amino acids and the meaning of complete protein. The brand earned year 1 sales of $34.1 million, according to IRI data. Over the next five years we can expect to see these messages evolving into the wider consumer market.

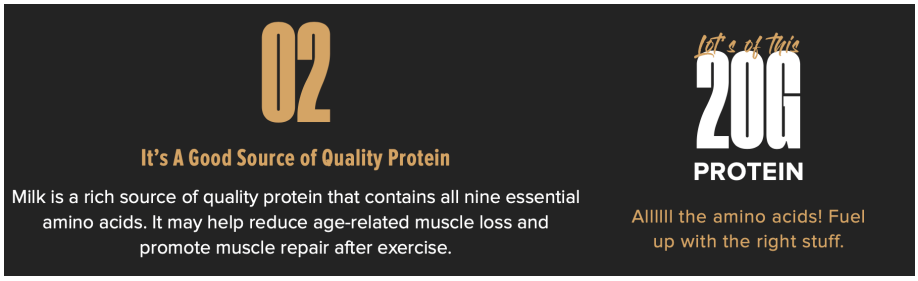
Danone YoPro is one of Danone's more successful launches, with annual sales said to be over $250 million. Marketed in more than 15 countries, YoPro is targeted at sports and fitness consumers. While Danone is less overt than other brands at communicating the protein quality message, it has started to do so in some markets, such as Portugal (see picture on right), where it talks to consumers about the 9 essential amino-acids and about BCAAs (Branch Chain Amino-Acids). This sort of terminology has been common in 'hard' sports products sold online and in drugstores and gyms, but it is new in a supermarket product.







Spylt is a US start-up targeting Gen Z with a chocolate milk drink that is a high-protein, low-sugar, "energy drink". Aimed at people motivated by fitness, Spylt communicates the nutritional benefits of dairy protein, explaining the value of the nine essential amino-acids and dairy's natural nutrient density "It's time that you tried Spylt with all of its naturally occurring vitamins and minerals found in Real Milk."

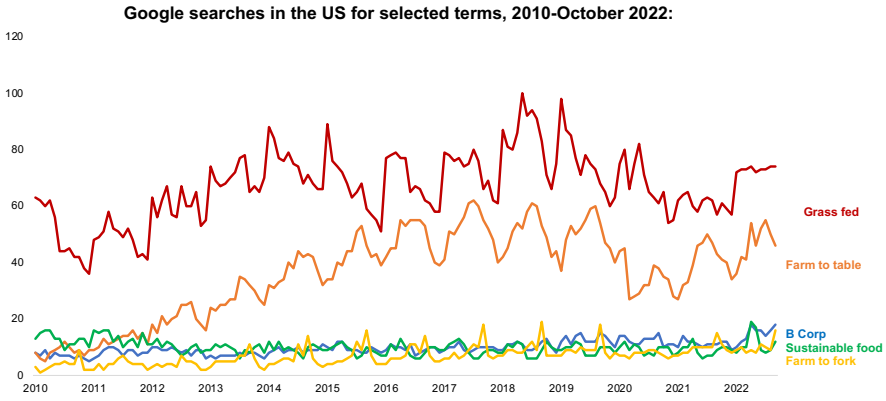


STRATEGY 3: GRASS-FED (I)

CONSUMERS

In 2019 we said of the grass-fed label: "It's a micro-trend, but it's clear that in some markets the idea of meat and dairy production that's environmentally responsible and that might result in a healthier product has growing consumer appeal." We also said: "Grass-fed seems to offer a way to position a dairy brand on human health as well as planetary health. It will lead to the creation of a new niche and further fragmentation of an increasingly fragmented market." It's now clear that in the US market grass-fed has enough momentum to be a valuable strategy and it is emerging in other markets. The term 'grass-fed' is what American consumers search for on Google more than for 'sustainable food', 'B corp' or any other term associated with sustainability (see chart). For a small but growing number of consumers not only in America but also in Europe, 'grass-fed' signifies 'better for the cows' (animal welfare), 'better for the environment' and (the most important part), 'better for my health'. All of these opinions are growing in importance to consumers.

Chart 28: Grass fed is more interesting to American consumers than any other sustainability term related to food



Source: Google Trends US

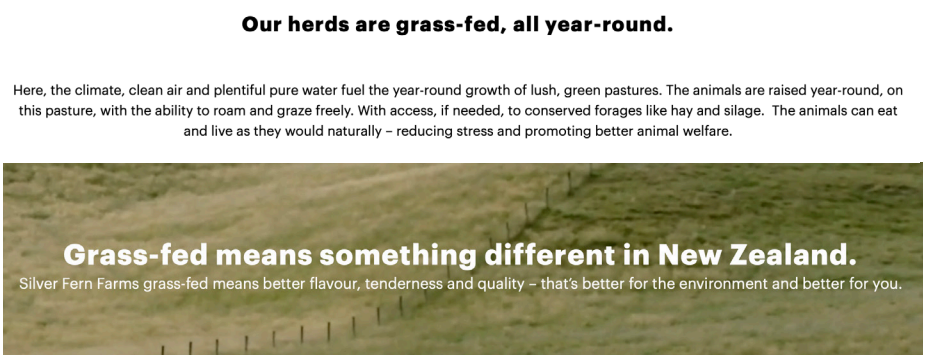
MARKET DEVELOPMENT

Grass-fed has taken on a life of its own and is growing. Cattle raised on a primarily forage diet (rather than grains) are often termed grass-fed or pasture-raised. Interest in grass-fed in the US market was fuelled by paleo and keto trends, which advocate eating proteins and fats from grass-fed animals. In 2018, for example, Nielsen showed a 45% increase in sales of US grass-fed butter. In addition to specific eating patterns, there's no shortage of information online arguing that the nutritional profile of meat and milk from grass-fed animals is better than that from grain-fed. The claimed benefits usually highlighted are:

- More conjugated linoleic acid (CLA), a nutrient associated with better heart health, reducing body fat and maintaining lean body mass
- Nutrient density – levels of vitamin E, for example, can be four times higher in grass-fed meat than grain fed
- Anti-inflammatory

COMPANIES AND BRANDS (I)

New Zealand's largest meat exporter, **Silver Fern Farms,** with $2.5 billion in annual sales in Asia and the US, markets only grass-fed beef, lamb and venison. Grass-fed is the central pillar of its messaging: "better flavour, tenderness and quality – that's better for the environment and better for you." Grass-fed is presented as a better source of nutrients than grain fed, for example, "Compared to grain-fed, grass-fed red meat has higher levels of omega-3 fatty acids and a healthier omega-3 to omega 6 ratio. Grass fed meat is higher in antioxidants, vitamin A and E and conjugated linoleic acids." New Zealand's grass-based system optimises natural resources and uses low-intensity farming practices to minimise environmental impact. Farmers utilise a natural abundance of rainwater to grow grass.





STRATEGY 3: GRASS-FED (II)

COMPANIES AND BRANDS (II)

Portuguese dairy group **Nova Açores** – based in the Azores – is making headway with its grass-fed ("pastagem" in Portuguese) dairy products, sourced from "cows that graze freely 365 days a year". Milk for the Pastagem range comes from farms certified as guaranteeing animal welfare and following good environmental practices, and it is claimed to have better lipid, protein and vitamin profiles than conventional milk. Another grass-fed brand, also from the Azores, is **Terra Nostra**, part of the French Groupe Bel. Portugal has among the lowest salaries in Europe and many people are still struggling economically following the financial crisis of 12 years ago, but there's a market for the grass-fed message.







"Milk from happy cows living outdoors and eating fresh grass all year round."

"Free cows, who choose their pasture, their time to rest and their pace to ensure a milk of excellence with better lipid, protein and vitamin profiles than conventional milk."

"A milk that does well and does good."



The unthinkable has happened: **Hu Kitchen**, the world's most-successful vegan chocolate brand, has added dairy milk chocolate products to its range, using a clear 'grass-fed' message. It's the second time this year that a significant vegan brand has launched a grass-fed dairy-based product in a bid to grow sales and reduce dependence on the struggling vegan niche. Hu Organic Grass-Fed Milk Chocolate is the first-ever dairy product offered by Hu Kitchen, a successful vegan brand that has sales of over $100 million, despite selling at a premium price. It was acquired in 2021 by **Mondelez**. Hu has a very strong brand proposition of few and simple ingredients.





Swedish/Danish dairy giant **Arla Foods** markets milk under the **Cravendale** brand in the UK, using milk produced by Arla's UK farmers. The brand strongly communicates "It's all about freedom, like our cows who are free to graze". Cravendale also has a comprehensive and independently audited animal welfare, renewable energy and biodiversity programme behind it.

Texas-based **Epic Provisions** was founded in 2013 to market nutrient-dense meat snacks. Under the ownership of **General Mills**, the world's 10th-biggest food company, it has grown to over $100 million in sales. The company is committed to regenerative agriculture and all its beef and bison is grass-fed. Epic says its bestseller is its Bison Bacon Cranberry bar, made with 100% grass-fed bison and uncured bacon.

- 7 grams of protein
- 100% Grass-Fed Bison
- Gluten-Free
- Paleo friendly
- No nitrites or nitrates



"All beef is 100% grass-fed. We work with US beef suppliers that go above and beyond grass-fed to implement regenerative agriculture and holistic management...Our Wagyu beef (used solely in our strips product line) is 100% grass-fed in New Zealand."

Protein 7g, Fat 8g Carbohydrate 8g per 37g serve

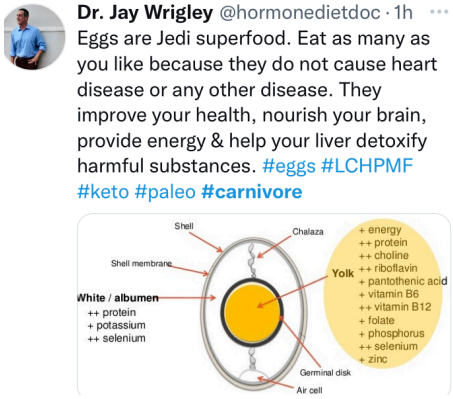
STRATEGY 4: NUTRIENT DENSITY (I)

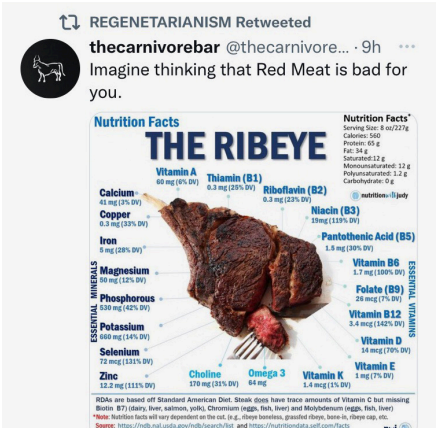
CONSUMERS

Only a small number of consumers are aware of "nutrient density" or what it means for a food to be "nutrient dense". Certainly, consumers' definitions of nutrient dense will bear no relationship to the technical definitions (of which there are more than one). But the number of consumers who claim to be interested in nutrient density is increasing. We were surprised in 2021 when in our consumer survey of five countries we asked – for the first time – about nutrient density and 12% of consumers claimed to have heard of it. That figure is now 18%. On social media platforms like Instagram it's notable that it appears to rank higher in consumer interest than terms like prebiotics, which marketers have been attempting to mainstream, without success, for 20 years. Nutrient density has particular relevance for these consumer groups:

- Sports people and athletes
- Seniors
- Parents of young children.
- Flexitarians, whose diets are likely deficient in the nutrients not available from plants and who therefore need 'better' animal protein.

There is an upsurge of social media activity drawing consumers' attention to the natural nutrient density of animal proteins of all kinds.





SCIENCE

Many foods are nutrient dense, but it is a particular advantage for animal proteins. They come with a package of micro-nutrients which are either absent, or present in very low quantities or with weak bio-availability, in most plant proteins. These nutrients are deficient in plant-heavy diets. The term 'nutrient density' is not familiar to most consumers, but it is a concept that is important for human health. The idea of foods being nutrient-dense has been floating around for more than 20 years in nutrition circles but it has moved on rapidly in recent years and the term "nutrient density" has been legitimized by being used in the US Dietary Guidelines.

TABLE 1: NUTRIENT-DENSE VS NUTRIENT-POOR FOODS

Nutrient-dense foods examples	**Cruciferous vegetables:** kale, cabbage **Berries:** blueberries, raspberries, acai, goji **Animal foods:** salmon, fish, seafood, grass-fed beef, liver, bone broth, egg yolks, kefir, yogurt **Legumes:** beans, lentils, chickpeas **Whole grains:** oats, rice, whole grain pasta **Nuts & seeds:** chia, almonds, macadamias, flaxseed **Greens:** spinach, broccoli, cauliflower. Spirulina, asparagus **Fungi:** Mushrooms
Nutrient-poor foods examples	**Ultra-processed foods:** ready meals, chips, snacks **Confectionery:** candies, gummies, desserts **Bakery:** pastries, cakes, cookies **Drinks:** sodas, alcohol

Source: NNB literature search

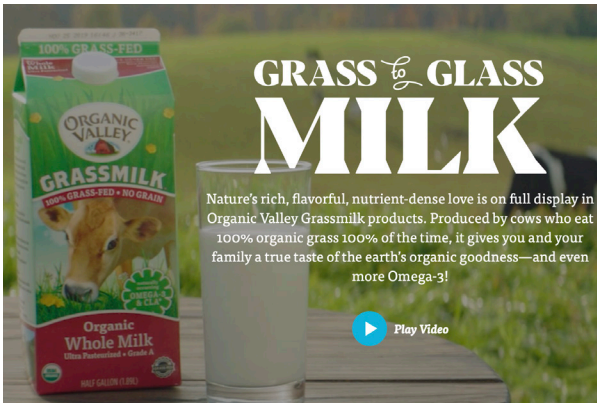
MARKET DEVELOPMENT

Nutrient density links to important issues including sustainability (soil health and regenerative agriculture for example), bioavailability and the growing scientific and consumer concerns about "ultra-processed foods" (UPFs). Nutrient density is an emergent idea among consumers and it is a source of competitive advantage for animal protein products. It is emerging as a marketing term, led by the US market – as new ideas so often are – but terms like "nutrient dense" and "nutrient rich" have obvious appeal to marketers and will spread to other markets. Nutrient dense has value because it's still a long way from being a meaningless marketing label in the way that "natural" was, or that "plant-based" is becoming. For now, it has the potential to create value among the 25%-30% most health-active consumers.

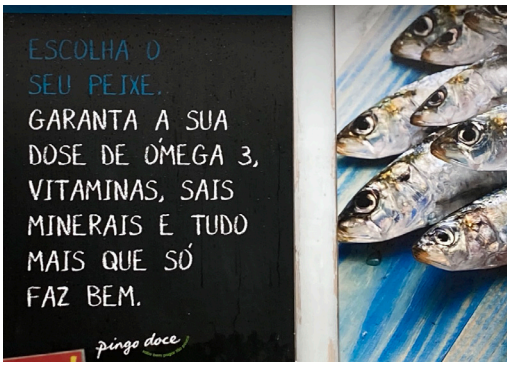
STRATEGY 4: NUTRIENT DENSITY (II)

COMPANIES AND BRANDS





Organic Valley is America's biggest organic dairy company. Owned by its farmers, the company communiocates the nutritional advantages of grass-fed cattle. "Nature's rich, flavourful, nutrient-dense love is on full display in Organic Valley Grassmilk products". Nutrient density also appears in the company's light-hearted and amusing TV ads. The boy on the left is saying "I love nutrient density".



Portuguese supermarket chain **Pingo Doce** regularly runs wall poster and point of sale communications to tell its shoppers about nutrient dense foods, usually animal proteins. This poster in a branch in Lisbon says "Choose your fish: Ensure your dose of omega-3, vitamins, minerals and much more that does you good".





In a crowded kids food market, **Serenity Kids** differentiates itself by appealing to the growing numbers of American parents who embrace protein and fat as healthy nutrients and have absorbed the message that nutrient-density helps children's development. Serenity uses grass fed meat and simple ingredients such as olive oil and organic vegetables. It is found in national retail chains such as Target and Kroger across the US and has sales over $30 million a year.

In the 1990s eggs were demonised for their cholesterol and people were told to limit their consumption to 3-4 a week. Since then eggs have become a superfood powered by the protein trend. US egg producer **Egg-land's Best** is reinforcing the superfood status by showing consumers how nutrient dense they are. "In 1992, we set out to create a better egg. Egg consumption was in decline.. So we asked ourselves how we could deliver the freshest, best-tasting, most-nutritious egg possible."





STRATEGY 5: CHEESE REINVENTED AS A HEALTHY SNACK & MEAL CENTRE (I)

CONSUMERS

A growth opportunity for dairy protein snacking is cheese, thanks to a combination of the following factors:

1. Cheese is already established in many people's snacking repertoire and has a positive health image, made even more positive by the steady rehabilitation of saturated fat in general and dairy fat in particular.
2. Protein credentials – for people who want natural protein, perhaps as a secondary benefit after taste and snacking, cheese delivers.
3. Permission to indulge – cheese is about taste and pleasure, the main things that people look for in a snack.
4. Snacking with less sugar and fewer carbohydrates are consumer motivations driving interest in savoury snacking.
5. Portion control is growing in importance in consumers' minds and a snack cheese can offer them this benefit.

MARKET DEVELOPMENT

After a slow start in 2014, cheese snacking is gaining momentum. It began with fresh cheese (in cubes, pieces or sticks) sold alone. Category growth and consumer interest were then propelled by brands such as Kraft's P3 or Sargento's Balanced Breaks offering snacking cheese in single-serve packs in combination with nuts, seeds, cured meat, dried fruit or grains. There is still significant growth potential this type of product. Dried cheese snacks – initially using parmesan cheese but now made with many other types – have also seen steady growth. Dried cheese snacks often emphasise texture and target people who, for health reasons, have given up/reduced their consumption of chips and other types of processed snack but who miss 'a snack with crunch'. Brands are launching snack mixes which include dried cheese and nuts – for protein and flavour – and other ingredients. The US is leading market development, but it is an opportunity everywhere, even in countries with low cheese consumption. In Asia, for example, presenting cheese in small bite-size quantities makes it easier for people to accept than the large block of commodity cheese that is typical in the west. Cheese snacks also achieve premium prices.



COMPANIES AND BRANDS

Cheese as part of a main meal, supplying the protein, is an option for consumers wanting to reduce their meat intake. The dairy industry has only just begun to address this opportunity. Convenience and versatility will be key to success.



Protein 15g, fat 14g (saturates 9g), carbs 21g, sugars 9g per 100g

"A nutrient-dense replacement for meat" for those who want to reduce their meat consumption.

Ingredients: Pasteurised Swedish milk, salt (2.4%), lactic bacteria culture, rennet.



UK: President Crispy Bakes with Brie are made with Brie (29%) and Mozzarella cheese (26.5%) mix coated in puffed rice.

Sweden: Pannoumi from **Skåne Dairy (Lactalis)** is made from cheese and billed as an alternative to beef or pork mince to use in staple Swedish meals like meatballs or Bolognese. Successfully debuting in foodservice, it has since launched in mainstream retailers.

STRATEGY 5: CHEESE REINVENTED AS A HEALTHY SNACK & MEAL CENTRE (II)

COMPANIES AND BRANDS

FRESH CHEESE SNACKS

Cheese is the ideal snack for keto consumers, and provides an opportunity to charge even more of a premium price.



Protein 6.1g, fat 8.4g (saturates 5.2g), carbohydrates & sugars 0g per 25g serve.

Cathedral City is the UK's biggest cheese brand, with annual sales of over £290 million ($335.5m/€334.5m). It is part of Saputo. Its 25g, 100kcal bars of cheddar make a direct appeal to consumers who are accustomed to cereal bars – particularly protein bars – but are looking for snacks with less sugar.



7.8g protein, 13.2g fat (of which saturates 5g) fibre 1.1g per 40g serve

Portugal: Terra Nostra brand (part of Groupe Bel) markets snack packs that combine cubes of cheese with fruit and nuts. The cheese is lactose-free and produced from the milk of grass-fed cows that live on Portugal's Azores Islands.



Protein 7g, fat 9g (saturates 6g), carbohydrates 1g per 28g serve.

Crystal Farms Dairy launched its cheese wraps in 2021. Marketed as a high-protein alternative to bread wraps for consumers wanting to eat low-carb, with taglines like "Cut the bad. Wrap the good" and "cheese in place of bread", they quickly became a success, earning Year 1 sales of $16.6m (€16.5m) in 2021.

DRIED CHEESE SNACKS

Already a $450 million segment in the US, dried cheese snacks are a growth opportunity. For dairies, it's a chance to enter the shelf-stable snacking section of the supermarket and benefit from selling products with a longer shelf-life. Parmesan is the cheese that is most used, but cheddar and more other hard cheeses, such as cheddar, are also being used, with the addition of flavours.



Protein 44g, fat 48g, of which saturated fat 27g, per 100g serve

Naera Icelandic Snacks is a start-up brand which markets a range of dried dairy snacks with Icelandic-sourced ingredients that are said to be easier to digest.



Protein 10g, fat 14g of which saturated fat 10g, per 28g serve

US: Whisps brand was a pioneer in dried cheese snacks, achieving over $100m in retail sales, available in 65,000 retail outlets, including Walmart, Kroger and Costco.



Protein 10g, fat 13g, of which saturated fat 3.5g, per 30g serve

US: Parm Crisps are parmesan cheese crisps with almonds, pistachios and cashews. They promise "All of the snacking goodness, with none of the guilt"

STRATEGY 6: THE SUCCESSFUL SNACKIFICATION OF MEAT (I)

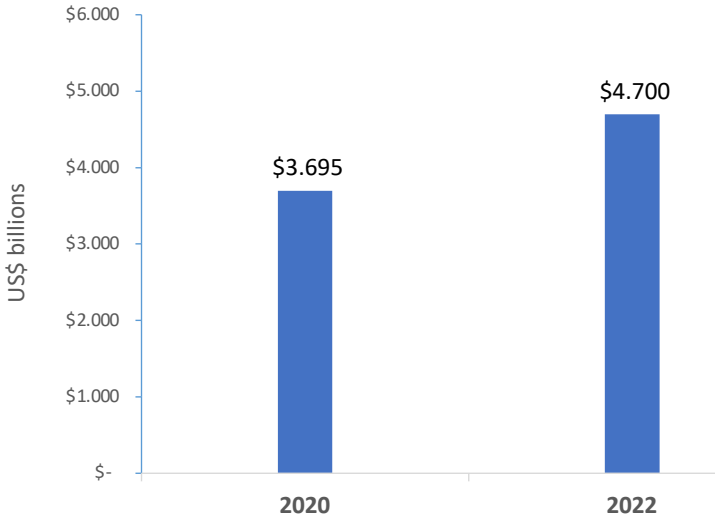
CONSUMERS

Interest in lower carbohydrate and high-protein diets, consuming less sugar, declining fear of fat, and positive messages online about protein and health mean meat is seen positively by most consumers. Add to that how well meat performs on taste, plus sustainability messages such as grass-fed, and together all these things help explain the surging demand for meat snacks. Industry sources say that meat-snack eaters are in increasingly looking for fewer and simpler ingredients and label claims such as no nitrates and no sugar. Consumers welcome sustainability messages with qualities like regenerative agricultural practices and consumers embrace meat snacks with the right positioning as better-for-you and better-for-the-climate.

MARKET DEVELOPMENT

Meat snacking is an opportunity for brand owners and ingredient suppliers of all kinds. It strongly connects to many consumer health preferences. IRI retail sales data shows that it has been one of the fastest-growing categories in the US supermarket (and has also produced double digit growth in volume and value in the UK, France and Germany)."It's a trend that's been incredibly durable," says Erin Tamm, brand director of meat snacks for Conagra Brands, said in a media interview. Meat snacks used to be all about beef jerky – an unappetising texture for many people – but in the US jerky is now outsold by softer meat snacks such as salami sticks and small bite-size pieces of meat. Now a $4.7bn market, meat snacks grew 21.8% in 2021, and 13.1% in 2022, according to IRI. This was achieved by a category with one of the highest profit margins in the supermarket. Brands position themselves on authenticity, provenance and sustainability. Grass-fed in particular is growing fast. Consumers – and Millennials are strongly represented among meat snack consumers– see grass-fed as healthier for them, the animal and the planet. This means they can give themselves 'permission to indulge'.

Chart 29: Meat snack sales keep on growing – at double the rate of plants



Source: IRI

NOT JUST RED MEAT

Snacks are also moving beyond beef and pork to include turkey and chicken, these last two appealing to people who want less fat and already embrace the image of poultry as the healthier choice. Chicken snacks are already a big business in Asia. A snack based on chicken can be not only a good source of protein, and low in fat, it can be formulated to be low in sugar and low in carbs – addressing two more concerns of the health-active consumer. And chicken can deploy a sustainability halo, highlighting its much smaller carbon footprint compared to beef. As chicken is fairly bland, it can also be a good basis for adding flavours. A very few entrepreneurial companies are waking up to the opportunity in snacks based on chicken – and other poultry, such as turkey – and finding success, such as Portuguese brand Salsicharia da Gardunha, with its OH!Snack range (right).



STRATEGY 6: THE SUCCESSFUL SNACKIFICATION OF MEAT (II)

COMPANIES AND BRANDS



Challenger brand **Brave Good Kind (BGK)** is opening up a new segment of the snacking market with "tender" chicken bites and bars in a variety of flavours. Designed especially for women and kids, the product is soft, in contrast to classic meat jerky. The product is also positioned on the benefits of energy and portion control. The brand is listed in Walmart and Sprouts Farmers Markets. "With 65% less fat than standard potato chips and 30%-40% less sugar than standard granola bars, these are ideal on-the-go snacks where every bite is filled with positivity."

10g protein, 5g total carbs, of which 5g is sugar, per 28g bar.



Made with 100% wild Alaskan salmon, our Smoked Salmon Strip is a favorite portable snack for pescatarians and mindful foodies alike.

7 grams of protein
100% Wild Caught Salmon
Gluten-Free
Paleo friendly

Texas-based **Epic Provisions,** founded in 2013, markets nutrient-dense snacks made from salmon, beef, bison, venison and pork. Part of General Mills, it has grown to over $100 million in sales. The company is committed to regenerative agriculture and all its beef and bison is grass-fed. It offers a wide variety of product types, from bars to strips (shown here).



In many parts of Europe such as France, Germany and Spain, meat snacks are long established and traditional. French producer **Auvernou,** which sells across Europe, is growing profitably by modernising the concept to appeal to food loving urban dwellers. Its 10g mini sticks bring together French Roquefort cheese, nuts and pork. Ingredients are French and all-natural.

Protein 32g,fat 44g (sat fat 15g), carbohydrates 3g per 100g

Jack Links is the number one meat snack company in the US and the UK and has seen impressive growth in 2020 and 2021. In the UK its Peparami brand was the single-biggest snacking success of 2020, with sales up 15.2%. Its chicken and pork-based snacks are promoted on platforms of protein, energy and satiety. In the US the company had total retail sales of over $1.68bn (€1.67bn) in 2021 – a 24% increase over 2020.



"Get a protein kick"
"The way to put your hunger in a headlock"

Original Peperami stick: 5.2g protein per 23g serve



3g protein, 5g fat per 14g serve

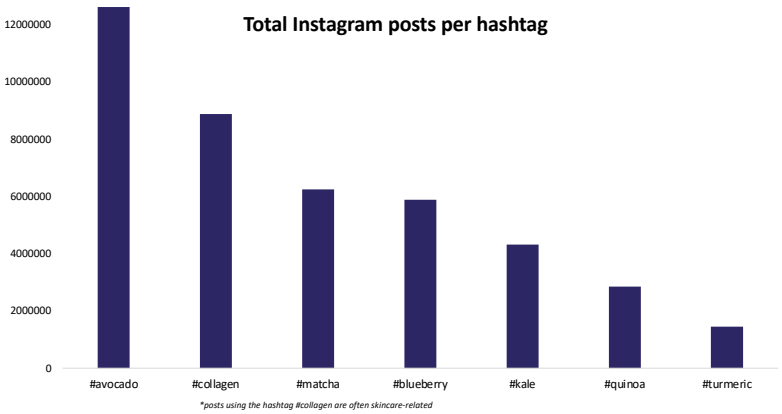
In the US, the 75-year-old brand **Old Wisconsin** achieved retail sales of $165m in 2021, a 24% increase over 2020. In 2022, sales grew a futher 20% with much of the growth coming from online sales and convenience stores. The brand is positioned on 100% natural.

STRATEGY 7: NEW DIRECTIONS WITH COLLAGEN (I)

CONSUMERS

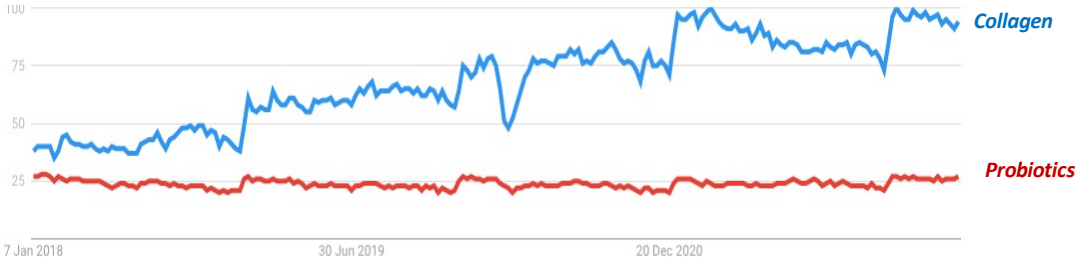
It's easy for food industry executives to forget that consumers don't want only plant-based. They are also very willing to accept innovations from animal-based ingredients if they deliver the benefits they want. One animal protein that health-active consumers are increasingly interested in is collagen, which has benefits for skin, hair and joint health, among others. Female consumers who describe themselves as eating plant-based are also able to choose an ingredient sourced from cattle in Brazil. Google search data reflects the growing interest: consumers' searches for collagen have been increasing steadily and now outrank those for probiotics.

Chart 30: Social media attention to collagen is high and increasing



Source: Instagram

Chart 31: Google searches for collagen outstrip probiotics, 2018 to May 22



Source: Google Trends

MARKET DEVELOPMENT

The fact that collagen is sourced from animals does not seem to be a barrier to success. Sales of collagen powders – for mixing in smoothies or in coffee – have been growing rapidly. Food and beverage companies are launching products which feature collagen. Major brands are embracing collagen: Nestlé Health Sciences has acquired the Vital Proteins brand (with over $200 million annual sales), which markets collagen supplements as well as collagen-infused waters. More potential benefits from collagen are emerging in research, including in relation to sports and to immunity. Producers, such as Gelita, are investing heavily in researching the science of collagen and, according to a company spokesman, " We used to talk a lot towards the consumer but we see more and more awareness from health professionals. The level of education of our consumer is increasing, so we need to keep investing in the science." Collagen's benefits are increasingly reinforced by social media.







STRATEGY 7: NEW DIRECTIONS WITH COLLAGEN (II)

COMPANIES AND BRANDS



Protein 7.7g, fat 6.5g, carbohydrate 19.3g per 42g serve (10 balls per serve)

Tom & Luke is an entrepreneurial brand from New Zealand which has broken into Singapore, the US, Australia and Japan thanks to its permission-to-indulge positioning, with a focus on less sugar, real food ingredients, protein, taste and provenance. The 12 year-old company partnered with the upscale Dose & Co collagen brand to offer a range of gluten-free snacking balls with 2g of bovine collagen per ball. The product is sweetened with dates. The launch was a success and the range has been extended to collagen bars.



"These burgers contain at least 97% premium red meat, a sprinkle of salt and pepper to season, and a touch of collagen to keep things tender and juicy. That's it. "

New-Zealand-based **Silver Fern Farms** is a farmer-owned business with annual sales of $2.5bn. It markets only grass-fed meat in North America and Asia. This range of meat products shows that collagen doesn't need to be about powders and supplements. If you're in animal protein you're in a legitimate position to make collagen one of the benefits, and it's a logical connection.





Single ingredient: bovine collagen, 10g per serving

New Zealand-based **Dose & Co** has developed a range of collagen supplement powders with a focus on hair, skin and nails – and its premium positioning and eco-friendly packaging has proved successful with global consumers and influencers from the United Kingdom to the United States and beyond. It has partnered with Keeping Up With The Kardashians star Khloe Kardashian, who is an investor in the company.



"With just 2 glasses daily, Anlene doesn't just supply your body's Calcium and protein needs, but takes care of your Collagen needs as well."

Anlene, a brand of Fonterra, the New Zealand dairy giant, is the biggest dairy brand in Asia that targets the benefits of movement and bone health. It has made collagen a standard ingredient across its range, within its Movemax formula."Movemax contains collagen to help support your overall body needs, including joints". Anlene targets female consumers aged 50+.

STRATEGY 8: PLANTS BLENDED WITH MEAT

CONSUMERS

Most people enjoy the taste and texture of animal proteins and appreciate their versatility and they want to go on enjoying them. At the same time, around 20%-25% of consumers say they are reducing their meat consumption. These consumers also want more plants. They also want 'permission to indulge' - to enjoy some meat, while eating less, and getting more plants. The consumer need was expressed by an executive at Applegate Farms, part of Hormel Foods, one of the world's biggest meat processors as: "People are not completely willing to give up 100% of their meat. The flexitarian movement is still flexible. There is not a full-on movement towards veganism or vegetarianism."

However, after four years of efforts by brands offering products which blend meat with plants, the segment is still niche. Partly it's a question of price (these products are normally premium to meat-only alternatives) and more importantly it could be a psychological question of people wanting something that is either clearly meat or clearly plants. It's the same psychology that caused mid-calorie sodas to fail. Launched and re-launched by Coke and Pepsi multiple times between the 1990s and about 2014, consumers rejected them in favour of either zero calorie or 'full sugar' products.



Get packing with deli meats made with simple, clean ingredients that are Applegate humanely raised with no antibiotics ever. We put the "deli" in delicious with sliced turkey, ham, roast beef or traditional Italian varieties.

Applegate Farms' communications reflect what drives some consumers.

MARKET DEVELOPMENT

The market is still in its infancy. There is clearly some demand, but growth is low and slow. The blend idea is not catching on quickly with consumers. There is clearly an opportunity in foods for kids, for products targeted at seniors and for some premium consumers, but the segment is not yet a significant growth opportunity.

COMPANIES AND BRANDS



Perdue Foods, one of the biggest meat producers in the US, has made a success of a dinosaur-shaped chicken nugget that enables parents to smuggle vegetables into the diets of picky eaters. Chicken Plus achieved Year 1 sales of $20.2 million. Parents desperate to get their kids to eat more greens have for many years been smuggling concealed vegetables into their offspring's meals in the hope they won't notice. Perdue was the first company to do this for kids with a meat product. Chicken Plus is a blend of chicken and vegetables, formed into nuggets and tenders and coated with panko breadcrumbs. The products are sold frozen. Chicken Plus is strongly promoted on a taste platform with a focus on being "kid-approved".

"100% natural ingredients"
"Good source of protein"
"No antibiotics ever"

Each 92g serving – 4 nuggets – provides one-quarter cup (half a serving) of vegetables and 9g of protein.



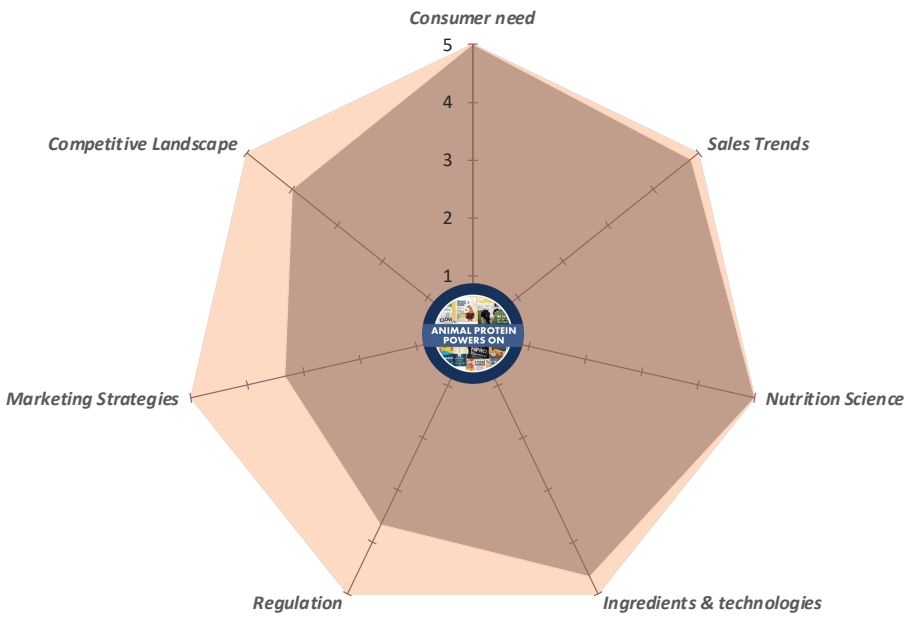
Applegate Farms Well Carved brand pairs organic turkey with organic lentils, feta cheese and spinach in these Mediterrannean-style meatballs. Each serving delivers the equivalent of a 1/4 cup of vegetables. The product is premium-priced. The low percentage of vegetables reflects how this strategy is about tempting flexitarians with both good taste and "permission to indulge".

13g protein, 7g fat, 8g carbs per 84g serving.

Organic Turkey Thigh, Skin On, Boneless, Organic Yellow Lentil, Organic Feta Cheese (Organic Pasteurized Milk, Sea Salt, Cheese Cultures, Enzymes.), Organic Spinach. Contains Less Than 2% Of The Following: Sea Salt, Organic Rice Starch, Organic Dill, Organic Dehydrated Garlic, Organic Black Pepper, Organic Olive Oil. Garlic, Black Pepper.

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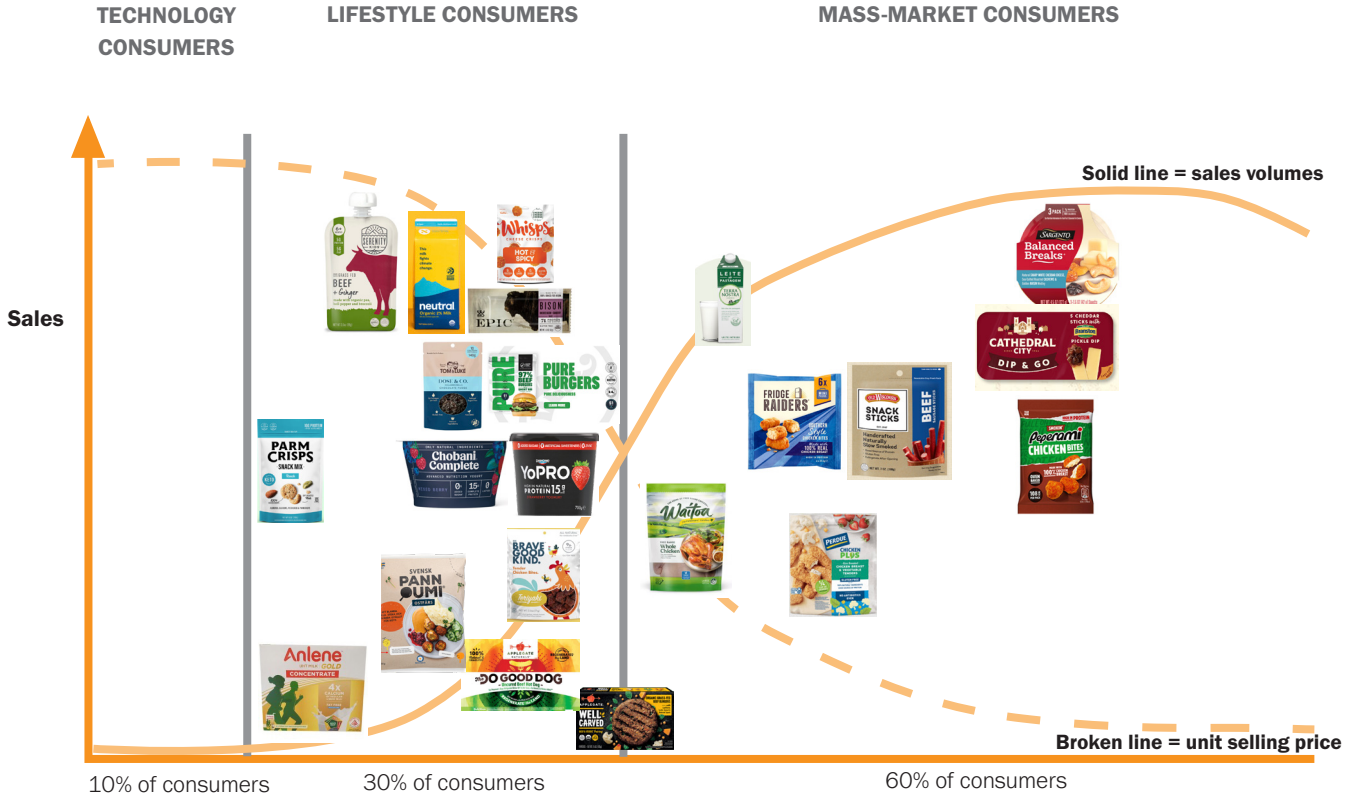
CHART 32: TREND DIAMOND – KEY TREND 4, ANIMAL PROTEIN



ANIMAL PROTEIN CONNECTS TO 7 OTHER KEY TRENDS



CHART 33: PRODUCT LIFE-CYCLE – KEY TREND 4, ANIMAL PROTEIN



KEY TREND 5



SWEETNESS REINVENTED

Ingredient suppliers & NPD teams have used innovation and creativity to address the sugar challenge and turn a crisis into an opportunity.

'LESS SUGAR' WORKS BEST COMBINED WITH OTHER BENEFITS:

- More protein
- More fat
- Fewer carbohydrates
- Digestive wellness

Permission to indulge

One of the most effective marketing strategies any company can adopt



4 STRATEGIES FOR THE REINVENTION OF SWEETNESS



2) KEEP IT NATURAL



4) EMERGENT: BETTER BLOOD SUGAR

1) REDUCE, REPLACE, ELIMINATE





3) SUGAR FOR ENERGY & SPORTS





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Our industry is very good at finding solutions to problems and turning a crisis into an opportunity. The challenge of how to achieve 'better' or 'less' sweetness will one day be a case study of how an entire industry skilfully found a solution to a problem.

Ten years ago, brands were anxiously wrestling with how to respond to pressure from consumers and the media to lower sugar content. Since then both ingredient suppliers and product development teams in branded foods companies have shown themselves to be innovative and highly creative. What seemed impossible back then is now achieved every day.

CONSUMERS' VIEWS ABOUT SUGAR ARE COMPLEX

In consumer surveys, in every country, people always identify "avoiding sugar" as their number one behaviour to support their health. And yet, products with a high sugar content continue to sell well. The CEO of a major dairy group told *NNB* that his company was constantly working on lowering the sugar in products, the media and public health were always telling people to choose low-sugar products – and yet high sugar products were five of his company's 10 top-sellers. We have been told similar stories many times.

Reasons for the continuing popularity of sweet products are not hard to find. People want less sugar in products they perceive as healthy – yoghurt or breakfast cereal for example – because 'less sugar' adds credibility to a product marketed as healthy. But they don't worry much about sugar in a product that's honestly indulgent. People value sweet foods for pleasure, indulgence, celebration and a comforting mood boost, and it's for this reason that there's a huge and healthy market for sweet bakery products of all kinds, for confectionery, for Oreos (this cookie brand's sales were up by more than 10% in 2022) and for Nutella, which at 56% sugar is one of the world's most successful brands with over $2.5bn in sales (the family that owns the brand has a reported net worth of $25 billion).

In parallel with this continued love of honest indulgence, people's views about sugar and sweetness have, as with every other area of the food and health, become fragmented (see MT1). Some firmly adhere to sweeteners that they perceive (in their own minds) as natural, such as date paste, one of the big successes of recent years. Others, less extreme in their views, will accept sweeteners that they understand are natural, such as monkfruit and allulose, which is seeing a massive surge in demand.

What is also interesting is how consumers who say they don't want artificial sweeteners – such as aspartame – will put that objection to one side and buy products with aspartame if they're delivering a benefit they value (and also taste great). This behaviour has become entirely normalised in products for sports and fitness, where the consumer will buy a product that is zero sugar (thanks to the use of aspartame) and also gives them the 20g dose of protein that they want. Even more interestingly, the same person who accepts aspartame in their protein drink will only buy snacks naturally sweetened, such as with date paste.

PERMISSION TO INDULGE

Permission to indulge has proven to be one of the smartest marketing strategies any company can adopt. Humans love to hear that something indulgent and pleasurable is also good for them. Using this strategy in your sugar reduction efforts is a must-do for every company. People want products that taste great, are clearly positioned as indulgent and which also have the health halo of 'less sugar' Permission to indulge works across most categories and underpins the success of a wealth of brands, such as Halo Top and other ice creams, or Wow Donuts. Reducing portion size – and therefore the amount of sugar per serve – by making a product thinner, smaller or less bulky also gives consumers "permission to indulge" and consistently produces sales success. A product that gives people permission to enjoy it and feel good about their choice is one that they will reward you for.

LESS SUGAR, MORE BENEFITS

A coupling of less sugar with indulgence works, but what works even better is when it is combined with other benefits, such as:

- more protein
- more fibre
- more fat/less fat (consumers' beliefs are fragmented)
- digestive wellness
- or a combination of these (with the protein plus fibre plus less sugar currently the most common in snacking, for example)

Providing multiple benefits creates a better chance of appealing to several – or at least one – of the diverse and fragmented beliefs of consumers.



Italian giant Ferrero Rocher's Nutella (56% sugar) is more popular than ever. With $2.5bn in sales, Nutella holds a 54% share of the global chocolate spread market. Nutella is 'honestly indulgent'. Buyers are consciously choosing a high-sugar brand purely for pleasure. Consumer behaviour is fragmented – the person who chooses Nutella will also expect their yoghurt and breakfast cereal to be low in sugar.

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PROLIFERATION OF CHOICE FOR PRODUCT DEVELOPERS

Fortunately for NPD teams there is a wealth of possible ways to deliver on consumers' needs for less (or better) sugar – and still deliver good taste. It's become a standard to use blends of sweeteners (such as cane sugar with allulose and monkfruit or dates and coconut sugar) to deliver the optimum blend of taste, bulk and sweetness. For their part, consumers are willing to embrace a much wider range of types of sweetener than they were 10 years ago.

Such is industry's creativity, that lowering sugar is fast becoming normal in most categories and in time may become an everyday message in the supermarket, much as low/reduced fat was in the 1990s.

A CATEGORY STANDARD IN THE KIDS MARKET

Less sugar – or at least 'no added sugar' – is already a category standard in kids' foods.

Fear of sugar has had a particular effect on the fruit juice-for-kids market. According to research firm Civic Science, 38% of American parents said they were buying less juice than the year before and only 22% pack fruit juice in their children's lunches.

In consumer research by the International Food Information Council (IFIC), the vast majority of US parents and caregivers (88%) say they limit or avoid sugar in their children's diets, and 34% of parents surveyed said they wished they could lower the amount of sugar their kids consumed. However, 40% were unwilling to feed their kids foods in which the sugar had been replaced by artifical sweeteners. In practice, a significant percentage of parents choose sweeteners they perceive as more natural and therefore healthier, such as date paste or honey, although in practice their children are still getting sugar (date paste is 54% sugar).

EMERGENT – BLOOD SUGAR MANAGEMENT

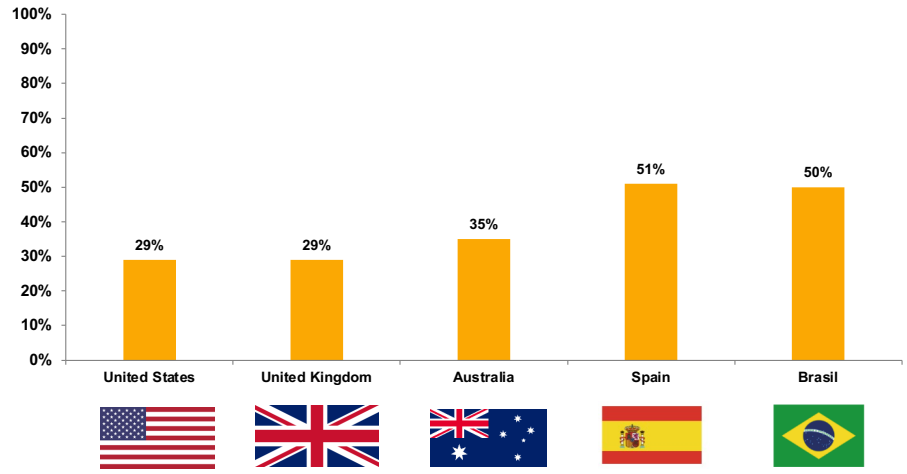
An emergent opportunity in sugar reduction is in products positioned for better blood sugar management. Such products have been around for a long time, but are usually medicalised products – such as Abbott's Glucerna brand – with unattractive packaging and messaging. As Strategy 4 shows there is a growing group of regular consumers who want more regular foods. Some want to manage blood sugar for weight management reasons. But there's potentially a much bigger market for women who want to manage their hormonal health, an area in which blood sugar is important.

What does it mean for strategy?

There are four strategies in Sweetness Reinvented:

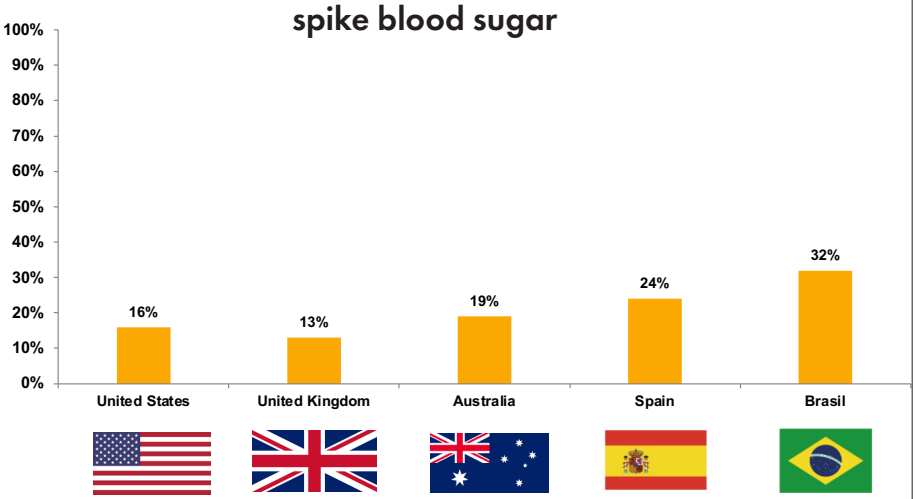
1. **Reduce, replace, eliminate**
2. **Keep it natural**
3. **Sugar for energy and sports**
4. **Emergent – better blood sugar**

Chart 34: % of consumers avoiding sugar



Source: NNB 5-country survey 2022

Chart 35: % of consumers avoiding foods that spike blood sugar



Source: NNB 5-country survey 2022

STRATEGY 1: REDUCE, REPLACE, ELIMINATE (I)

CONSUMERS

As explained in the introduction, consumers are strongly motivated by reducing their consumption of sugar. However, their views about sugar and sweetness in general are highly fragmented (see MT1) and they often have contradictory behaviours, choosing a low-sugar product in one category and not in another. Above all, consumers reward companies that give them "permission to indulge", delivering something that they enjoy because it has reduced sugar or what they perceive as "better" sweetness.

MARKET DEVELOPMENT

In order to drive growth, what works best is to combine less sugar with other benefits, such as more protein, more fibre, more fat, less fat, or a combination of these. Providing multiple benefits gives a better chance of appealing to the diverse and fragmented beliefs of consumers.

COMPANIES & BRANDS (I)

COMPANIES ARE PURSUING DIVERSE SWEETENER STRATEGIES

Thanks to the huge array of sweetening solution that are available to NPD teams, companies are able to pursue a wide range of sweetener strategies within the same brand or portfolio, as shown by the strategy of Kraft Heinz. In 2022 **Capri Sun**, America's biggest kids' juice brand, owned by Kraft Heinz, announced that it would cut the sugar level by an average of 40% across its entire juice drink portfolio, with reductions of 50% in its juice drink and flavoured water products. The step is described by Kraft Heinz as the largest renovation by Capri Sun since it launched in 1986.



Sugars 20g per 177ml.

Capri Sun 100% juice drink is made with no added sugar. Sweetness is provided by a blend of apple, grape and cherry juice concentrates. Free from artificial colors, flavors and preservatives.





Sugars 8g per 177ml.

Capri Sun juice drink communicates front-of-pack that it uses "all natural ingredients". It is making monkfruit the hero ingredient. The brand explains monkfruit to consumers as "a sun-ripened fruit similar to melon", establishing its natural credentials. Sweetened with sugar and monkfruit.





Sugars 15g per 354ml.

This flavoured water is sweetened with a blend of sugar and stevia. It is described as having "No artificial colors, flavors or preservatives...all natural ingredients, no artificial sweeteners and naturally sweetened with sugar and stevia leaf extract."



PLANT-BASED GIVES PERMISSION TO INDULGE IN SWEETNESS



Oat milk has become a huge success partly powered by fashion-conscious health active consumers. Swiss chocolate maker **Lindt** is capitalising on oat milk's health halo with this launch. However, the product delivers 42g of sugars per 100g, double the quantity of sugar found in Lindt's regular milk chocolate. Sugar is the number one ingredient in this vegan product and oat syrup the second.



Cadbury Plant Bar, from Mondelez, is made with almond paste and described as providing "a similar taste and texture to milk ingredients while offering a hint of nuttiness". For many consumers, the plant message gives them permission to indulge. However, this product is still 56% sugar, the same as Mondelez's regular dairy milk chocolate.

STRATEGY 1: REDUCE, REPLACE, ELIMINATE (II)

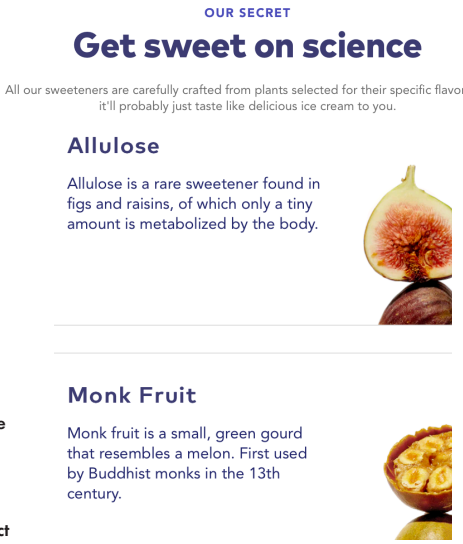
COMPANIES & BRANDS (II)

CREATING PERMISSION TO INDULGE

Permission to indulge has consistently been one of the most successful strategies in the business of food and health. Consumers are willing to embrace a wide range of sweeteners and this has opened the door to re-invention for categories that before now have had only an indulgent image, such as confectionery.

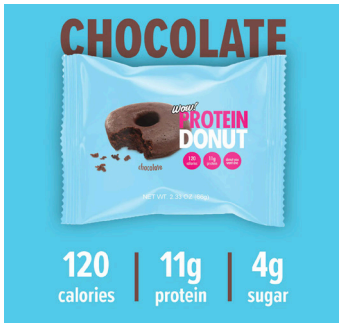
Nick's is a challenger brand that has made rapid progress in the US market and has attracted high-profile investors. The Swedish maker of low-calorie, low-sugar ice cream and confectionery not only uses great marketing, it embraces food technologies from allulose to fat replacers. Seven years later, Nick's has grown into a $20 million+ (€19.9 million+) business and claims to be on track to triple that number in 2021. It expects to surpass $100 million (€99.7 million) in sales by the end of 2023.

INGREDIENTS: Cream, Dairy Protein Blend (Water, Milk Protein Concentrate, Whey Protein Isolate, Allulose), Mango Puree, Soluble Corn Fiber, EPG (modified plant-based Oil), Allulose, Erythritol, Strawberry Puree, Natural Flavor, Sorbitol, Coconut Oil, Acacia Gum, Modified Food Starch, Guar Gum, Tara Gum, Salt, Citric Acid, Chili Extract, Steviol Glycosides, Ascorbic Acid, Colored with Vegetable Juice and Annatto Extract, Carob Gum, Monk Fruit Extract





Wow Protein Donuts deliver dairy protein, less sugar and extreme indulgence, getting itself onto the shelves in the US, where it is listed in Walmart, the UK and Singapore. Originally targeted at gym-goers, the brand found that it had wider appeal thanks to its taste and texture performance. According to Wow Donuts founder Tom Neal, "If you go for zero sugar, you have this chemical taste. So again, we went for the middle ground—no added sugars, but we didn't soak it in sugar, the sugar is used in a measured way".



Sweetened with erythritol and apple puree.



5g total sugars per 66g serve



Sweetness comes from stevia and maltitol.

Pantagruel is a 100 year-old high-quality chocolate brand based in Portugal and also retailed in Spain. The brand has strong associations with premium indulgence and with upscale patisserie. It launched 'baking chocolate' that is dark chocolate with no added sugar (total sugar is less than 1g per 25g). The brand is a hit as a snack with women aged 18-30 – more protein combined with less sugar makes it a permissible indulgence. It's notable that this combination has been successful despite a poor economic situation in Portugal and Spain, with high unemployment for 12 years. Portugal has some of the lowest annual salaries in Europe.

Delivers whey protein (7g per 25g serve) and less than 1g total sugars per 25g

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STRATEGY 1: REDUCE, REPLACE, ELIMINATE (III)

COMPANIES & BRANDS (III)

ARTIFICIAL IS ACCEPTABLE IF THE LEAD BENEFIT IS STRONG ENOUGH

For many years it seemed as if there was no future for 'artificial sweeteners' – and that consumers might turn away from them forever. It's now clear that large segments of consumers will embrace brands with intense sweeteners if they deliver a benefit they want. This is particularly true of brands positioned for sports and fitness that deliver a high dose of protein. Consumers are willing to compromise and accept an artificial sweetener because they prioritise the benefits of more protein and zero sugar. These same consumers are also choosing only products with natural sweeteners, such as snacks made with date paste, at other consumption occasions.

Swedish brand **Njie** supplies its ProPud high protein, low-sugar, lactose-free dairy puddings only in indulgent flavours. The brand's tagline is "Feed your cravings". Launched in 2015, ProPud's helped propel Njie's sales from €7 million to €40 million. The success was a suprise – Swedes had told consumer researchers they wanted only natural sweeteners. But they are willing to overlook their presence in Njie because of its more important benefits of protein, taste and zero sugar.



Acesulfame K + aspartame

Protein 10g, sugars 4.6g per 100ml.

Core Power is a brand of **Fairlife**, the billion dollar lactose-free milk success in the US. Launched in 2012, it targets sports and fitness fans. The product is made with ultra-filtered milk and offers the benefits of high protein and low sugar content.

"You asked, and we listened – our new 14oz Core Power 26g high protein milk shakes have 5 to 7 grams of sugar per serving, with the great taste and high quality protein you expect. "

Monkfruit + stevia + acesulfame K + sucralose

26g protein, 7g total sugars per 414ml serve.



EMERGENT "SWEET PROTEINS"?

Joywell Foods, based in California, is one of the many companies working on microbial fermentation processes. Most are focused on protein, some on fat, but Joywell hopes to recreate "sweet proteins", said to be 2000-5000 times sweeter than sugar. The company claims to have recreated proteins found in four fruits which originate in west Africa. It believes its proteins will not count as added sugars on a nutrition facts panel and they claim numerous sustainability advantages. The company has received total investment of $33 million from investors including Kraft Heinz's Evolve Ventures, Piva Capital and others. The company is developing canned drinks and other foods. It has yet to earn any sales revenue.



"No bad stuff. Ever. Sweet proteins are free of GMOs, they don't raise blood sugar levels and are very low calorie. The best part? There's no after-taste or weird sugar-replacement flavor. In other words, sweet proteins are a total game-changer."

STRATEGY 2: KEEP IT NATURAL (I)

CONSUMER

Sweet ingredients like honey, dates or maple syrup are seen by many consumers as "healthier" because they are natural. What exactly "natural" means is defined in the mind of the consumer, not according to some technical or legal definition. Consumers are open to being led by social media and by brands to embrace a wide variety of sweeteners they perceive as natural. Using naturally sweet ingredients as part of a product supports claims of "no added sugars" and "no sweeteners", both claims relevant to a large segment of consumers.

MARKET DEVELOPMENT

Consumers' desire for natural sweeteners will power increased use of all types: dates, honey, cane sugar, coconut sugar and others. Monkfruit is emerging as a hero sweetener. Increasingly used in both North America and Asia, its adoption by Kraft Heinz in America's biggest kids juice drink brand Capri Sun signals that it could become a widely-adopted mainstream sweetener. Monkfruit is supplied by major processors, such as Tate & Lyle, but its provenance as a fruit makes it credible and desirable to consumers. Similarly, allulose is also enjoying a boom. The low-calore "rare sugar" performs well in bakery, dairy and other indulgent applications. The US FDA doesn't require companies to list it as an added sugar on product labels. It works well with other sweeteners and blends. "Naturally sweetened" is likely to become a much more common message on labels and that is what consumers want.



COMPANIES AND BRANDS (I)

Consumers' desire for natural sweeteners is likely to power increased usage for all options, despite their cost.

Clover Sonoma's Moon Milk is positioned for relaxation and is a blend of turmeric, ginger and organic milk. It is sweetened with organic honey. Total sugars are 17g (of which 3g are added sugars) per 240ml serve.



"This blend of soothing botanicals and organic honey brings serenity to coffee, tea, smoothies and cereal."

Lifeway Foods, leader in the US kefir market, also markets cultured oat beverages with mood and mind benefits called Mshrm Oat. They feature 500mg of adaptogenic mushrooms. Sweetened with organic cane sugar, with 3g sugars per 100ml serve.



Danone's Silk plant milk brand in the US is sweetened with coconut milk and cane sugar, and delivers 3g total sugars per 240ml.

"75% less sugar and 30% fewer calories than whole milk.*



STRATEGY 2: KEEP IT NATURAL (II)

COMPANIES AND BRANDS (II)

A focus on less sugar, real food ingredients, protein, taste and provenance is driving steady growth for New Zealand snack company **Tom & Luke**. This product is sweetened with apple puree and dates.

50% less sugar than the original range



Irish start-up brand **All Real Nutrition** differentiates itself in a crowded protein bar market with strong Irish provenance. It is listed in Sprouts Farmers Market and elsewhere. It uses Irish grass-fed protein and Irish sea salt. It is sweetened with dates, honey, chicory root fibre and grape juice concentrate.



Dates

A delicious and natural form of sweetness, our dates a great source of potassium and antioxidants, while also making a great binder for our bars

12g sugars per 60g serve.



Mid-Day Squares, a Canadian company which also sells in the US, are two-layer bars with a chocolate top and a brownie-type bottom. The products are vegan, gluten free and the label carries the message "no refined sugar". They are sweetened with organic coconut sugar.

Sugar 4g per 33g serve.



Ketchup is an all-American favourite – but its sugar content rivals ice cream and donuts. Frustrated that his children wanted to drench their meals in sugary ketchup, Abraham Kamarck founded **True Made Foods** in 2015 with a focus on improving the nutritional profile of everyday condiments. "We are all about anti-sugar," he told New Nutrition Business. "If I couldn't win the battle at the dinner table, then I thought I had better win the war...We are taking the sugar out of America's favourite foods and sweetening them with fruits and veggies." Using techniques Kamarck learned making pasta sauce as a child with his Italian mother, the company uses puréed vegetables like carrots and butternut squash instead of sugar, as well as fruits like apples and, in some cases, dates, to provide sweetness while retaining the naturally occurring fibre. Alongside ketchup, the range now includes five varieties of barbecue sauce, three mustards and two hot sauces, each selling for $6.50-$8.00 for a 17-ounce (500 mL) bottle, depending on the size of the order.

"The ketchup that will save America. Our No Sugar Ketchup is naturally sweetened with apple, butternut squash and carrots."



100% FLAVOR. 0% SUGAR.



"Some of America's favorite condiments are also some of the biggest sources of hidden sugar. But we live in the real world - not everyone has time to cook from scratch every night. Our mission is simple: To help busy families cut refined and artificial sweeteners out, and pour on veggie-fueled goodness instead."

INGREDIENTS

Tomato Puree, Apple, Vegetable Puree (Carrots, Butternut Squash, Spinach), Vinegar, Salt, Onion Powder, Allspice.

STRATEGY 3: SUGAR FOR ENERGY & SPORTS

CONSUMERS

People doing sports and fitness want energy – and they are wililng to give sugar a free pass as a ready source of energy. People doing activities such as weeekend cycling or running value sugar as a quick hit of energy that enables them to reach their performance targets without the digestive issues which they associate with artificial sugar replacers. Sugar may be calories, but they will work it off. Using ingredients like honey for a "health halo" and mixing nuts and nut butters are all strategies to ensure an efficient "boost of energy".

COMPANIES AND BRANDS



"44g fast-release energy 100% natural, real fruit juices"

Beet sugar + real fruit juice concentrate (apple 8%, lemon)

Sugars 76.6g per 100g



Veloforte is a small, familly owned bakery business which has a cult following for its sports energy snacks based on the traditional Italian snack panforte, which the family has been baking for generations. This Italian classic is based on nuts and fruit. Founded by experienced cyclist Marc Giusti and his physiotherapist wife Lara, the brand focuses on simple, natural ingredients and real foods that won't cause stomach upsets during sport. In the sports nutirition market where artificially-sweetened products are the norm, Veloforte products stand out. The Mela energy chews are sweetened with beet sugar and real fruit concentrate. The energy bars, like Ciocco above, are sweetened with dates (35%), cane sugar and honey.



Big performance, small wonders. Your secret weapon for light speed energy.

This product, from **Kendal Mint Co**, is a reinvention of a 200-year-old confectionery product. It promises easy digestion and its biggest ingredient is sugar. It was adopted by professional mountaineers as far back as the 1950s and the brand is making it available to weekend sports people.

Sugars 96g per 100g

Mighty energy from a pocket-sized bar.



Torq is a fitness consultancy which specialises in performance, coaching and endurance sport. It developed a range of performance nutrition products, many based on real food, initially to support their own clients. Products use organic ingredients and are Fairtrade wherever possible. The Torq energy bar is designed to be consumed during training. Sweetened with organic glucose, organic cane sugar, organic maltodextrin.



38g sugars per 100g.

Cycling Weekly

"Torq's bars use a blend of glucose-derivatives and fructose to get close to the 2:1 glucose/ fructose ratio which studies have shown offers a higher delivery of carbohydrate per hour – delivering 40 per cent greater absorption according to the brand."

g sugar per 100g

STRATEGY 4: EMERGENT - BETTER BLOOD SUGAR (I)

CONSUMERS

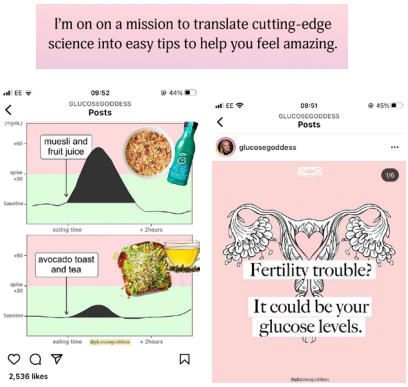
There are two segments to consider.

1. People who are trying to manage their blood sugar for weight management or because they are concerned about diabetes or for more energy.
2. The larger group is the untapped pent-up demand from women who feel their everyday struggles with hormonal health are dismissed or diminished by the medical profession and mainstream health experts. This is reflected in the growing popularity of online information sources on the subject.

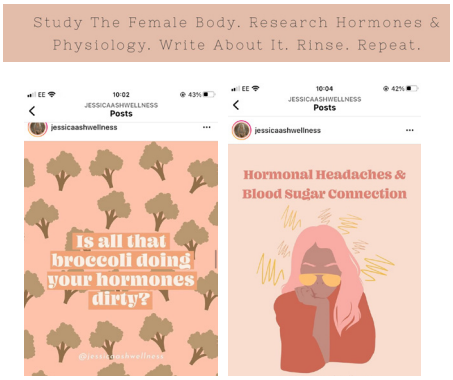
Below are examples of the messaging on the Instagram accounts of two influencers who are helping women manage the relationship between food, hormone health and feeling good. These two alone have almost half a million followers, and there are many more just like them.

HORMONE HEALTH INFLUENCERS ON INSTAGRAM

Glucose Goddess, biochemist, 275K followers



Jessica Ash, science grad and nutritionist, 177K followers



MARKET DEVELOPMENT

Since the early 2000s brands have made attempts to create products designed to address women's health, such as Quaker WIN (Women's Individual Nutrition) breakfast cereal. These were mostly lacklustre efforts, offering more calcium and packaged in pink. But the real health issue was being ignored. The power of online influencers has changed that dynamic. For the next 3-5 years the focus in the market will be pioneering challenger brands and whole foods that support hormonal health. But the idea of eating for hormonal health is quietly taking root and Gen Z will fully normalise this behaviour, moving the market from emergent to 'big niche'. However, it's likely that most senior management teams will focus their attention on subjects such as energy, prediabetes and diabetes and overlook an opportunity to sell to 50% of the population.

COMPANIES AND BRANDS (I)

HORMONE HEALTH



functional protein bars for hormone & blood sugar health

Resist is a low-carb snack range that won't "spike blood sugar". Founder Drew Lederman perceived a white space in the market for the 10% of women who have polycystic ovary syndrome (PCOS), a hormonal disorder that's common among women of reproductive age. Ingredients include:almonds, pea protein, chicory root fiber, tapioca. Sweetened with monkfruit and allulose.

"Studies show Resistant Dextrin Soluble Tapioca Fiber may improve insulin resistance, promote weight loss, regulate metabolic parameters, and reduce the stress hormone cortisol."



Recovery snack bar with turmeric, 58g: 15g plant protein, 16g fiber, 4g net carbs, 2g total sugars.

STRATEGY 4: EMERGENT - BETTER BLOOD SUGAR (II)

COMPANIES AND BRANDS (II)

"LITTLE IMPACT ON BLOOD SUGAR" – A NEW MARKETING MESSAGE?



Sweetened with allulose and sugar, delivers 2g of sugars per 40g bar, as well as 8g protein and 4g fibre.

General Mills, one of the world's biggest marketers of grain-based products – from breakfast cereals to snack bars – is piloting a "fewer and better carbs" strategy that connects to consumers' growing interest in better blood sugar management. Good Measure, sold in the US market, is a new brand of snack bars that rely on allulose to enable a claim that they don't cause a spike in blood sugar. The brand also communicates that it is nutrient dense. Products targeting blood sugar management tend to be medicalised, such as Glucerna, made by Abbott Nutrition, and they retail in drugstores or in special dietetic shelves in grocery stores. There is a white space for regular foods in supermarkets that are positioned on good taste and also communicate about how consuming them will affect blood sugar. If a company the size of General Mills (the world's 10th biggest food company) is taking the area of better blood sugar seriously, that suggests the rest of us should give it some thought too.

Aventure, founded in Sweden by Rickard and Bjorn Oste, the entrepreneurial brothers who created Oatly back in the 1990s, backs science-based food innovations. One of their innovations has been launched in the US market under the brand name **Good Idea**. Good Idea is a carbonated water with a blend of 5 essential amino-acids, chromium picolinate, potassium and zinc. Good Idea says that it "reduces energy loss by cutting the metabolism's response time converting sugar and carbs into energy. The result is a more balanced blood sugar, so you can feel energized all day, without having to reach for that afternoon caffeine." The product has zero grams of sugar per serve.

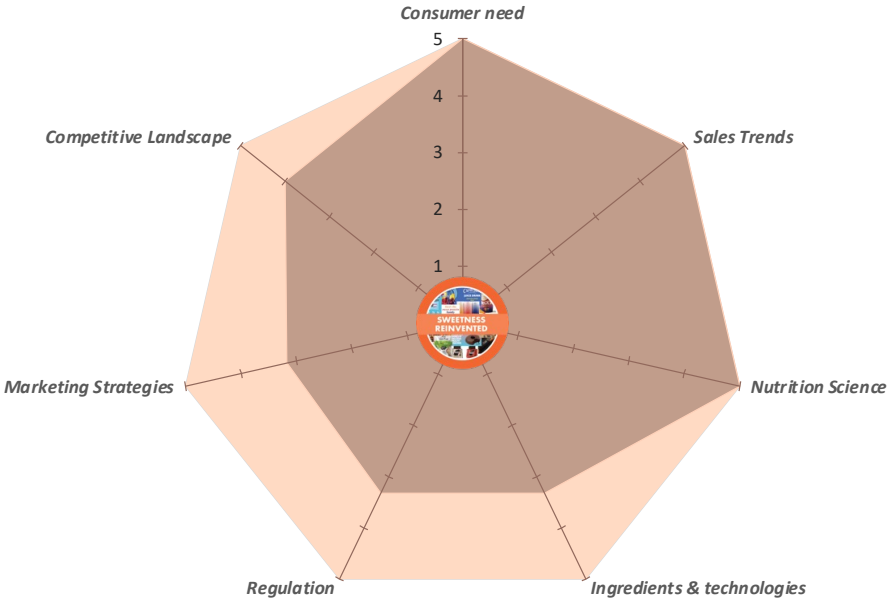
Ingredients: Sparkling water, amino acids (l-leucine, l-threonine, l-lysine, l-isoleucine, and l-valine), non-GMO natural flavor, potassium, citric acid, zinc, and chromium picolinate.





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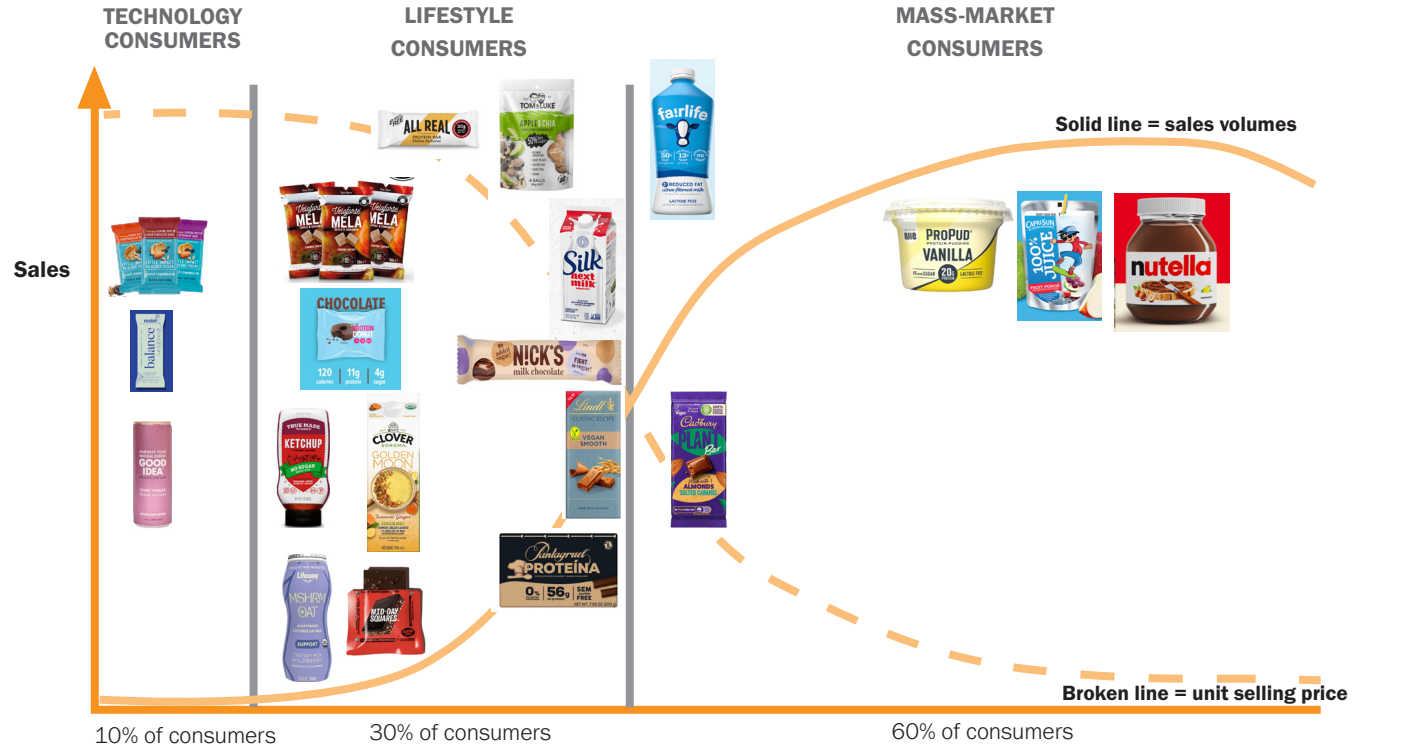
CHART 36: TREND DIAMOND – KEY TREND 5, SWEETNESS REINVENTED



SWEETNESS REINVENTED CONNECTS TO 6 OTHER KEY TRENDS



CHART 37: PRODUCT LIFE-CYCLE – KEY TREND 5, SWEETNESS REINVENTED



KEY TREND 6



THE PLANT PROTEIN PARADOX

Plant proteins have strong consumer pull and a positive image, but they face technical and nutritional challenges.

Plant proteins will not replace animal protein.

It's not an either/or with animal proteins – most people want to consume both.

Gen 1 meat substitutes failed to meet consumers' needs. Investors over-estimated the consumer market.

Innovation, R&D investment needed to create Gen 2.



Gen 2 plant proteins have better taste, nutrient density and more creative market strategies.





4 STRATEGIES IN PLANT PROTEIN

1. NATURAL PLANT PROTEIN

What consumers want most has produced many successes.



2. PLANT PROTEIN FOR HEALTH HALO & CONVENIENCE

Provenance is an under-developed opportunity to better connect with consumers



3. GEN 2 PLANT PROTEINS

An opportunity for science-based companies to upgrade plant proteins to deliver what consumers want.



4. A BETTER STRATEGY FOR MEAT SUBSTITUTES

After the failure of Gen 1, success will come from:

- Better taste performance
- Easier to accept
- Wider appeal
- Fewer ingredients



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Protein is the nutrient that can do no wrong – and plant-based proteins have an extra halo of health based on their origin as plants. For anyone marketing plant proteins or formulating them into packaged foods, you have on your side the fragmentation of consumer beliefs, the 'plants are best' movement and the now-established behaviour among urban food explorers – perhaps 15%-20% of the population – of embracing anything that's new and interesting.

So why is there a plant protein paradox? Because although plant proteins have strong consumer pull and a positive image, they face significant technical challenges not to mention nutritional ones.

In terms of amino-acid profile (the building blocks of protein), nutrient density and their functionality in a recipe plant proteins are inferior in many respects to animal proteins and deliver carbohydrate to a product as well as protein. This paradox means that strategy isn't easy and for some categories, achieving growth will not be as easy as is often claimed. Makers of plant-based meat substitutes, such as Beyond Meat in the US, have discovered that market and financial failure can be the cost of not thinking through this paradox.

Whether you are an ingredient supplier or a branded foods business there are three important areas you have to consider in evolving a successful plant-based protein strategy:

1. Consumer opportunity
2. Technical limitations
3. Nutritional challenges & opportunities

1. Consumer opportunity

Consuming more plant protein is something people are interested in, thanks to its health halo. The reputable annual survey of US consumer behaviours around animal and plant proteins by the International Food Information Council (IFIC) found most respondents claimed they had tried at least one new type of plant protein in the past year.

But this is not about an either/or with animal proteins. Most people are consuming plant proteins alongside animal protein. Most consumers still have both in their diet and – because of food culture, taste preferences and many other reasons – will continue to enjoy both.

Plant proteins absolutely should not rely on using sustainability as the primary pillar of strategy. A big percentage of consumers will not find that credible, and more will rank it below the many other factors. Many sustainability claims for plant protein sustainability are not well-founded. For example, Tesco, the UK's biggest grocery chain had to withdraw its plant protein advertising after the regulator found it made baseless environmental claims for its plant-based meat substitutes, saying: "Tesco did not hold any evidence in relation to the full lifecycle of any of the products in the Plant Chef range."

In terms of consumer pull, in plant proteins you have to work just as hard as any other area to create success.



Knorr's Power Rice Blend is a good example of a strategy that aligns well with what consumers want. It delivers 17g of protein per 146g serve from red beans and quinoa. It is free from artificial flavours, preservatives or colours. It's a convenience food, but with a simple ingredient list that will signal 'real food' to many consumers. It is plant protein, but it is natural plant protein. This is a great example of a "plant proteins for a health halo and convenience" strategy.

2. Technical limitations

One of the parameters on our trend diamond is "Ingredients & technologies". It is there because, as product developers and R&D teams know only too well, getting a product concept embraced by consumers critically depends on whether the technology exists to actually deliver the benefit the consumer is looking for in a good-tasting form. No ingredient or technology to do that means no chance of market success. This is a significant issue for formulating products with plant proteins.

There are two functions of plant-based proteins:

1. To provide the bulk – to increase the macronutrient protein level
2. Functionality – to provide structure and texture (and almost always at a lower cost compared to animal proteins)

The second of these is a challenge for most plant proteins. An egg – and other animal proteins such as dairy – is functional protein, meaning it's soluble, it foams, emulsifies and there's even gelling. However, plant-based proteins do not have such broad functionality. There is a hierarchy of functionality for plant-based proteins (see Table 4) which dictates what product developers can deliver. The limited functionality of most plant proteins is responsible for the long ingredient lists seen on many plant-based products, simply because developers have to use speciality starches and gums and stabilisers to overcome the deficiencies of the plant proteins.

As consumers have been telling our industry for 20 years that they want shorter ingredients lists, this is both a challenge and an opportunity for ingredient suppliers and NPD teams.

The parallel that illuminates the plant protein problem is with gluten-free bread. Take out the protein – the gluten that consumers want to avoid – and finding a

functional plant protein that will work well in a gluten-free system is tricky. Hence gluten-free bakery usually depends heavily on using gums and stabilisers, and gluten-free breads still have long ingredient lists and insuperable taste and texture challenges for the mass of consumers. Product developers working with plant proteins will need to figure out how not to fall into the same "premium and therefore niche" trap as gluten-free breads.

3. Nutritional challenges & opportunities

Plant proteins have incomplete or imbalanced amino-acid profiles. It may be that companies can use combinations of protein blends (similar to how sweetener blends are used) where missing amino-acid profiles of some proteins fill the gaps of the others.

In addition, every protein from the plant kingdom comes with an anti-nutritional factor (see Table 5 on next page), which ingredient producers try to limit. Consumer awareness of these anti-nutrient factors is low, but will increase as plant protein consumption increases and social media inevitably pays them more attention. Thinking about them needs to be part of any NPD strategy.

Plant protein isolates that our industry uses do not come with the package of micro-nutrients that commonly accompany whole animal proteins, making it necessary for companies to fortify. There is an opportunity for someone to develop technology that preserves and delivers the nutrient density of the original nut or plant. Several plant sources of protein score well on nutrient density – such as chickpeas, lentils and almonds. But many that are nutrient dense are not a good source of protein. The macadamia nut is a good example. It is a good source of fat, with 75.8g per 100g, but has only 7.9g of protein per 100g, compared with almond's 21.2g. Product development with plant proteins is complex and often challenging and ending up with a product that has a good protein level, has protein that's bio-available and also has a package of nutrients – and tastes good – is much more difficult than most food executives realise.

> ***"So the narrative that with plants, that you can do whatever you want? That's not true. You will need to process the plants a lot. That's how they're doing it now, to make them look and behave like a muscle cell. They never will... You cannot. And then, they have all sort of taste issues."***
>
> –Dr. Ricardo San Martin, director of the Alt:Meat Lab at UC Berkeley's Sutardja Center for Entrepreneurship & Technology

TABLE 2: TWO TYPES OF USUALLY-REQUIRED PLANT-BASED INGREDIENTS

Type	Purpose	Amount typically needed	Usage area
Bulk protein	For macronutrient protein content	4-12%	Mostly commodities such as soy, pea
Functional protein	For structure, texture	1-4%	Mostly specialities,pure isolates, potato

Source: Paul Hart

TABLE 3: FUNCTIONAL HIERARCHY OF PLANT-BASED INGREDIENTS

Type	Examples	Functionality
Fermented / sterilised proteins	Algae, insoluble potato	Functionally inactive due to being cooked
Cereals	Wheat, oat, rice, etc.	Some functionality, limited amino acids profile
Oilseed press cake	Soy, canola, hemp	Often heat-treated (solvents?); a type with potential
Legume proteins	Pea, mung, faba	If fermented to improve taste, affects quality
High functionality proteins	Potato	Platinum standard

Source: Paul Hart

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What does it mean for strategy?

Companies can use multiple strategies, which are not mutually exclusive.

These are:

1. **Natural plant proteins**
2. **Plant proteins for a health halo & convenience**
3. **Gen 2 plant proteins – better nutrition, fewer ingredients**
4. **A better strategy for meat substitutes**

"That consumers will eat more plant protein in the future is inevitable. The question is: will this protein be processed to look and taste like meat? I believe consumers will adopt plant protein but in an authentic way that allows it to be recognised as plant protein rather than mock meat! There is an opportunity for food science to create and modify plant protein to deliver greater diversity of texture, taste and flavor. There is an opportunity for nutritional science to create and modify plant protein-based foods in a way that provides better overall nutrition."

– Dr. Roger Harker, New Zealand's Plant & Food Research Institute

TABLE 4: NUTRIENT-DENSE VS NUTRIENT-POOR FOODS

Nutrient-dense foods examples	**Cruciferous vegetables:** kale, cabbage **Berries:** blueberries, raspberries, acai, goji **Animal foods:** salmon, fish, seafood, grass-fed beef, liver, bone broth, egg yolks, kefir, yogurt **Legumes:** beans, lentils, chickpeas **Whole grains:** oats, rice, whole grain pasta **Nuts & seeds:** chia, almonds, macadamias, flaxseed **Greens:** spinach, broccoli, cauliflower. Spirulina, asparagus **Fungi:** Mushrooms
Nutrient-poor foods examples	**Ultra-processed foods:** ready meals, chips, snacks **Confectionery:** candies, gummies, desserts **Bakery:** pastries, cakes, cookies **Drinks:** sodas, alcohol

Source: NNB literature search

TABLE 5: ANTI-NUTRITIONAL FACTORS FOUND IN PLANT-BASED SOURCES OF PROTEIN

Type	Health issues
Soy	Phyto-estrogens, trypsin inhibitors (TIA)
Pea	Galactosides, phytic acid, TIA
Potato	Glycoalkaloids, TIA
Rape/canola	Erucic acid, glucosinolates
Red kidney beans	Phytohaemagglutinin (kidney bean lectin)
Rice	Heavy metals (As)
Cotton	Heavy metals (As)

Source: Paul Hart

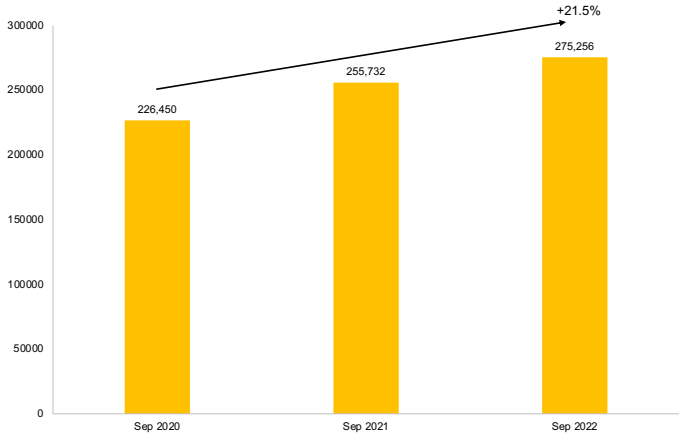
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STRATEGY 1: NATURAL PLANT PROTEINS

CONSUMERS

In their 'whole food' form many plant proteins, nuts or chickpeas for example, deliver what consumers want most – pleasing taste and texture and versatility in meals. Plant proteins get continuous positive attention in mainstream and social media. Lifestyle experts, chefs and health influencers focus on natural ingredients such as pulses, chickpeas, beans and nuts as their recommended sources of plant protein. If you can supply the plant protein in a whole food form (such as legumes or nuts) this very receptive consumer and social media environment is to your advantage. It promotes natural plant proteins in their wholefood form as being "naturally functional", and it is clear that people's already-increasing interest in plant proteins will continue to grow.

Chart 38: Steady growth in Instagram posts referencing chickpeas. The same is true for most natural plant proteins, especially nuts.

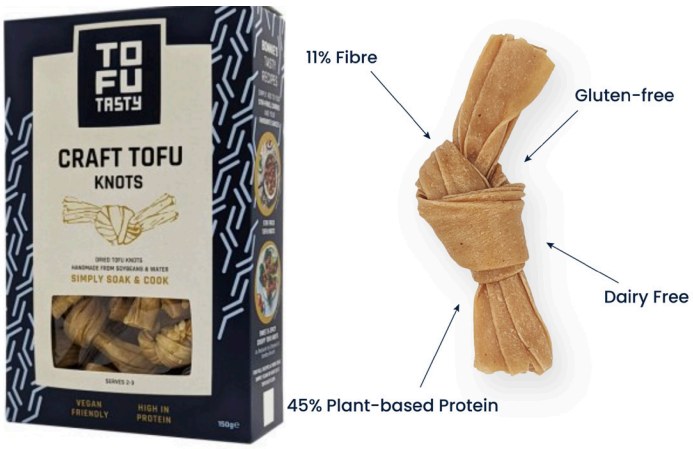


Source: Instagram

MARKET DEVELOPMENT

Naturally functional is what consumers want most, and for the past 10 years it has driven growth for brands which connect natural protein to this consumer desire. There is always an opportunity for a plant protein to differentiate itself and get new customers.

COMPANIES AND BRANDS



UK brand **Tofu Tasty** "re-imagines the ancient Asian staple for a modern audience looking for nutritious, satisfying and natural ways to eat well, with more plant-based meals and less meat". Tofu Tasty says its protein-rich range "is made from pure ingredients with minimal processing and is a key building block for a nutritious plant-based meal".

"For those looking for alternatives to meat and are looking to reduce meat consumption, tofu is the perfect solution; it is a great protein source but is not highly processed like vegan fake meats such as "facon" or veggie meat burgers or sausages imitating meat. Tofu is also nutritionally more protein dense than having a jackfruit ingredient in place of a meat centre piece too."

Naturally functional is what consumers want most, and for the past 10 years it has driven growth for brands which connect natural protein to this consumer desire. **Wonderful Pistachios** – "the original plant-based protein" – has become a $1bn (€997m) annual sales brand by delivering plant-based protein in a good-tasting, convenient snack. Consumers will always choose naturally functional advantages like this over products and concepts that look like they come from a lab.



STRATEGY 2: PLANT PROTEINS FOR A HEALTH HALO & CONVENIENCE

CONSUMERS

Delivering plant proteins in familiar products is the strategy that most aligns with what people want. Plants have a powerful health halo and protein is an easy-to-understand nutrient. Plant proteins get continuous positive attention in the media. With these advantages it's clear that people's already-increasing interest in plant proteins will continue to support growth for many years ahead.

MARKET DEVELOPMENT

Adding plant proteins to 'regular, recognizable foods' has several attractions:

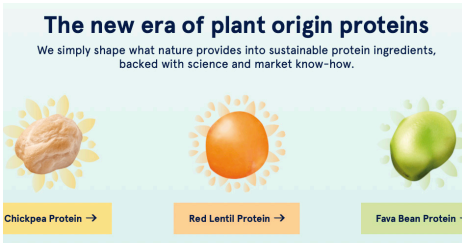
- Brings a health halo and a sustainability halo
- Using a plant protein with a name that consumers recognize – chickpea, lentil – adds to your product's acceptability
- Existing supply-chain of soy, pea and wheat protein and many others
- Suppliers such as Cargill, Ingredion, Roquette and others have ingredient systems to make it easier for the product developer
- Consumers are willing to accept plant protein in many product formats and many categories

Plant-based protein is becoming a basic everyday offering in many categories. It's understandable that marketers see the term "plant-based" as having a magical property to engage consumers and boost sales, just as they did for many years with the term "natural". The risk, as with the term "natural", is that consumers become sceptical about what it means and what it's doing for them. Pea protein is increasingly favoured, particularly in Europe, as it is free of many of the perceived challenges of soy, such as allergenicity. However, taste at high dosages can be a problem. Chickpea proteins, for example, can produce a green and beany taste at the level needed to obtain a 'good source of protein' claim. Beyond soy, pea, chickpea and fava there are few plant proteins available at scale with an established supply chain. Many claims appear in the media about 'new' plant proteins but most of these are far off being a viable commercial choice for branded food companies.

COMPANIES AND BRANDS

There is a risk that while the health halo of plant protein is good, its appearance in every possible type of product will soon make it lose its value as a point of difference. One of the ways that companies are trying to maintain differentiation of what is, at heart, a commodity is to connect to consumers' interest in provenance.

Atura Proteins, part of the **Marigot** food and nutrition ingredients group, re-assures customers with the UK origin of its beans. It's a recognition – currently unusual in the plant protein world – that consumers for the finished products want foods and ingredients "from somewhere, not just anywhere" (see KT 10).



Manufactured to the highest standards in the UK

All of our Fava Beans are sustainably grown in the UK

Finland-based **Raisio** is one of the largest and most innovative food companies in the Nordic region. Its ingredient business specialises in gluten-free oats and plant proteins, extracted from fava beans. It makes the Finnish provenance of its fava bean protein – for use by food processors in savoury dishes – one of its selling points. Many consumers will choose a product made with fava bean with a transparent origin over a product made with soy that could have come from anywhere.

"Fava bean sourcing is 100% Finnish, mainly from the farmers in the region."

"...only three main ingredients: Finnish fava bean for taste, nutrition and texture, pea protein to perfect the mouthfeel and bite and fresh water. Onto this we add a little rapeseed oil with or without seasoning...That's it – no funnies, all taste."



STRATEGY 3: GEN 2 PLANT PROTEINS – BETTER NUTRITION, FEWER INGREDIENTS (I)

CONSUMERS

Most consumers in most countries see plant and animal proteins as equivalent. Products flagging up 'plant proteins' benefit from the health halo of plants. Social media and mainstream media back plant proteins as a healthier choice. As a result, products have had a fairly easy ride over the last five or six years. However, the nutritional advantages of plant proteins in whole food form – nuts and chickpeas for example – don't easily translate into packaged products. Most buyers of plant-based meat and dairy substitutes don't notice that they usually have poorer nutritional profiles than their animal-based equivalents. However, to convert more mainstream consumers brands will have to up their game and do a better job on nutrition profile (both macro and micro) as well as the simplicity of ingredient lists.

MARKET DEVELOPMENT

The development of many meat and dairy substitute categories has been held back not only by poor performance on taste and texture but also, for many consumers, by long and 'not clean label' ingredient lists, not to mention poor nutrition profiles. This is the Plant Based Paradox. Products currently on the market should be thought of as Generation 1 products. Vegan cheese illustrates the shortcomings of the Gen 1 strategy. The ingredient declarations of dairy cheese and vegan cheese are quite different. One is short and simple (what consumers have been telling us they want for the last 20 years), the other engineered from multiple ingredients – and delivers no protein, The technical skills of ingredient suppliers of starches and thickeners are indispensable to making the vegan product hold together.

GEN 1 PRODUCTS HAVE A NUTRIENT DENSITY SHORTFALL

For 20 years consumers have been telling the food industry that they want products that are 'clean label', or have short ingredient lists. Most plant-based brands fail this test. Most plant-based alternatives to dairy and to meat perform poorly on their macro- and micro-nutrient profile. They are almost the opposite of being nutrient-dense foods. Their ingredient and nutrient profile means that most plant-based alternatives fall firmly into the definition of ultra-processed foods – a place no brand wants to be as negative attention to UPFs from media ramps up.



INGREDIENTS:
Water, Coconut Oil, Modified Starch, Potato Starch, Flavourings, Salt, Calcium, Bamboo Fibre, Acid (Lactic Acid), Fructose, Gelling Agent (Agar), Colour (Carotenes)

INGREDIENTS:
100% British milk



	TYPICAL VALUES PER 100G	PER 30G SERVING
ENERGY	1476KJ / 356KCAL	369KJ / 89KCAL
FAT	29.5G	7.4G
OF WHICH SATURATES	25.5G	6.4G
CARBOHYDRATE	22.4G	5.6G
OF WHICH SUGARS	0.6G	0.2G
PROTEIN	0.2G	0.1G
SALT	2.2G	0.5G
CALCIUM	160MG (20% RI)	40MG (5% RI)

RI = Reference Intake

	TYPICAL VALUES PER 100G	PER 30G SERVING
ENERGY	1725KJ/ 416KCAL	518KJ / 125KCAL
FAT	34.9G	10.5G
OF WHICH SATURATES	21.7G	6.5G
CARBOHYDRATE	0.1G	0G
OF WHICH SUGARS	0.1G	0G
PROTEIN	25.4G	7.6G
SALT	1.8G	0.5G
CALCIUM	739MG (92% RI)	222MG (28% RI)

RI = Reference Intake

Source: Tesco.com, Cathedralcity.co.uk

STRATEGY 3: GEN 2 PLANT PROTEINS – BETTER NUTRITION, FEWER INGREDIENTS (II)

MARKET DEVELOPMENT (II)

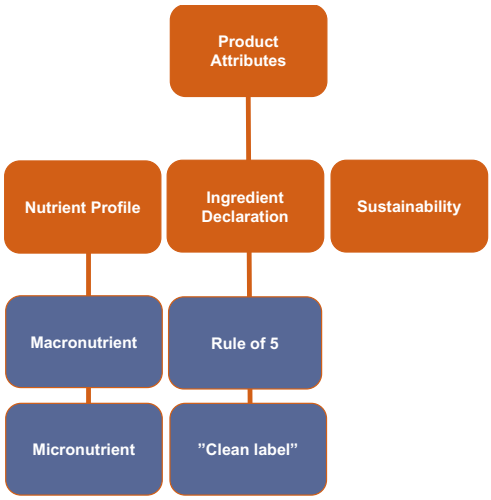
PLANT PROTEINS NEED TO UP THEIR COMPETITIVE GAME TO DELIVER FUTURE GROWTH – STRATEGY NEEDS TO SHIFT TO GEN 2!

The urgency to get products to market over the last 5-7 years and to exploit what media, consultants and investors all insisted was a fast road to growth and profit, has resulted in most plant-based protein alternatives performing poorly on ingredient lists and nutrients, not to mention taste. The opportunity is to make plant proteins better by focusing on:

- Protein quality
- Nutrient profile/density
- Ingredient lists
- Sustainability

A Gen 2 strategy is:

1. A route to competitive advantage
2. A way to create a point of difference in a market over-supplied with sub-standard Gen 1 products
3. And a necessity – a thing brands need to do before competitors do it to them



Source: Paul Hart

COMPANIES AND BRANDS

DANONE PLANT-BASED NOW IN A GEN 2 STRATEGY – FEWER INGREDIENTS, MORE PROTEIN

"Spoon up the power of plants."



Danone Silk Greek-style new plant-based launch, based on coconut:
INCREASED plant protein to 10g
REDUCED ingredient list (11)

VS

Danone Oikos Greek dairy yoghurt:
14g of protein
Short ingredient list (9)

"Made with just nuts and water, this is as close to drinking whole almonds as you can get."





Elmhurst, a major producer of plant milks in the US, did not rush into the market with under-performing Gen 1 products. Instead the company started with a Gen 2 approach that will deliver better results by delivering on quality and consumer expectations.



SIMPLE INGREDIENTS
No gums, fillers, mulsifiers, or anything unnecessary



NUTRITIONALLY DENSE
Up to 4x more nuts per serving than leading brands



UNMATCHED NUTRIENT DENSITY
With more of the nutrition preserved, Elmhurst® products are more concentrated with bioavailable nutrition - making them easier for your body to digest and absorb.

Superior Plant-Based Nutrition
THE HYDRORELEASE METHOD™

"Our process is simpler and better from start to finish. First, a unique HydroRelease™ method allows us to use more of the source grain, nut, or seed. This means superior nutrition and flavor with fewer ingredients."

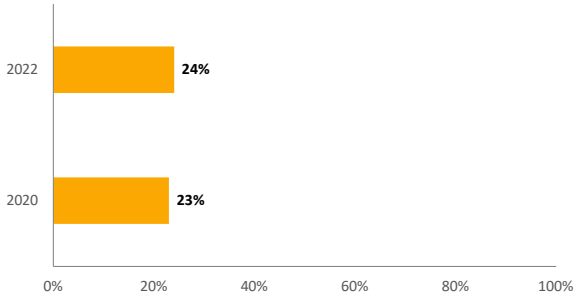
STRATEGY 4: A BETTER STRATEGY FOR MEAT SUBSTITUTES (I)

CONSUMERS

Meat substitutes based on proteins such as pea, soy and wheat received massive positive media and social media attention from about 2016-21. The target consumers for meat substitutes were not vegans and vegetarians – who often prefer whole foods and reject processed products – but the much larger market of flexitarians and omnivores. Brands aimed to be "a nicotine patch" for meat eaters, giving them the taste and texture similar to meat but enabling them to eat less. However, most meat substitute makers failed to understand the consumer:

Failure to meet consumer expectations of taste and texture. Canadian plant meat maker Maple Leaf Foods told stock analysts in 2022 that consumer trial rates "were super high, penetrating 60% of US households, but consumers' needs simply were not met, and they did not repeat purchase. As a result, the category did not reach expected levels of habituation, had very high lapse rates and very low buy rates."

Chart 39: The trend of reducing meat consumption is not growing as fast as it once was



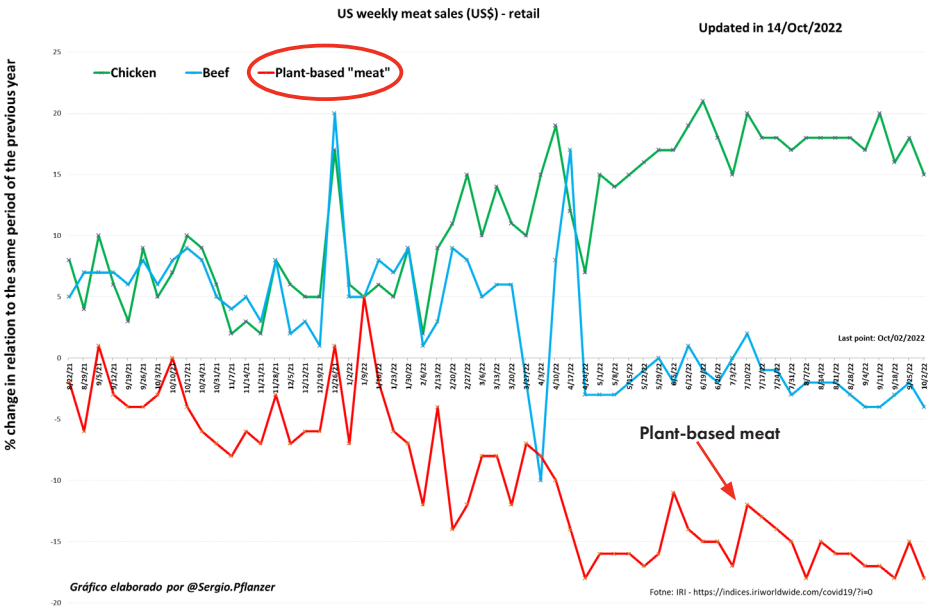
Source: NNB 5 country consumer survey, 2020 & 2022

Flexitarianism losing momentum: NNB's most-recent 5-country consumer survey found that 24% of people say they are trying to consume less meat, little changed from 23% in 2020 (see Chart 39). Growth in meat reducers was dramatic from about 2014-2020 but has slowed dramatically. This makes sense because consumers' beliefs about food & health are fragmented and assuming ever-upward growth is dangerous. Moreover, food choices are driven by fashion and the fashion's focus is moving on from the plant-based peak.

MARKET DEVELOPMENT (I)

Our first piece of advice is that if you are going to go into meat substitutes, don't. It's a graveyard of technical and commercial ambition, a good way to burn millions of dollars for nothing. Our second piece of advice is that if you must, skip straight to the 'Better Strategies' section.

Chart 40: US weekly meat retail sales ($), to 14 Oct 22



What has happened in the plant-based meat sector is almost the opposite of what many people forecast. It's even worse than we thought (we who believed the sector had low-growth, niche potential). The category is stalling, even falling. The US market, the world's biggest, stalled at 1.4% market share in 2021 and fell by 0.5% in 2022, according to SPINS data. In a conference call in August 2022, Philip Hardin, the chief financial officer of Beyond Meat, said: "The second quarter of 2022 saw a contraction in US household penetration of plant-based meat for the first time in over four years." Citing Nielsen data, he added that the deceleration of meat alternative sales around the world was bigger than anticipated. In Europe he said the category went from growth of 7% in 2021 to shrinking by 14% in the first half of 2022. According to 210 Analytics, which uses IRI supermarket data, sales of plant-based meat in July 2022 increased by just $1 million in value, while volume declined. Sales of conventional meat, by contrast, grew by $300 million.

STRATEGY 4: A BETTER STRATEGY FOR MEAT SUBSTITUTES (II)

MARKET DEVELOPMENT (II)

Kellogg's is getting out of the plant-based meat substitutes business, planning to move its market-leading (and profitable) Morningstar brand into a separate company. Its competitor Beyond Meat, the company whose CEO once boasted of his intention to make people switch away from consuming meat, has reported calamitous financial results. Looking at the first six months of 2022 it's clear that the picture has no positives:

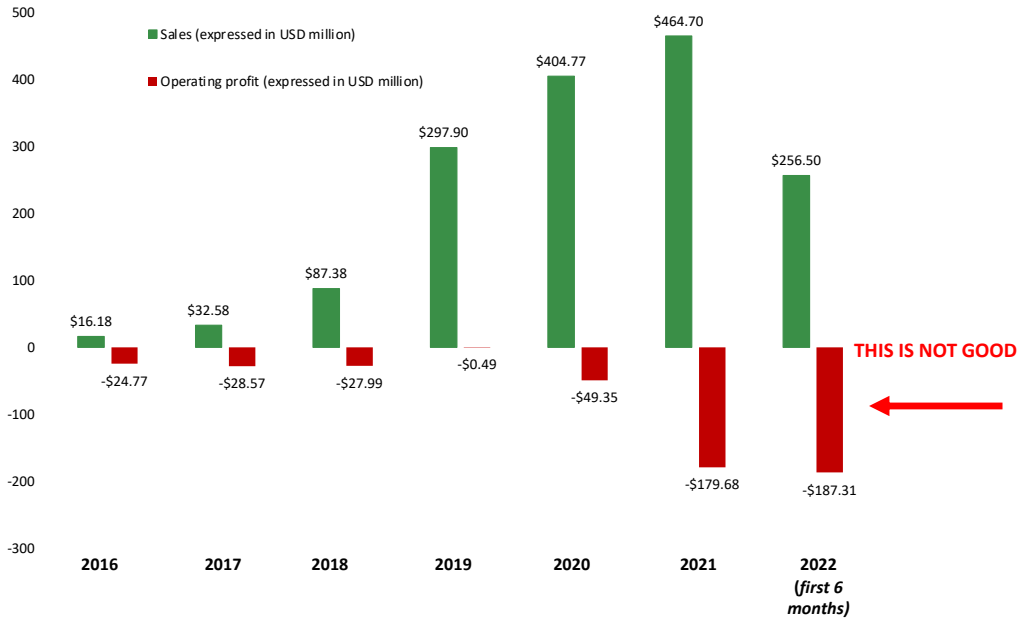
- Beyond Meat's operating loss was up by 333%.
- Every dollar of product Beyond sells costs it $1.72 to produce.
- Beyond's US foodservice strategy has failed, highlighted by McDonald's terminating its McPlant test. The company's international sales fell by 7.2% to $44.79 million, a modest number after years of pushing into 11 different countries.

New Nutrition Business researched the financials of a sample of 100 plant-based meat brands in Europe, the US, Canada, Australia & New Zealand. Not one was showing any sign of making a profit, even after five or more years in business. And those with the fastest-growing sales also had the fastest-growing losses.

Hundreds of companies have focused on trying to copy sausages and burgers, only to discover that their products fail to match the taste and texture of meat-based products. The technical challenge of creating a direct comparison with meat was much bigger than they anticipated. Their products have no hero ingredient that is easy to understand, no ingredient health halo, no back-story of traditional culinary usage.

Price is not the answer. A myth has grown up among some executives that plant-based meats would pull ahead once they established price parity with meat. In fact, there is almost no way that a product assembled in a factory out of 15-20 speciality ingredients was ever going to achieve price competitiveness with a single-ingredient, minimally processed product. The current surging cost of raw materials and energy means that the dream of price parity will not be realised any time in the next 3-5 years, and possibly even longer than that. People focused on lower price as 'the answer' to growth should remember that the Quorn brand, based on mycoprotein, is the biggest meat substitute brand in the UK and since 1990 has done everything right, focusing on taste, texture and versatile products. It is also price comparable with chicken. And yet, it remains a 'big niche' business. Food culture is more powerful than price.

Chart 41: Beyond Meat's losses worsen every year – it has never made a profit



Source: Beyond Meat published financial statements

STRATEGY 4: A BETTER STRATEGY FOR MEAT SUBSTITUTES (III)

MARKET DEVELOPMENT

BETTER STRATEGIES

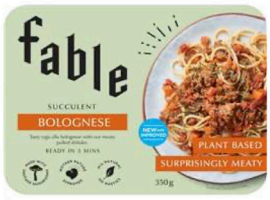
There is another strategy, which some meat substitute companies are following, which is to forget imitating burgers, sausages and cuts of beef and lamb and instead focus on getting plant proteins into product types that better align with consumers' beliefs and preferences. These are products which it is possible to make taste good, using real culinary skills and blends of vegetables, spices and herbs. Some companies are already on this road.

The real opportunity for plant proteins as a meat substitute is becoming clearer

Failing strategy of meat imitation
A category that will be niche for many years.



A strategy that's aligned with consumer preferences:
- ✓ Better taste performance
- ✓ It's about 'plants made convenient' more than 'meat replacement'
- ✓ Easier for consumer to accept
- ✓ Potentially wider appeal



Australian company Fable Food has made mushrooms the hero ingredient of its product range.



US challenger brand Afia (see NNB Feb 2022) delivers plant proteins in classic Middle Eastern street foods, offering provenance and taste.

Mushrooms: People want to eat more plants, of that there is no doubt. Mushrooms are not plants, they are fungi. But the consumer isn't giving that difference much thought (if any). As far as the average person is concerned, mushrooms are "a type of plant". Mushrooms are also a naturally functional food, with a health halo (although most people couldn't say too much about exactly what the health benefits actually are), credible as a source of protein and nutrients; easy to understand and familiar. And many varieties of mushroom make a good-tasting alternative to meat and can be incorporated into a wide variety of dishes in ways that taste good. Australian company Fable Food provides a role-model of how to develop an effective plant-based meat strategy. The sophistication and patience of its strategy stands in marked contrast to the unsophisticated and impatient strategies of companies like Beyond Meat. Fable Food is a much smaller and less well-known business than Beyond Meat – but it is one we suspect will survive and even thrive long after Beyond becomes known as one of the biggest failures in food industry history.

Mycoprotein: Major companies and investors are focusing on the potential of mycoprotein - a protein produced by fermenting fungi - with over $200 million invested to support new manufacturing capacity and R&D by 8 new companies in the field. Unilever, for example, owns a plant protein brand called Vegetarian Butcher which industry sources say has produced disappointing results since Unilever acquired it in 2017. Unilever clearly hopes to revive its brand by offering mycoprotein-based products and to that end has invested in a company called Enough to create production facilities in the Netherlands.



Mycoprotein was pioneered back in the 1980s by UK company **Quorn**. Today it is the biggest meat substitute brand in the UK and in Europe, a result of doing everything right - focusing on taste, texture and versatile products. It is also price comparable with chicken. And yet, it remains a 'big niche' business. Food culture is more powerful than price. Quorn is the case study that reminds us that because of food culture adoption will be slow. Culture and belief beat strategy and technology every time. Mycoprotein products so far also have a fairly low protein content and even Quorn has to use (depending on the product) either potato protein or egg to boost the total protein content of its finished products. Mycoprotein could do better than plant-based proteins but only slowly. Even with the heavy marketing of these products for the remainder of this decade meat substitutes will remain 'big niche', maybe twice the size of the current category. There is still a big job to do on marketing and on creating products with mass appeal.

STRATEGY 4: A BETTER STRATEGY FOR MEAT SUBSTITUTES (IV)

COMPANIES AND BRANDS



HK Scan, Sweden's biggest meat producer has entered the plant-based protein space with meatballs, mince and sausages. Scan says that the launch was partly motivated by a perceived gap in the plant-based meat market for options made in Sweden from Swedish ingredients. 'Made in Sweden' appears on the front of the pack. According to the company, most other meat alternatives on the Swedish market are made from imported ingredients. Swedish provenance is highlighted with messages such as:

- "The taste of Sweden is always the best taste"
- "Vegetarian products for those who want to eat more plants without compromising on taste, quality or Swedish provenance".



INGREDIENTS: Garbanzo beans, water, sunflower oil, basil*, onion*, roasted minced garlic, salt, cilantro*, cumin, parsley*, baking soda, garlic*, cayenne pepper

US start up **Afia** delivers plant protein benefits in traditional Syrian foods. It's a strategy which harnesses provenance, familiarity and – importantly – enables a brand to use spices, herbs and vegetables to create great tastes.

Eat Meati is the debut product line from Meati Foods. It features whole-food cutlets and steaks made from mycelium (described to consumers as "mushroom root"). The products are made by growing the fungus into a desired shape rather than extruding sausage or burger shape. The emphasis is on positioning it as real food and few ingredients. Founded in 2017, US-based Meati's products are 95% mycelium and have 17g of protein and 12g of fibre. It has raised $278.6 million in investment. Investors include Chipotle.

At Eat Meati™, we believe food should be simple, clean, and of course, delicious.

90% mushroom "meat"

Good Energy™. That's it.

We believe that food should makes us feel good — both literally and about the choices we're making for our home and futures. Meati™ is Good Energy™.

The Final Cut: A New Whole Food

We serve up to you a whole food that is 95% mushroom root, a complete protein, and is full of fiber and other essential nutrients found in animal protein like iron, B vitamins, and zinc.



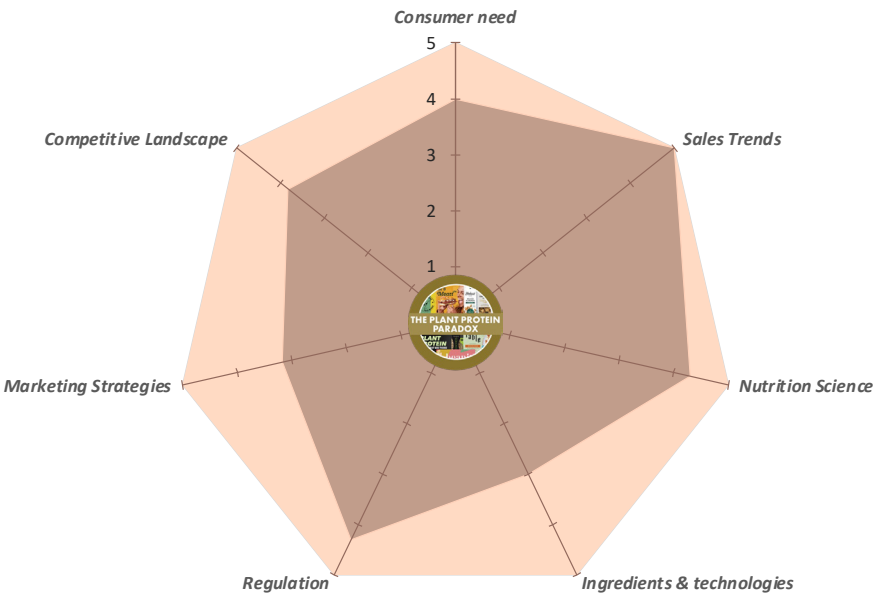
There's a new meat in town. Made from nutrient-rich mushroom root – aka the energy source Mother Nature intended. Now that's Good Energy™.

Australian brand **Fable Food** went to market with a strategy that's quite the opposite of that of companies like Beyond. Fable made mushrooms the hero ingredient of its range, connecting to the health halo mushrooms have for most consumers. The brand focuses on taste and texture and 'real ingredients, minimally processed'. Fable Food started out targeting its shiitake based products only at high-end restaurants. It won the endorsement of a celebrity chef and now it is selling to restaurants in Singapore, America, the UK and Australia. This established credibility which secured it its first supermarket listings.





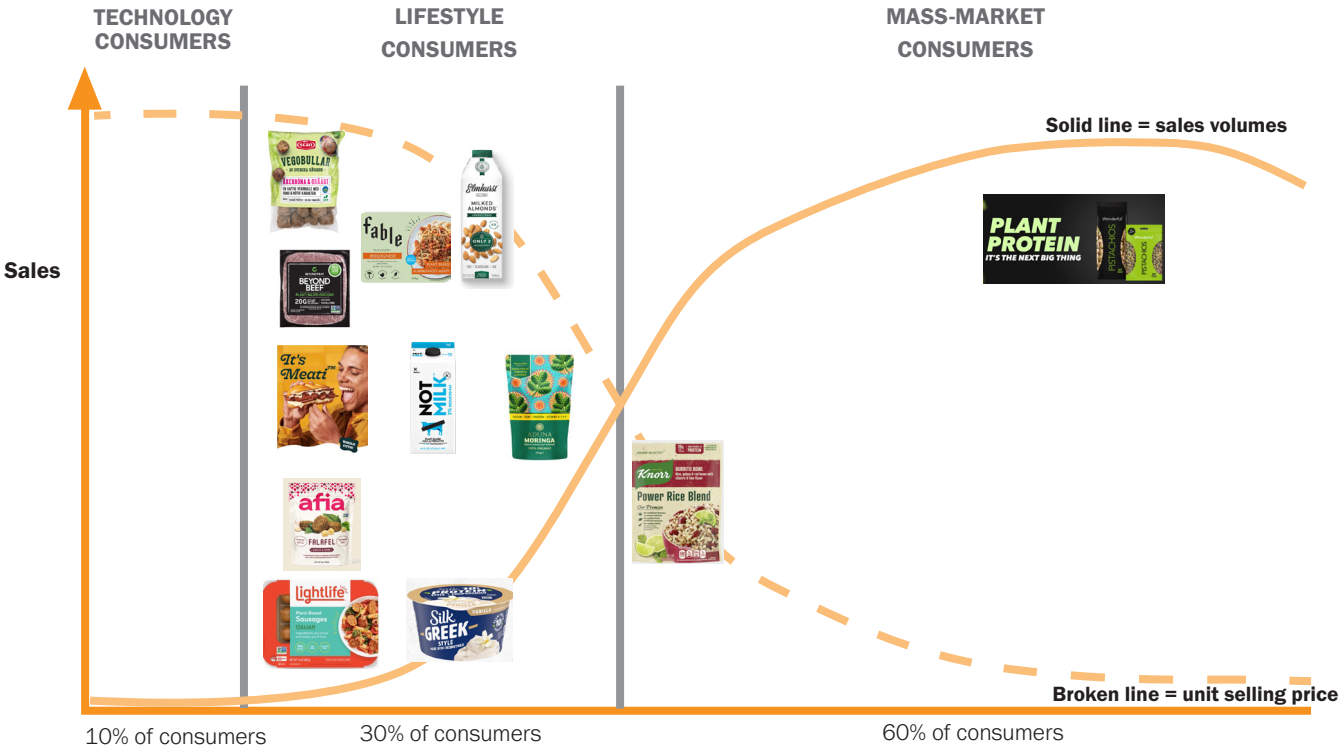
CHART 42: TREND DIAMOND – KEY TREND 6, PLANT PROTEINS



PLANT PROTEINS CONNECTS TO 5 OTHER KEY TRENDS



CHART 43: PRODUCT LIFE-CYCLE – KEY TREND 6, PLANT PROTEIN PARADOX



KEY TREND 7



RETHINKING FAT

The "more fat" trend is maturing. Many consumers' fear of fat has receded and people are embracing more healthy fats in their diets, from dairy fat to avocado oil.

Why consumers love full-fat products

- Satisfying taste & texture
- Often lower in sugar than low-fat options
- Fit in LCHF strategies for weight wellness
- Growing science questioning previous dogmas
- More natural and less processed

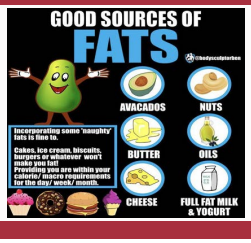
3 STRATEGIES IN FAT

1 FAT FOR HEALTH AND INDULGENCE



"So rich and creamy you won't miss dairy"





2 KETO FRIENDLY

The trend may have peaked, but it isn't going away.







3 EMERGENT SEED OIL-FREE

Some researchers are concerned about the excess of linoleic acid in Western diets, which may lead to inflammation.



No Seed Oils

Highly-processed seed oils like canola oil are controversial for many reasons, Google it. That's why we only use avocado and olive oil in our products.

NO SEED / "VEGETABLE" OILS



For 50 years, fat has been the nutrient that could do no good. But consumer beliefs about food and health can shift and are fragmented. In the case of fat, the next few years will see consumers' beliefs become even more diverse than they already are.

Beginning in the 1960s, saturated fat was demonised by public health authorities, blamed for cardiovascular disease and weight gain. From the 1990s the idea that there are 'good fats and bad fats' slowly began to take hold in consumers' minds, with fats from plant sources (olive oil, avocado, coconut, sunflower) viewed as good. Fats from oily fish also entered 'the good zone'. These beliefs began in the pre-social media era and reflected public health messaging, which was faithfully reproduced by the media.

Since about 2012, in some countries consumers have begun to lose their fear of fat, but not all countries – fat is still a dietary demon in Asia, the Middle East and parts of Europe. And within countries there are differences – some consumers have embraced 'more fat' as a health choice, while most consumers (particularly the 50+ who grew up with the 'fat is bad' message) continue to think they should avoid it.

The US market has led the way in losing its fear of fat. Sales of whole milk, for example, grew from $2.8bn in 2011 to $5.4bn in 2022, while sales of low-fat milk declined. And it's an over-overlooked fact that the full-fat milk category in the US is now bigger than the plant milk category.

The reason for fat's rebirth stems from the gradual discrediting of the low-fat heart health hypothesis, which originated with Professor Ancel Keys. We now know that from 1950-1970 he cherry-picked data and left out of his many published studies any data that clashed with his hypothesis.

A deeper understanding of the science of fat has been emerging gradually since about 2010 and it is clear that the low-fat advocates were wrong on every count. Dairy fat and other saturated fats naturally present in nutrient-dense foods have been exonerated of any harms.

Science writers in the US have done a particularly thorough job of communicating the changing scientific evidence and this information has been widely communicated on social media. Cardiologists also have come out against the low-fat hypothesis, based on their reading of the evidence. The success of mainstream physicians in using ketogenic (80% fat) diets to reverse diabetes and achieve significant weight-loss – without cardiovascular risks – has also got the attention of mainstream and social media. In the UK, physicians in the health service are being trained in the benefits of a high-fat diet.

Dietary guidelines, of course have not changed – so some consumers will stick with what the guidelines say. Others will do their own research and decide to ignore them. This shift has been truer for the English-speaking countries. Much of Europe tends, culturally, to be more conformist and pays more heed to public health experts and so the 'fat is not bad' idea doesn't get much traction, other than in countries where fat was a strong part of food culture (France and eastern Europe for example).

The improved image of fat has been growing in consumers' minds but now appears to have plateaued. That reflects the fragmentation of consumer beliefs that is a defining feature of markets – and also how economic hard times cause people to focus on their own financial challenges more than embracing new ideas.

However, we are likely to see even greater fragmentation of consumer beliefs in the years ahead. The "healthy choice" status of some vegetable fats such as canola or soy is under attack. This will confuse many consumers. In Europe, the Nutri-Score food ranking system – which is particularly punishing of foods with a fat content – will drive some consumers to avoid fat more than before; it will confuse others because it condemns many traditional foods, and it will undermine the credibility of public health experts among consumers who have read how science has vindicated saturated fats.

For product developers and R&D teams, the question of how to deal with fat will become even more challenging than it has been for the last 40 years, with the challenges the biggest in Europe. Some consumers will be pushed into the low-fat route by retailers and public health authorities relying on 20 year-old science. However, in some countries, the companies who are willing to ignore what looks (to about 25% of the population) like the science-fiction of public health advice, there will be opportunities to create health and indulgence products with a higher fat content.



Alexandre Family Farms in the US makes a virtue of the fat content of its A2 grass-fed milk, even making batch-by-batch updates of the % fat content available to consumers on its website.

What does it mean for strategy?

Currently there are three strategies available to companies:

1. **Fat for health & indulgence**
2. **Keto friendly**
3. **Emergent seed-oil free**

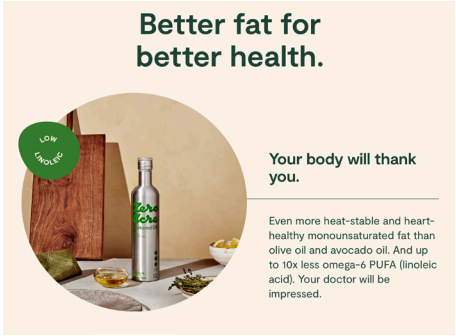
IS HIGH OLEIC OIL A WAY FORWARD?

The growing complexity of beliefs about fat is illustrated by the small, but growing, segment of consumers who are challenging the health credentials of seed oils (see Strategy 3, Emergent Seed Oil Free), such as sunflower oil. Their concern is that consuming them in packaged foods contributes to a too-high level of linoleic acid in western diets, with possibly harmful consequences for inflammation. These concerns may sound bizarre, but that's not a reason to dismiss them - the gluten-free trend also sounded bizarre when it emerged in the 1990s. Some companies are already using high oleic sunflower oils which were developed to deliver much higher levels of monounsaturated fats. These oils have excellent stability without hydrogenation which is great for shelf-life.

Here is how one brand, **Catalina Crunch**, a successful entrepreneurial brand of grain-free and keto-friendly breakfast cereals and snacks, is raising consumer awareness of this new good fats/bad fats distinction: "While a small amount of linoleic acid is essential, scientists have linked eating too much linoleic acid with heart disease and inflammation.In the food business, the default type of sunflower oil is the linoleic sunflower oil because that one is the cheapest...So if you see just "sunflower oil" on an ingredient label, it is almost certainly linoleic sunflower oil. I recommend you avoid or only eat small amounts of these foods. At Catalina, we bake our cereal with the high-oleic sunflower oil for the health benefits. And since high-oleic sunflower oil is about 3x the price of linoleic sunflower oil, that's one reason Catalina Crunch is more expensive than other cereals (you get what you pay for)."



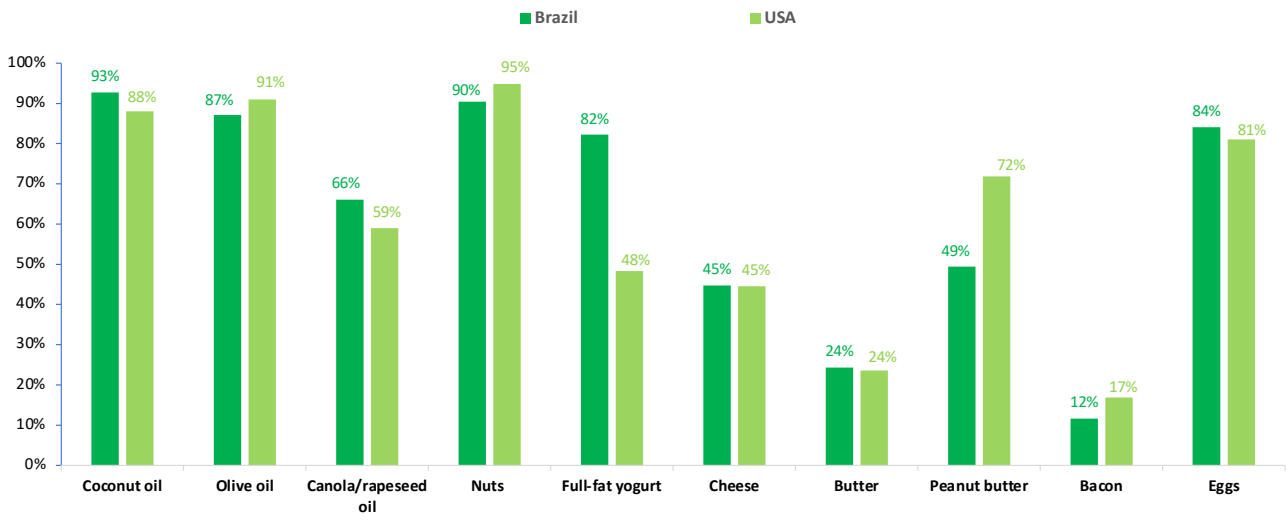
Cultured oil pioneer **Zero Acre Farms** says it aims to remove "destuctive" vegetable oils from the food system. Produced by fermentation, its product is described as low carbon cooking oil that's high in monounsaturated fat and low in linoleic acid. Linoleic acid is an essential fatty acid but many argue that is eaten in excessive amounts in modern diets, and that this can lead to health problems. Natural low linoleic oils are already available, such as high oleic safflower oil, macadamia oil and some avocado oils Zero Acre retails for around $60 per litre, compared to around $15 for a premium avocado oil.





CONSUMERS HAVE A POSITIVE VIEW OF MANY FATS

Chart 44: Percentage of people who think the following "fat foods" are healthy (Brazil vs US)



Source: NNB 5-country consumer survey, 2022

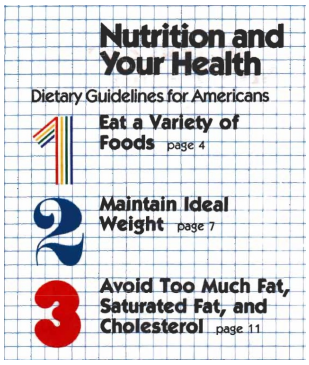
CHANGING VIEWS ON SATURATED FAT – FROM ENEMY TO ALLY?

1961



Influential researcher Ancel Keys: "Eat less fat meat, fewer eggs and dairy products."

1980



First U.S. Department of Agriculture (USDA) dietary guidelines: "avoid cholesterol and fat of all sorts".

2014



"The myopic focus on fat has warped our diet and contributed to the biggest health crises facing the country. It's time to end the war."

2022



"...there is no scientific ground to demonize SFA as a cause of CVD. SFA naturally occurring in nutrient-dense foods can be safely included in the diet".

Back in the 1950s, Dr. Ancel Keys published his famous Seven Countries Study, showing a relationship between dietary fatty acids intake and the rise of blood cholesterol levels, which was in turn thought to be related to risk of coronary heart disease. Featured in *Time* magazine, Keys and his study became highly influential (and pushed aside competing theories that sugar was to blame for heart disease).

Following this, the American Heart Association began promoting a low-fat diet to reduce risk of cardiovascular diseases, which led to the dietary guidelines (first in America, then in most other western countries) which recommended increased consumption of carbohydrate-based foods and reduced consumption of foods containing fats – and particularly saturated fats.

Between 1977 and 2012 American per-capita consumption of eggs decreased 9%, while beef fell by 37% and whole milk by 72%. Low-fat eating for heart health became the dietary orthodoxy and industry followed, developing low-fat and no-fat versions of every product.

But not only has Dr Keys' original study has been found to have a fat helping of flaws, it seems that he left inconvenient data out of most of his studies. In 2016, for example, the *British Medical Journal* published a study which re-evaluated a landmark study by Keys, using data which he had not included in his original research in 1970, and found that with the "lost" data included the results were the opposite of those claimed by Keys. Since the early 2000s more and more studies have challenged, and eventually over-turned, the concept that fat – and especially saturated fat – is to be avoided.

The *European Journal of Preventive Cardiology*, for example, published in September 2022 a meta-analysis – meaning they looked at every piece of published scientific research – on the association between saturated fat consumption and heart disease and found that there was "no scientific ground to demonise saturated fatty acids".

Just in case you are struggling – as I did in the past – with the idea that everything we have been told about the importance of reducing saturated fat in the diet is false, remember this is not one study. There has been a steady flow of research – over 100 studies – since about 2010 that draws similar conclusions. To take just two examples:

- a meta-analysis published in the *British Medical Journal* in 2021, also stated that: "Increasing saturated fat intake was not associated with CVD risk or mortality and instead correlated with lower rates of diabetes, hypertension and obesity."
- a study published in 2016 in the journal *Scientific Reports* looked at the dairy consumption of more than 20,000 people using a biomarker and found "No association between milk intake and cardiovascular risk".

Dairy fat's connection to risk of cardiovascular disease has been firmly debunked.

NAVIGATING PUBLIC HEALTH'S ANTI-FAT OBSESSION (I)

When the evidence changes, our opinion must change. After 20 years of research, it's now crystal clear that saturated fat isn't bad for you. The public health experts that tell you fat is 'bad' need to change. If not, their already slender credibility will shrink even further. In Europe, however, public health authorities choose to ignore the evolution of the science of saturated fat.

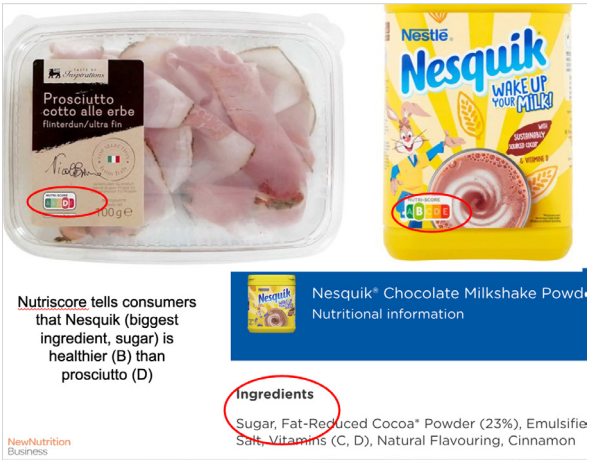
Europe is one place where the public health authorities doggedly ignore the evolution of science. Happily, European authorities have decided – for now– not to impose Europe-wide a healthy food rating system called Nutri-Score, which assumes that 'fat is bad'. Public health experts in Europe created the front-of-pack (FOP) label system based on an algorithm which classifies all foods between A (healthiest) and E (least healthy), depending on their nutrient profile. The system particularly punishes products containing saturated fat and this is a threat and a competitive issue for many companies in Europe – from dairy companies to makers of premium chocolate to olive oil producers.

Nutri-score is based on a nutrient profiling system developed in the UK in 2004 to regulate the advertising of foods for children. Nutriscore does not take any account of science published since 2004, such as the better understanding of saturated fat. Nutri-Score ignores portion size and compares all food on a per 100g basis. This lack of realism means that it assumes that people eat 100g of butter or 100g of olive oil at one time– and hence it gives both a D ranking.

It is intended that people will only compare foods within the same category, hence ham with ham and one yoghurt with another. But that ignores how human brains work. What most shoppers see is that a food is an A or a D, and basic human psychology leads them to infer that A always means good and D means bad. And what are people supposed to think when they see that an entire category – such as butter and cheese – has no As, only Ds or Es? Is Nutri-Score telling them it is a 'bad food' category? For many people, the answer is yes.

Consumers will be confused. Some will follow the label and reject foods ranked D or E. Others will ignore it completely - particularly simple, less-processed traditional foods which are usually also perceived as healthy.

Unsurprisingly, many university researchers and dietitians argue against Nutri-Score (there is no scientific consensus backing it). The Spanish and Italian governments are resisting the Europe-wide imposition of Nutri-Score which may be adopted Europe-wide by the European Commission in Brussels, even though the system is negative about many foods that make up the healthy Mediterranean diet.



Europe's Nutri-Score communicates that Nesquik (B, main ingredient sugar) is healthier than the traditional Italian ham prosciutto (ranked as D). The algorithm underpinning it thinks that 5g of fat in ham is "worse" than 16.5g of sugar in a drink. The backers of Nutri-Score claim it is designed for people only to compare only foods within the same category, not across categories. Unfortunately, there is no communication of this intention to consumers. And consumers interpret symbols and go shopping as humans do, not as dietitians think they should.



This eye-catching advertisement from the artisanal producers of Roquefort cheese - one of the iconic blue cheeses of France and made from sheep milk in a traditional way for hundreds of years - is one of the ways that Europe's many traditional food producers are fighting against the imposition of Nutri--score, which takes a reductionist approach, punishing cheese for fat content and taking no account of how cheese's health benefits as a whole food have been recognised. "A diet is made of many meals. It's more useful to consume a 30g-portion of Roquefort and give up a light soda, nuggets or crisps – which are better rated on the Nutri-Score than cheese... It's essential to learn to create quantitatively- and qualitatively-balanced menus that include a range of foods over the week," explained a spokesman for Roquefort, adding: "Nutri-Score punishes foods with documented health benefits with a simplistic, reductive and infantilizing judgment. It's kind of anti-food education!"

NAVIGATING PUBLIC HEALTH'S ANTI-FAT OBSESSION (II)

Some supermarket groups in Belgium, the Netherlands and Germany have embraced it enthusiastically and are pushing brands to re-formulate products to get A or B rankings and giving discounts to shoppers for A or B-ranked products. Supermarket executives seem to see Nutri-Score as a marketing opportunity - and as they are risk-averse they want to be seen, for PR reasons, to comply with public health authorities demands, even when those demands have little or no basis in science. Many countries beyond the EU are also ignoring the evolution of science and are trying to penalise products for fat content, such as Colombia and the UK. What it means for strategy is that many food producers will re-formulate products. This is often a negative for taste and texture.

But there is an alternative. Given that Nutri-Score and similar initiatives demonise naturally nutrient dense foods with a fat content – such as avocado, nuts and dairy – and do so with no credible basis in science there is a case for companies to challenge the public health authorities and firmly reject Nutri-Score. As a minimum, the food industry in Europe should be demanding that Nutri-Score's claims about health benefits are evaluated by the European Food Safety Authority (EFSA), using the same criteria that are used to evaluate all health claims used on food products. Nutri-Score will most likely fail that test, since the evidence supporting its benefits is only a fraction of what EFSA requires for health claims.

If Nutri-Score is widely adopted we may look back on it 30 years from now with disbelief – a measure which used a flawed algorithm, based on out-dated nutrition science, imposed without any real-world evidence that it improved public health. It will probably become a case study of how Europe's public health experts' greatest expertise appears to lie in undermining their own credibility.



"With Superplus you get a 5% to 15% discount on products with Nutri-score A or B" reads this advertisement by Belgian supermarket chain Delhaize, which embraced Nutri-score in 2018. Its loyalty programme offers members a 5% discount on A and B products with a maximum reduction of €30 a month. For members spending over €200 a month, the discount is 10%, and those spending over €500 a month get a 15% discount on Nutri-Score A and B products. Delhaize reformulated 250 own-label products to improve their Nutri-Score. "We also see more and more suppliers proposing new products with a better Nutri-Score or they are reformulating their old products to achieve a better Nutri-Score," according to a company spokesperson. The company also says it's too early to tell if the loyalty program is improving purchasing habits.



Carlos Rios, a Spanish blogger, dietitian and nutrition guru has 1.5 million followers on Instagram. He encourages followers to avoid the processed packaged foods and instead consume a diet of real foods for optimum health. Rios is one of a number of influential voices in Spain who has highlighted how Nutri-Score's poor design rewards packaged foods while punishing traditional Spanish foods that are part of the healthy Meditteranean diet. In this example he shows how a classic Spanish lunch of tomato in wholegrain bread, with a dash of olive oil and a little cheese, is ranked as "D" – unhealthy – by Nutri-Score.

STRATEGY 1: FAT FOR HEALTH AND INDULGENCE (I)

CONSUMERS

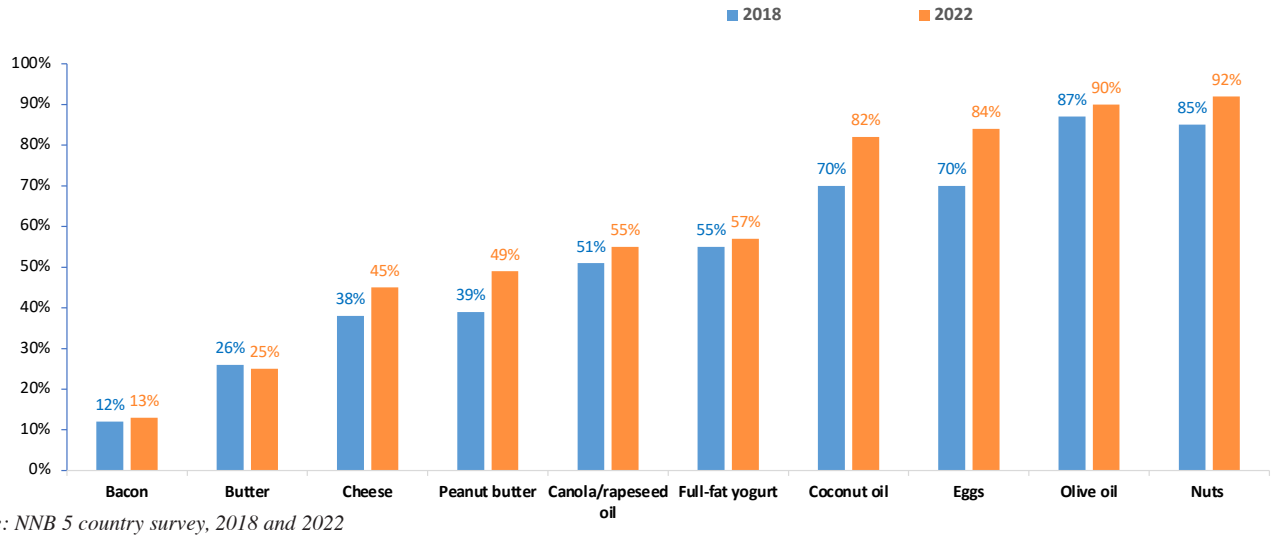
The often obsessive fear of fat that was widespread among consumers in the 1980s and 1990s has ebbed away and many people are willing to embrace a higher fat content in a product that is indulgent and pleasurable. If the fat is from what is seen as a 'healthy fat' source – coconut, olive oil or cacao for example – they see it as a better choice or at least a 'permission to indulge' choice. There is wide variation across countries, cultures and categories. It is notable that 10% fat yoghurts, for example, have become a growth area in the UK, playing on their authentic Greek provenance, even as the UK remains a country in which most consumers say they try to avoid saturated fat. Saying, however, is one thing and what people actually do in the supermarket is quite another. Social media sources such as personal trainers and dieticians have been actively educating consumers about "good fats" for several years. The idea is well embedded among health active people, particularly younger consumers who are heavy users of social media, and it will only grow further.



Source: Instagram

Chart 45: Percentage of people who think the following foods are sources of healthy fats, 2018 vs 2022

As the chart shows, consumers have steadily-increasing positive opinion of some foods as sources of healthy fats.

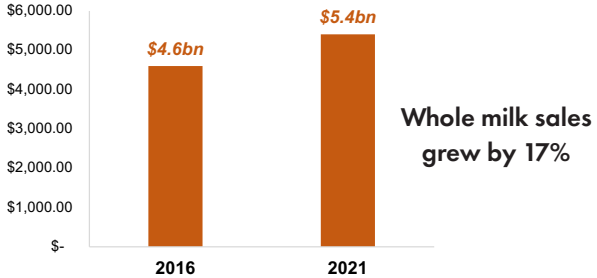


Source: NNB 5 country survey, 2018 and 2022

MARKET DEVELOPMENT

There has been a surge in demand for butter, whole milk and full-fat yoghurt in the US and other markets over the last 10 years. While still increasing, the pace of growth has slowed significantly. As with other consumer beliefs, products that have 'more fat' will need to succeed by connecting to other consumer needs, such as snackification, sustainability and provenance. An example is Kerrygold butter, an Irish brand whose provenance and taste have helped it become the biggest butter brand in the US with sales up 11.4% in 2022 to around $320m. Overall, US butter consumption is now at its highest level since 1950.

Chart 46: US sales of whole milk retail, 2016 to 2021 (US$bn)



Source: IRI

STRATEGY 1: FAT FOR HEALTH AND INDULGENCE (II)

COMPANIES AND BRANDS

FAT FOR BETTER TASTING PLANT-BASED

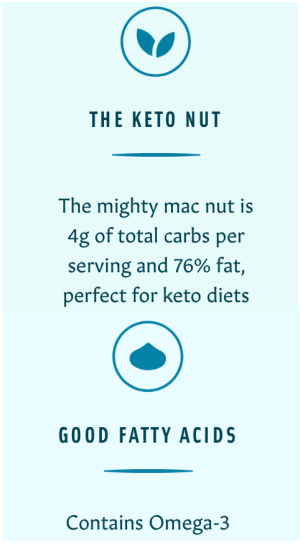
Hawaii-based **Mauna Loa** markets macadamia nut-based snacks in North America and Asia. Its focus is on permissible indulgence, communicating "the plant-based power of the macadamia nut". Macadamia nuts have the lowest carb content (13.8g per 100g) and the highest fat content (75.8g per 100g) of any nut. High fat content gives macadamias a buttery and indulgent texture which pairs well with chocolate. Consumers' growing interest in naturally-healthy fats has seen surging demand for macadamia nuts in recent years, spurred in some markets by interest in keto diets. "Good fats" are now a valuable part of communications for growers and brands around the world.



Dark chocolate: 15g fat (sat fat 7g), sugars 15g, carbs 20g per 38g serve



Savoury nuts: 21g fat (sat fat 7g), sugars 1g, carbs 4g per 28g serve





11g total fat (sat fat 4.6g), carbohydrate 20g (sugars 8.2g), fibre 4.1g, protein 2.8g per 42g pack

Gato, a UK company which also markets its products in France and Spain, positions itself as being "cookies with benefits", "real food" and "naturally rich in nutrients". Founded by a dietitian, its range of chocolate cookies filled with peanut butter cream are gluten-free, plant-based, vegan-friendly, high in fibre, lower in sugar (30% less sugar compared to similar cookies). These benefits make these cookies an easy' permission to indulge'choice. Younger female consumers – the target for this brand – who are plant-forward also accept more fat (11g per 42g) and view it positively. Palm oil is the fat used in this product and it has a positive health image with some consumers.



In the US, **Danone's Silk Nextmilk** line, aims to win new customers with an increased fat level and the tagline "so rich and creamy, you won't miss dairy". Nextmilk delivers 8g of fat per 240ml serve and is labelled 'whole', with the fat content a primary selling point. Fats used are coconut cream, coconut oil and sunflower oil. Using coconut oil means almost all the fatty acids are saturated, giving a sat fat content of 6g per 240ml serve. The boosted fat level is because, Danone said, "Dairy-lovers out there like the idea of plant-based beverages but are unwilling to give up the taste and texture of traditional dairy. In fact, in one survey, 53% of people said they wouldn't purchase plant-based."

Demand for avocados has surged over 15 years in the US, and also in Europe where consumption grew 200% between 2016 and 2022. Changing perceptions of fat have driven increased avocado sales. A spokesperson for the California-based Hass Avocado Board said, "Everyone used to say that fat was bad for you and you should avoid all fats, and avocados were trapped in that discussion. But that has been changing. Our research shows that the reason consumers are buying avocados today is because they believe [the fruits] are good for them. So here you have what was a barrier to consuming avocados 20 years ago now becoming a driver of sales." One 80g avocado delivers 24g of total fat.





STRATEGY 1: FAT FOR HEALTH AND INDULGENCE (III)

COMPANIES AND BRANDS

HONEST INDULGENCE



Sweet SKUs: 36g-50g of fat and 36-43g of carbohydrates per 100g

Savoury SKUs: 50-64g of fat and 7g of carbohydrates per 100g

Consumers' aversion to fat is receding, and one category that has benefited from this is butter. Seeing the opportunities in this, California-based **Challenge Butter** – founded in 1911 and now the largest selling butter brand in the Western US – has launched a range of sweet and savoury snack spreads, with butter as the hero ingredient. The premium-priced spreads are recommended as toppings or dips and are available in mainstream retailers including Albertsons, Meijer, Publix, Target and Walmart. With a clear 'permission to indulge' angle, the spreads are promoted as a way for consumers to "satisfy your snack habit" and said to "add fast flavour". Challenge Butter positions itself on provenance and authenticity. This product's combination of snackification, naturalness and 'real' ingredients is a good example of how to reinvent a traditional food.

FAT FOR HEALTH

Bellwether Farms sheep's milk contains twice the level of fat of cow's milk and this US brand makes the fat content a selling point – alongside the benefits of "easier to digest" and nutrient density. The California-based dairy markets its products across the US in Costco, Trader Joes and others.

"The body needs healthy fats for many bodily functions, like absorbing vitamins....Sheep milk is also rich in medium-chain fatty acids or triglycerides (MCTs) - about 25% of the fat content. MCTs can benefit weight control by promoting 'fullness', reducing fat deposits, increasing energy expenditure, and being more easily metabolized (turned into energy in the body)."



SUSTAINABILITY & PROVENANCE GIVE PERMISSION TO INDULGE

Permission-to-indulge is one of the most successful marketing strategies. A good example is the launch in the US market by **Fonterra**, the New Zealand dairy group, of a butter which combines the attractions of provenance, grass-fed, carbon zero and organic. Fonterra's Anchor brand of organic carbon zero certified butter is intended to help consumers to make a more sustainable choice. New Zealand's climate allows cows to graze on pasture 365 days a year and Fonterra say it is this "pasture-rich diet" that gives its butter its particular taste. The butter is certified USDA organic. Packaging features imagery of New Zealand pastures and a QR code that takes consumers to Provenance.org, a third-party which provides supply chain transparency, to show how Anchor's certifications make for a better environment. Anchor's net zero carbon status is audited and verified by Toitu Envirocare, an independent certifier. One key aspect of this product is the prominent use of 'grass-fed' and 'pasture-raised' – as big on the package as the net zero message. Grass-fed is what American consumers search for on Google more than any other term associated with food and sustainability. For a small but growing number of US consumers, 'grass-fed' signifies 'better for the cows' (animal welfare), 'better for the environment' and (the most important part), 'better for my health'.



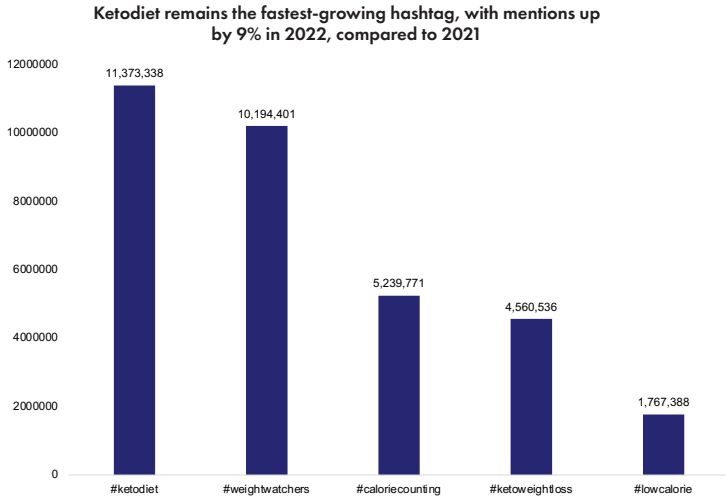


STRATEGY 2: KETO FRIENDLY (I)

CONSUMERS

A ketogenic or high-fat diet (in which 70% of daily calories come from fats, 25% from protein and 5% from carbs) remains one of the most popular diets, in the top-5 in the US. It has more attention on social media than "calorie counting" for weight loss. Eating the high levels of fat required as part of a strict keto diet is an effective weight loss strategy for many people, but hard to maintain long-term, leading many to adopt a "keto lite" or "lazy keto" approach – avoiding sugar and keeping carbs low while prioritizing fats, but not sticking rigidly to the "70% fat or more of the total diet" keto rule. Consumers embracing a "keto lite" strategy usually look to increase their "good" fats intake – nuts, coconut oil, eggs – and want protein too, which is not the focus of the traditional keto approach. They will want very low sugar products and fewer carbs. This behaviour will continue, even if the keto label appears on fewer products. The popularity of a strict keto diet is fading and most consumers will adopt a keto-lite approach, such as selecting low-carb for some meals (in the way that people choose gluten free even if they're not on a gluten-free diet) but other times giving themselves permission to indulge in their favourite carbohydrate (such as rice in a Thai meal).

Chart 47: Number of posts with selected hashtags on Instagram, to September 2022



Source: Instagram

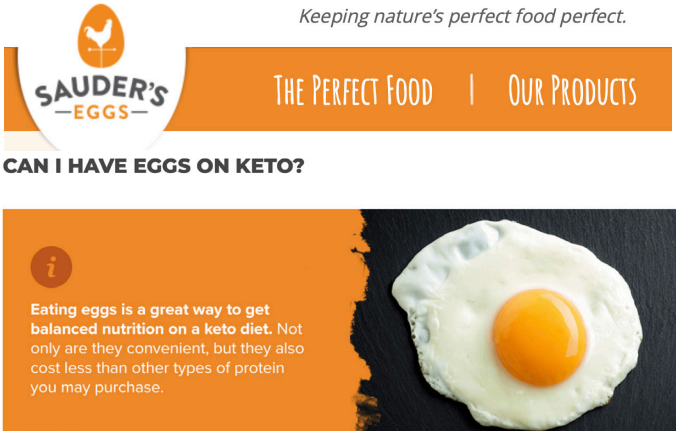
MARKET DEVELOPMENT

The message that consuming more fat and fewer carbohydrates could have a health benefit, particularly for weight management, began around 2000 with the diet popularised by Dr. Atkins in the US. It was a fad that soon faded but returned as new supportive science emerged from around 2010. In 2023 the trend may have peaked, but it isn't going away. The 'fewer carbohydrate' consumers will remain a group worth serving. "Keto" as a label is mainstream in the US, but it is showing signs of losing momentum. However, the consumer behaviour of accepting more fat (as well as fewer carbs) will likely continue. As with gluten-free, this does not mean that people will be looking for high-fat, low carb products all the time – they will include them for some meals and snacks as part of their repertoire. Mainstream consumers will be best served by, and most attracted to, products such as those shown in Strategy 1: Fat for health and indulgence, and less motivated by the keto label, which will become less popular but will remain on pack as a reassurance message – though much less prominently than at present.



Keto has become relatively mainstream consumer concern, as this UK airport magazine store attests.





The keto trend has been beneficial to many natural foods, not only packaged foods.

STRATEGY 2: KETO FRIENDLY (II)

COMPANIES AND BRANDS



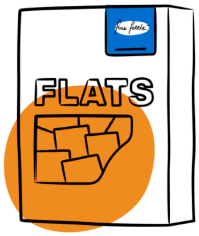
ChocXO's keto-friendly Dark Chocolate Peanut Butter Cups, with nearly 50% fat content, are made with organic 70% cacao with a peanut butter filling. "Low in natural sugar', they are sweetened only with organic cane sugar. Fat content is delivered by coconut oil, MCT oil and cocoa butter. Dark chocolate confers a naturally-functional health benefit; manufacturing is described as "artisanal" and the company says the product is "crafted by expert chocolatiers, not food scientists". In mainstream retail including Sprouts, Vons, and Wegmans and on Amazon.

6g fat (3g sat fat), 3g net carbs and 3g sugar per 14g



6g protein, 6g fat per 14g serve





FLATS CRACKERS
REAL FRUIT + VEG SQUISHED THEN DRIED

Australian challenger brand **Fine Fettle** markets a wide range of snacks with a high content of fruit, vegetables and nuts. This product is 41% beetroot and 17% hazelnuts.

6.2g fat, 3.1g carbs, 2.1g protein per 16g serve

The Fat Bomb line of keto snacks has been a particular success for **SlimFast**, achieving Year 1 sales of $26.1m in the US alone and it now accounts for more than 10% of SlimFast's total sales, which are around $225 million. The Fat Bomb line includes two savoury products – one with dried cheese crisps, one with dried cheese, nuts and seeds – and six sweet snacks. SlimFast is part of Irish dairy multinational Glanbia.

Launched by General Mills, **Ratio** is designed for anyone "looking for useful keto-friendly snacks and ways to cut back on sugar and carbs". The goal of Ratio is to make it easier for consumers to create a diet plan that follows the macronutrient ratios of a ketogenic diet, hence the brand tagline "We did the math for you". The brand links to 'real food' (see KT9), with simple ingredients such as coconut oil, nuts, seeds, avocado, dairy and fruit. Retailed in mainstream supermarkets such as Walmart and Kroger, the brand is General Mills' first-ever keto-focused product. It achieved first year sales of $34.1 million (IRI) and sales of $34.4m (€34.3m) in 2021. Launched in 2020 with yoghurt and bars in 7 SKUs, the range has been extended to 31 SKUs, including granola and cereal.

"We did the math for you"





Yogurt: Per 150g serve, 15g total fat (6g sat fat), 2g total carbs, 15g protein and1g sugar.

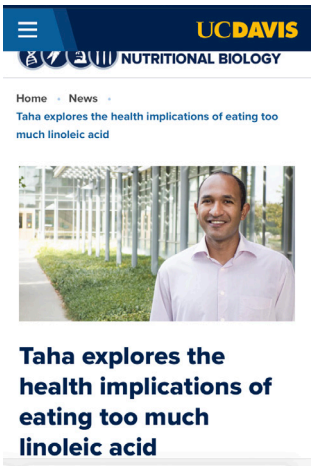
Bars: Per 41g serve, 17g total fat (5g sat fat), 9g total carbs, 12g protein and1g sugar.



STRATEGY 3: EMERGENT SEED OIL-FREE (I)

SCIENCE

Many common oils, such as canola, sunflower and soy have long been marketed as "better-for-you", and dietary guidelines in most countries recommend their consumption. However, there is an emerging– and strongly contested – scientific debate that's challenging this view. It centers on linoleic acid (or omega 6,-an essential fatty acid common in vegetable oils made from grapeseed, sunflower and soybean among many others) and how much we should be getting in our diets. Like omega-3, omega-6 is necessary for health (it helps support proper cell function) and has to be obtained through food. But unlike omega-3, which tends to help reduce inflammation, omega-6 can promote it, and excess omega-6 may lead to chronic inflammation. While prevailing science recommends a good balance between the two essential fatty acids, research suggests that the typical American diet contains between 14 and 25 times more omega-6 than omega-3, a ratio that many experts believe is too high. Others believe that the overall amount of linoleic acid in modern western diets is the problem, not the ratio. More researchers are publicly proposing reduced consumption of high-linoleic fats such as soy, sunflower and canola.



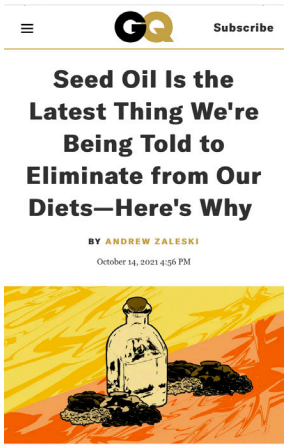
Ameer Taha, a food chemist at UC Davis, has called out too much linoleic acid – the type of polyunsaturated fat found mainly in vegetable oils – as potentially damaging to the brain. Others have suggested it could be bad for the heart.

"Partly as a result of consuming seed oils, the human brain is changing in a way that is as serious as climate change threatens to be. I have banished these oils from my own kitchen."

– Professor John Stein, Oxford University professor of neuroscience

CONSUMERS

Consumer awareness of potential harms from excess linoleic acid consumption is at Day 1. However, it is clearly increasing. NNB's 5-country survey found that 4% of American consumers were 'trying to reduce their consumption of industrial oils' in 2022 compared to just 2% in 2021. There is a small but growing tide of attention to seed oils – often referred to by consumers and media as "industrial oils" – on social media, from health influencers, researchers and doctors.

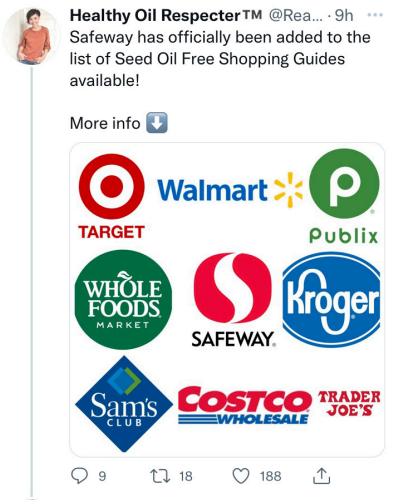






MARKET DEVELOPMENT

We have been monitoring consumer interest since 2017 and while most companies do not need to have this issue in their strategy in 2023, it will become more relevant among the most health-forward 25% of consumers in the years ahead. It is a still a long way from the mainstream. It does, however, connect to consumers' ideas about 'clean label' and 'real food' and the growth in these issues may elevate the focus on 'industrial oils'. Already influencers are signposting which retailers offer "free-from seed oil" options, some cafes in major American cities are flagging up 'free from' industrial oils on their menus and challenger brands, particularly on the west coast, are making free-from seed oils part of their proposition. This has the potential, like gluten-free, to start as a bizarre niche which no-one believes will grow but will become much bigger over the course of 10-15 years.



STRATEGY 3: EMERGENT SEED OIL-FREE (II)

COMPANIES AND BRANDS

AVOIDING SEED OILS IN SNACKS

The issue of seed oils is emerging among early-adopter consumers - exactly the sorts of consumers who are the market for the companies who have formed the **Clean Oil Crew** in the US. The crew members – which include Lesser Evil Snacks, Rind Snacks, Capello's, A Dozen Cousins and Primal Kitchen – are "dedicated to raising awareness about vegetable and seed oils". With the tagline "Cool to be clean", they say they are "making a conscious effort to keep industrial oils out of their products by using clean oils like butter, ghee, olive oil, avocado oil, coconut oil and nut oils".



Chips from start-ups **Masa** (made with grass fed tallow), **Beefy's Own** chips (grass-fed beef tallow) and from **Siete** (100% avocado oil) get the tick of approval from social media influencer Healthy Oil Respecter, founder of the website www.seedoilrebellion.com, which provides store guides for consumers wanting to avoid seed oils. Its latest offering is an app, called Seedy, which allows people to easily find "products that fit a seed oil-free lifestyle".



US-based start-up **Masa** makes tortilla chips with just three ingredients: organic corn, grass fed tallow, and sea salt. It claims to be be the first tortilla chip fried in beef tallow. The company uses tallow for taste and because it believes it is less inflammatory than conventional vegetable oils.

"0g of polyunsaturated fat per serving"

"Vegetable Oil free"



Beefy's Own says it is "the first-ever brand of chips fried in 100% grass fed beef tallow: "Delicious potato chips without the rancid and poisonous vegetable oils".



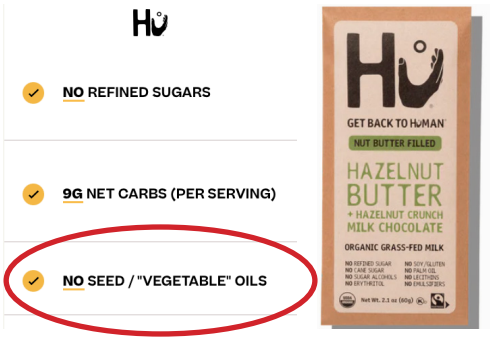
"100% avocado oil"



Per 28g serve, 7g total fat (1g sat fat), 17g total carbs, 0g sugars

Siete Family Foods markets grain-, gluten- and dairy-free tortillas, tortilla chips, sauces and queso. Founded in 2014 by a family from Mexico, the brand retails in 13,000 stores in the US. It has had investment of $90m. It is compatible with the brand's Mexican American provenance to use avocado oil in its tortilla chips instead of more commonly-used seed oils.

Hu Kitchen, the world's most successful vegan chocolate brand and part of Mondelez, has quietly intoroduced the "no seed/vegetable oils" message into its positioning in 2022.



The **Snow Days** brand from Hu Kitchen founder Jason Karp reimagines pizza bites "without the nasty stuff" including "highly processed seed oils". Ingredients include cassava, grass-fed mozzarella, tomatoes, olive oil and grass-fed butter.





STRATEGY 3: EMERGENT SEED OIL-FREE (III)

COMPANIES AND BRANDS

AVOIDING SEED OILS IN KIDS FOODS

US baby food brand **Serenity Kids** has earned a place in an over-crowded category. Its products emphasise healthy fats such as avocado or olive oil and quality protein such as meat and fish. Its messages include: "Fat fuels brain development and growth; our products are made with healthy fats from sources like olive oil & avocado oil." With sales approaching $20 million, it can be found in thousands of stores across the US such as Kroger and Target. It has added infant formula to its range which is both A2 and free from industrial seed oils.



"What we know about industrial seed oils is clear – we don't want them in our bodies, and we certainly don't want to feed them to our little ones."



Healthy Fats



"We never use vegetable oils / industrial seed oils / canola oil (which are inflammatory). All of our cooking is done in extra virgin olive oil. If we ever use grass fed ghee, grass fed butter, homemade tallow, or coconut oil we will specifically call it out."



Springbone's bone broths made with no industrial oils ship nationwide from the company's kitchen in New York City. Locals can place orders and get deliveries from three Springbone locations. The range includes granolas, sauces and brownie bites. The company explains why it avoids vegetable/industrial oils: "With added fats and oils comprising the invisible majority of Western diets, it behooves us to pay more attention to where they come from and what they do to our bodies. Start asking your favorite restaurants what oils they use...Buy packaged products that use better oils. Help start an invisible revolution!"

AVOIDING SEED OILS IS EMERGING IN FOOD SERVICE

THE 5 Point CAFE

We avoid cooking with industrial seed oils.
We instead use clarified butter & olive oil in pans and on the grill, and deep fry with beef tallow

4438 MCKINNEY AVE #150, DALLAS, TX 75204

ORIGIN KITCHEN+BAR

214.484.3970 // WWW.ORIGINKITCHENANDBAR.COM

Origin Cleanest Menu*

*free of sugar, dairy, wine, grain/gluten, unhealthy oils

Cholula Lime Wings 14.5 – (flash fried in avocado oil)
pasture raised chicken wings, origin wing sauce, served with baby carrots, celery & paleo ranch on side

Paleo Hummus 15.5
squash, macadamia nuts, tahini, roasted garlic, lemon juice, served with avocado oil malanga chips and veggies

Stuffed Avocado 10.5 – pickled or fresh jalapeno .5 caramelized onions .5
pico de gallo stuffed half an avocado, avocado oil malanga chips

THINGS TO KNOW:

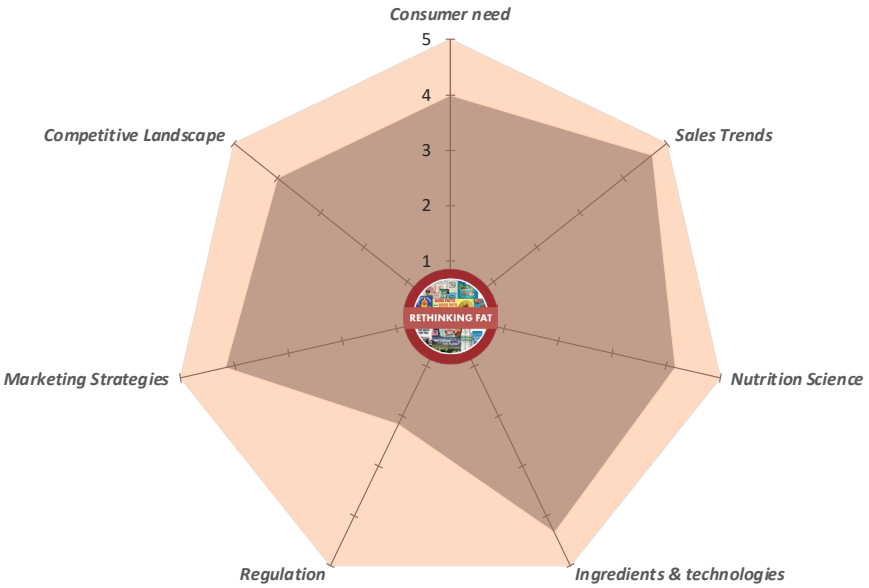
We only cook/saute only using extra virgin olive oil (real olive oil!)

We only use Himalayan Pink salt with everything we prepare

We only use avocado oil fry oil. No nut & seed oils!

We make all of our dressings in house and only use e.v.o.o. or avocado oil

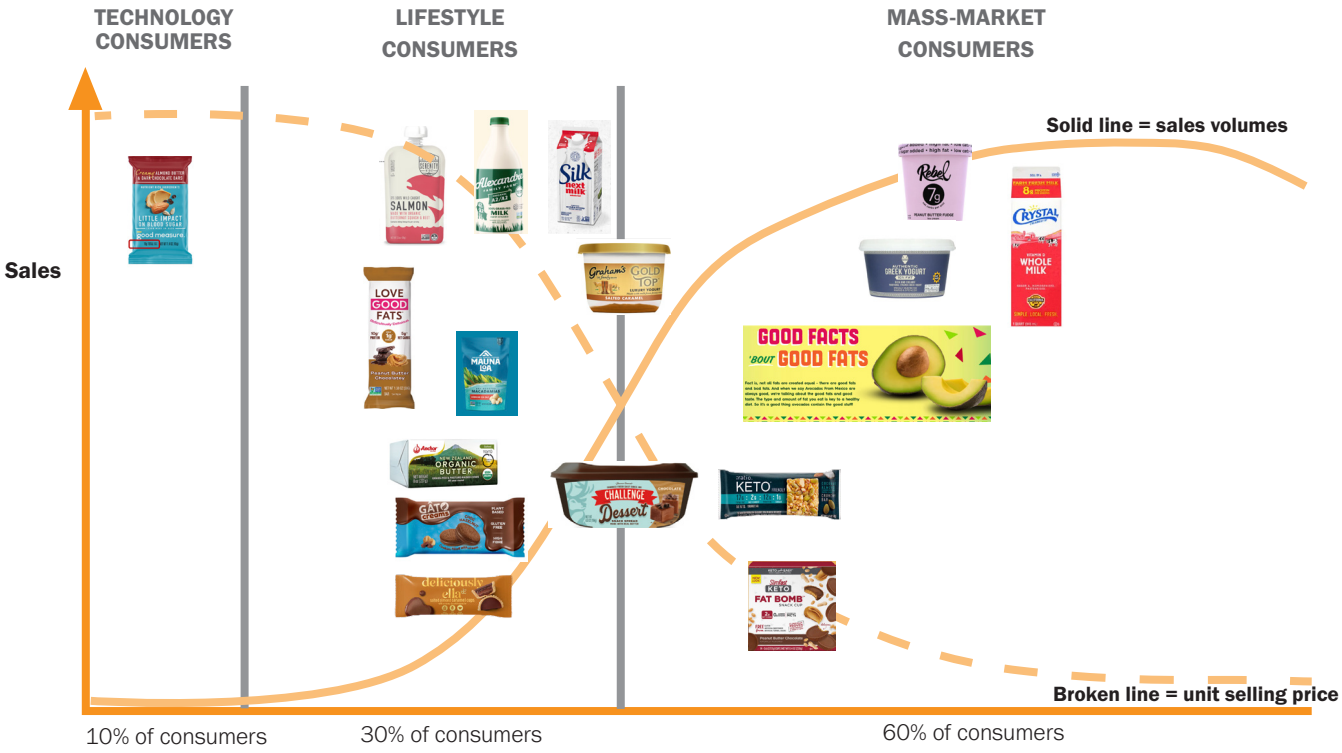
CHART 48: TREND DIAMOND – KEY TREND 7, FAT



FAT CONNECTS TO 5 OTHER KEY TRENDS



CHART 49: PRODUCT LIFE-CYCLE – KEY TREND 7, RETHINKING FAT



KEY TREND 8



MOOD & MIND

Consumer interest in foods and beverages that lift their mood, sharpen their mind or help them relax is high. It's a challenge for companies to deliver.

Strong opportunity
for "real" foods like chocolate – no health claim needed!

FEEL THE BENEFIT
New and interesting ingredients and social media hype aren't translating into mainstream success. Brands must deliver a benefit the consumer can feel.

26%
of consumers claim to be eating foods that boost mood and mental wellbeing

3 STRATEGIES IN MOOD

1. NATURAL HEALTH HALO

Recognised ingredients offer reassurance, novel ingredients offer interest.

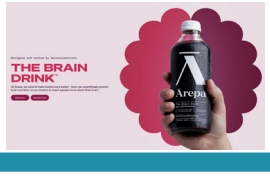




"Calming milk + botanicals"

2. DELIVER A BENEFIT CONSUMERS CAN FEEL

A natural ingredient, backed by science, that delivers the benefit (and tastes good).



3. EMERGENT GUT-BRAIN AXIS OPPORTUNITY

Growing science is linking gut and brain benefits.



"A supportive beverage for living in a stressful society"

People in most cultures have long used food to influence their mood, sleep and mental performance – many of these everyday foods like chocolate, used by many people to lift their spirits. Chocolate doesn't need any claims or deep science to back it up, all that matters is that people feel better, even if briefly, after indulging.

Mood & Mind is a consumer concern that clearly benefits some 'regular' foods like chocolate or coffee, but when companies develop foods or beverages with added ingredients, success is rare. Most such products either fail or live as ultra-niche brands because they don't deliver a benefit that the consumer can feel (or at least think they can feel) and/or don't taste good. Given that the cost of the ingredients means that Mood & Mind products tend to be premium priced, these are two points of failure that mean repeat purchase doesn't happen.

The Mood & Mind area is filled with competitors who are excellent at branding and communications. But by themselves those things are simply not enough, because products really need to deliver on consumer expectations. What this area needs in order to progress is good science – ideally substantiating the benefit from an ingredient that consumers accept as natural – and good NPD skills.

Why hasn't it taken off yet?

1. Lack of tangible benefits – it's difficult to achieve a "feel the benefit" in brain health
2. Consumer engagement becomes a challenge due to lack of belief that benefits are being delivered
3. Delivering a product that provides a benefit the consumer can experience AND uses an ingredient that is both effective and legal AND tastes good is difficult to achieve

Consumers have seen many of these products in the past few years, so they're coming to this category a little sceptical. You're going to have to work harder to be successful, simply because of all of the people in the past who have sold things that didn't work. But on the positive side, the opportunity is at least clear and it is for products which can deliver a tangible benefit, backed by science, and which taste good.

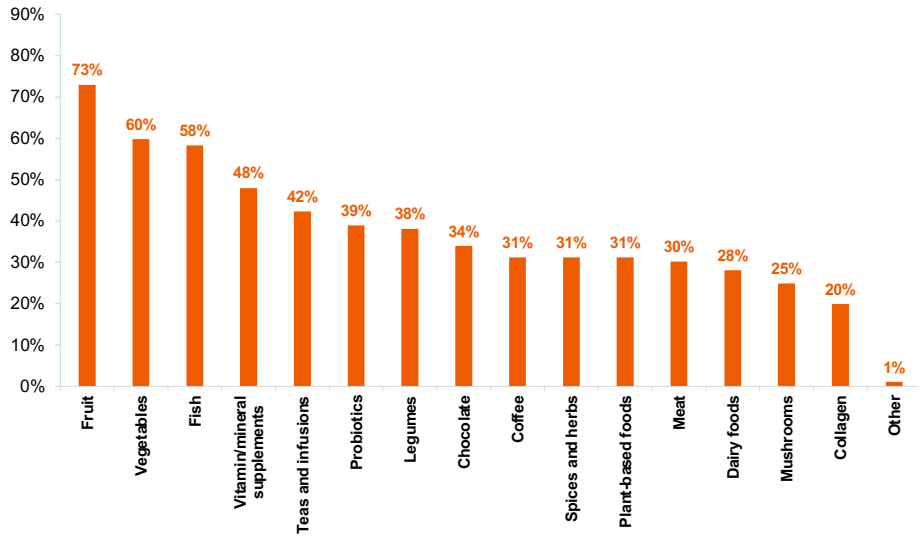
Consumers' interest in foods that help them manage stress or relax, boost mental wellbeing or focus has always existed but it has been sharpened by the effects of the coronavirus epidemic and the accompanying uncertainty and anxiety about what the future might bring. Around a fifth of consumers claim to be eating foods to boost their mood and mental wellbeing, a *New Nutrition Business* 5-country consumer survey. In some countries, such as Brazil and Spain, interest is much higher. In some, such as the UK, it is much lower, at just 9%.

Younger consumers are slightly more likely to be actively looking for these benefits than are older consumers. Already-stressed younger Millennials and anxious Gen Z have only become more so during the pandemic, since their education and opportunities and social interaction were hit hardest. While they are also partying on a much bigger scale than pre-Covid, according to social researchers their anxiety is not going away easily.

There's no question that consumers in most countries are interested in benefits such as:

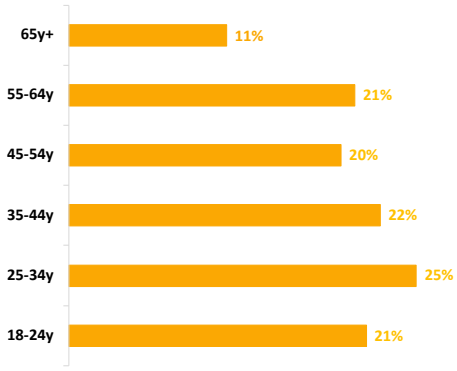
- alertness and focus
- energy
- reducing fatigue
- memory
- improved mood
- stress and anxiety management
- better sleep

Chart 50: % of consumers who claim to be eating the following foods to boost their mood and mental wellbeing



Source: NNB 5-country survey 2022

Chart 51: % of consumers eating foods that boost their mood and mental wellbeing, by age segment



Source: NNB 5-country survey 2022

However, it's worth noting that ingredients that deliver these benefits do not rank highly (or at all) in consumer interest. Social media provides some useful clues as to how familiar consumers are with mood & mind ingredients. Compared to popular foods such as blueberry, avocado or almond, which have millions of mentions on Instagram, many mood & mind ingredients get little attention. Although the numbers of Instagram hashtags for these ingredients is increasing, the growth is off a very low base. Chart 53 shows those with more than 200,000 posts on Instagram, and Chart 52 shows those with fewer than 200,000 posts.

"If you're going to major on these still little-known ingredients you should be sure you're only talking to lifestyle consumers".

Many of the ingredients that are most talked-up by entrepreneurs and some nutritionists still score very low on consumer attention on social media. There is clearly an opportunity to invest in consumer communications to build awareness and credibility. Of the ingredients on this chart, lions mane mushroom and ashwagandha experienced the biggest increase in Instagram posts between September 2020 and January 2022.

These trendy ingredients have very low levels of consumer awareness, even on social media channels like Instagram, and are only of interest to the 10% of most health-active (and probably younger) consumers. It is this 'big niche' of health-forward young consumers who are the best targets for brands for Mood & Mind.

The low level of consumer awareness means that if you're going to major on these still little-known ingredients you should be sure you're only talking to lifestyle consumers. Be aware that if you're going into this field you will be creating brands that will stay niche for a very long time, unless you figure out how

Chart 52: Growth of Instagram hashtags for ingredients with less than 200,000 posts, September 2020 – January 2022

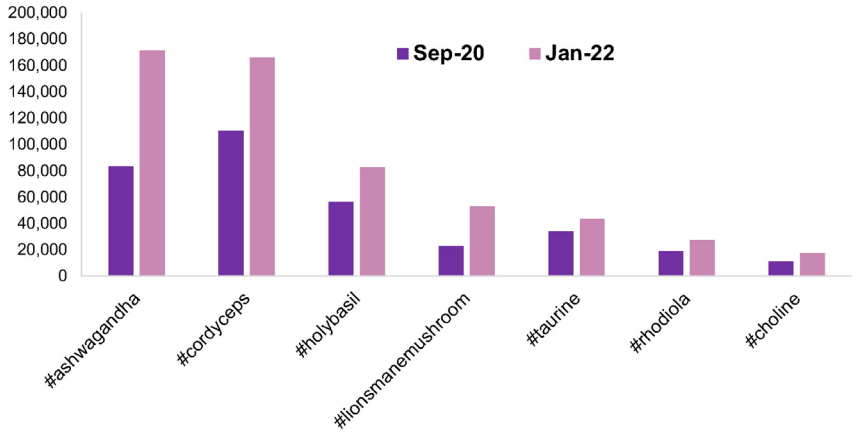
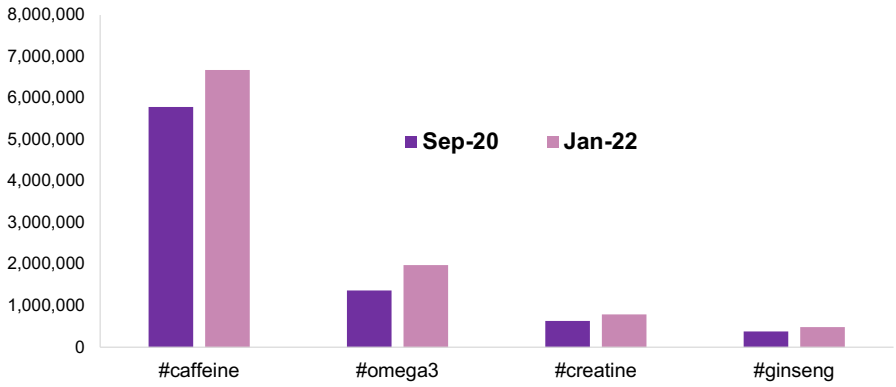


Chart 53: Growth of Instagram hashtags for ingredients with more than 200,000 posts, September 2020 – January 2022



Source: Instagram

TABLE 6: GROWTH IN USAGE OF NOOTROPIC & ADAPTOGENIC HASHTAGS ON INSTAGRAM, SEPT 20-JAN 22

Ingredient hashtags	Ranked by % growth in number of posts Sep 20 – Jan 22	Total number of posts in Jan 22
#lionsmanemushroom	134.3%	53,040
#ashwagandha	105.7%	171,645
#choline	55.9%	17,294
#cordyceps	50.6%	166,193
#rhodiola	46.6%	27,442
#holybasil	46.1%	82,403
#omega3	44.7%	1,976,458
#ginseng	29.5%	485,848
#taurine	28.9%	43,582
#creatine	23.5%	786,469
#caffeine	15.3%	6,672,363

Source: Instagram

to deliver a benefit people can easily feel.

Mushrooms appear to be having a moment, which, promisingly, is connected to fashion, consumer belief and some science. Of those consumers in our survey who do eat for Mood & Mind, 25% referenced mushrooms for their benefits. An example of one of the growing number of brands using mushroom as the flagship ingredient is REBBL's "Stacked Coffee" range, described as "layered with cold brew coffee, oat milk, L-theanine, lion's mane, and reishi to support balanced energy and focus", echoes the practice of microdosing psychedelics, including mushroom psilocybin, which is the latest Silicon Valley "productivity hack".

"In addition to microdosing psychedelics alone, growing interest has focused on a practice referred to colloquially as stacking which involves combining microdoses of psychedelics – primarily psilocybin-containing mushrooms – with other substances that are proposed to accentuate salutary effects," explains a November 2021 article in *Scientific Reports*. Moves are afoot in the US to legalise wider use of mushrooms with potential psychedelic effects. The city of Denver, for example, decriminalised psilocybin in 2019.

The investment community is likely to be pushing mushroom ingredients in the next few years. For example, Compass Pathways, a company marketing mushroom-derived psychedelics, successfully floated on the NASDAQ exchange in the US with a valuation of $590 million. Backers of the company including PayPal co-founder Peter Thiel are betting that psilocybin represents a new frontier in healthcare. Investors are motivated by a growing body of science – for example a study published in *Nature Medicine* found that psilocybin appears to "open up the brains of people with depression, making them less fixated on negative thoughts". The authors of the study suggested that the substance could be an alternative to anti-depressants.



Destress, re-energize, nourish with the best of the plant world.

What does it mean for strategy?

We are at Day 1 of this emergent new market. Brands that have a patient, long-term strategy could ride the elevator of rising consumer awareness. We have identified three possible strategies:

1. **Natural health halo**
2. **Deliver a benefit the consumer can feel – or show consumers how to "feel the benefit"**
3. **Emergent gut-brain axis opportunity**

TABLE 7: TWO BUZZWORDS IN MOOD

Nootropics – improve mental performance	Adaptogens – help the body adapt to stress
Nootropics are substances taken to improve cognitive function or mental performance in healthy people, such as to boost memory, focus and creativity. There are 2 types of nootropics: synthetic (like piracetam) and natural. Natural nootropics are compounds that can be naturally found in foods, such as caffeine, L-theanine, CBD oil, Ginkgo Biloba, Panax Ginseng and others. From a strategy point of view the likelihood of success of such products depends on: • Whether the natural nootropics make sense as part of a food product • Delivering good taste and texture • Whether the consumer can "feel the benefit"	Adaptogens are plants and herbs with a supposed ability to regulate functions in the body through raising or lowering hormones and therefore helping the body "adapt" to stress. Many have traditional usage in Chinese or Ayurvedic medicine. Examples include: ashwagandha, bacopa monnieri, rhodiola, cordyceps and Reishi mushrooms. Adaptogens are marketed as a natural way of helping the body adapt to and deal with stress. Consumers can easily find recommendations online of the best adaptogen "mixes" for specific issues or problems. Given recent events it is likely that a small number of consumers are trying adaptogens to deal with stress, anxiety and improve mental health. But these are premium-priced products, hence targeting only a niche group of consumers.

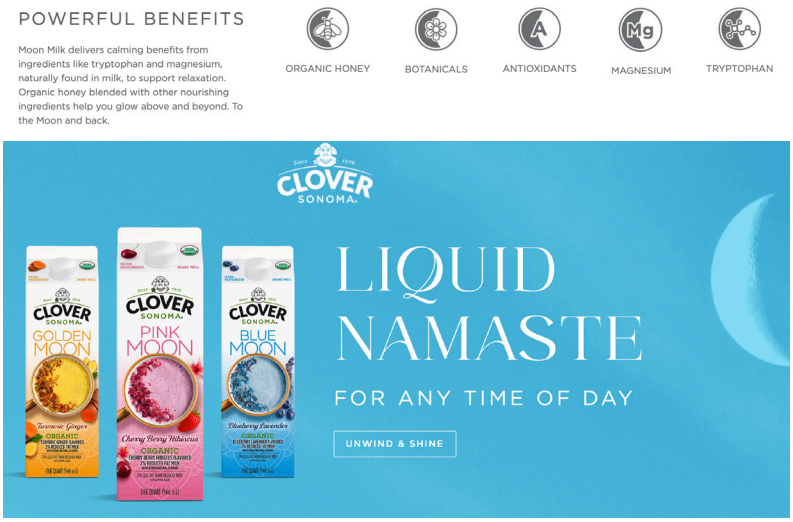
STRATEGY 1: NATURAL HEALTH HALO

MARKET DEVELOPMENT

Take advantage of recognised ingredients for reassurance (like turmeric) and combine them in a finished product with emerging ingredients (like ashwaganda or lions mane mushroom) for consumer interest and novelty. Ingredients like caffeine, green tea and turmeric are familiar to most consumers. They provide reassurance thanks to their long association with benefits including energy, focus, attention, brain health and fatigue. For now, for ingredients like cordyceps mushrooms, consumer interest and understanding is very low and it's only suitable for finely-targeted niche brands. But as awareness of the emerging ingredient grows, your brand – provided it tastes good and delivers a benefit the consumer can believe in – will also grow.

COMPANIES AND BRANDS

US dairy group **Clover Sonoma** is a good example of a strategy of addressing an emergent niche, at an early stage, offering a differentiated product, with the aim of growing with the niche. It's a niche that has the potential to appeal for half the adult population. It would be easy to dismiss the idea of moon milk – but you should never dismiss ideas that align with consumers' revealed preferences, no matter how outlandish they may seem to you. Do-it-yourself moon milks have become common on the web and although the number of Instagram posts on the subject is small, they are growing fast thanks to the instagrammability of moon milks and their appeal to female consumers. There is pent-up demand from female consumers who feel their everyday struggles with hormonal health are dismissed by mainstream health experts and who want help managing the relationship between food, hormone health and feeling good. With added ingredients that are familiar and have a back-story of traditional usage, moon milks are said to promote sleep, help with restoring calm and destressing and help balance hormones. The magnesium and tryptophan which are naturally present in milk, and the natural calming properties of milk, are often mentioned in consumer discussions. Magnesium is growing in consumer awareness for its relaxation benefit, even if tryptophan is not yet. This is an approach to product development that has credibility with consumers by leveraging the health halo of botanicals (see KT3, Plants Made Convenient). Clover's products use turmeric, ginger, hibiscus and lavender, among others. The brand's marketing campaign suggests it will help consumers 'love yourself to the moon', a self-care message as powerful in its own way to women as are the male-oriented 'power' messages for high protein sports products. The product will never be mass, but it could be 'big niche', with an appeal to consumers willing to pay a premium to support their health and loyal to products that work – two factors that brands will learn are valuable during economic hard times.







As befits a mass-market brand, **Dole** has taken a conventional and uncomplicated approach with this addition to its Boosted Blends range of frozen fruit smoothies, which targets a wide array of health benefits, from energy to protein and vitamin C. Berry Spark is described as offering "a specific blend of nutrient-dense, ingredients to support brain and cognitive health". Specifically, Dole says the blend of blueberries, bananas, blackberries, dark cherries, acai, and flax delivers memory and focus benefits. It's a concept that is easy for the mainstream health-conscious consumer to embrace, there are no ingredients that need to be explained or which bring taste challenges.

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STRATEGY 2: DELIVER A BENEFIT THE CONSUMER CAN FEEL – OR SHOW THEM HOW TO "FEEL THE BENEFIT"

MARKET DEVELOPMENT

Enabling consumers to "feel the benefit" is one of the most successful marketing strategies and creates repeat purchase. Most consumers expect to "feel the difference", but most products just don't deliver. This is one of the biggest challenges that is holding back the growth of the segment. In order for the market to develop, there's a significant R&D challenge which is to choose ingredients that deliver a benefit people can feel in a product that also tastes good. The most effective route is to choose a natural ingredient that is easy for consumers to accept and understand but which is also backed by science. If you are using a little-known, but science-based ingredient, pair it with a flagship ingredient that people associate with the benefit offered. These brands below illustrate these two strategies.

COMPANIES AND BRANDS

The key to succeeding in mood is investing in science so that the consumer can feel the benefit. A science-based approach has also helped New Zealand-based entrepreneurial start-up **Ārepa** to create a success. Sold as a drink, a supplement and a mix-in powder, Ārepa's active ingredients include New Zealand blackcurrants (which have a very high anthocyanin content), pine bark extract and L-theanine from green tea. The company has nine clinical trials in the pipeline, building on earlier research which demonstrated the cognitive health benefits of its ingredient combination, such as improving memory in university students. Ārepa's commercial success – launched five years ago in just two stores it is today widely listed in supermarkets, gas stations and C-stores in Australia and New Zealand – has come because people can feel the difference when they drink it. That advantage – coupled with its 'all natural' ingredients, good taste, great packaging and clever marketing – has also enabled the brand to break into the Singapore and Japanese markets.





In Japan, confectionery giant **Ezaki Glico** has created a steadily growing success with its Mental Balance Chocolate GABA brand. Sold under Japan's FFC (Food with Functional Claims) regulatory regime, the brand makes a claim which translates as "Reduce temporary and psychological stress caused by work or study." The recommended serving to get the benefit is five pieces of the chocolate, which will supply 28mg of the active ingredient, GABA, or gamma-amino-butyric acid. GABA is a type of neurotransmitter known to specifically stop messages related to extreme moods. In other words, GABA calms your nervous system, reducing anxiety. GABA occurs naturally in chocolate at a low level. The brand has grown steadily and the line was extended in 2019 with the launch of Mental Balance Chocolate GABA for Sleep: "GABA for Sleep has a mild flavor to help you feel relaxed. It is recommended for business people who demand efficiency and productivity in their daily work. We recommend eating it before bedtime." Available in milk and dark chocolate, three (12.5 g) tablets contain 100mg of GABA ingredient.

"Reduce temporary and psychological stress caused by work, study, etc."

Calories: 289Kcal per pouch (51g)



Available in two flavors, milk and bitter chocolate, it was first launched back in 2005. The stand-up pouch-type package is designed to be easy to place on a desk.

Calories: 71Kcal per 1 serve/3 tablets (12.5g)



"Improves quality of sleep (depth of sleep and waking up refreshed)."

STRATEGY 3: EMERGENT GUT-BRAIN AXIS OPPORTUNITY

MARKET DEVELOPMENT

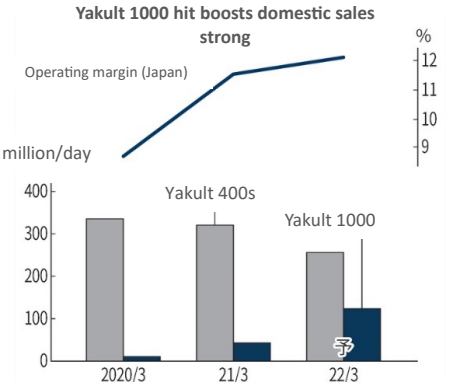
This is a topic that has already caught the attention of consumers and fuelled a new discussion around probiotics and their importance to overall health, beyond the gut. The gut-brain axis is at the heart of a growing body of science looking at how improving the microbiome can potentially deliver benefits for depression, Alzheimer's, stress and inflammation. Foods that may be helpful include those rich in fermentable fibres (prebiotics) such as vegetables, fruit and whole grains, and probiotics, such as yoghurt, sauerkraut, kimchi, tempeh and kefir. Growing science will drive innovation focusing on gut and brain benefits, by combining probiotic or fermented foods with nootropic ingredients.

COMPANIES AND BRANDS

This area has been more about scientific research than tangible products, but that may now change. **Yakult 1000**, launched in Japan in 2021, is a 100ml probiotic dairy drink, aimed at people in their 30s to 50s, and said to "alleviate stress" and "improve sleep quality". It seems to have addressed all of the four concerns above and become a hit product. Yakult was a pioneer in probiotic products, back in the 1950s, and started the probiotic revolution. But it's the first time Yakult has moved beyond its focus on digestive wellness and immunity. It is a focus that has served the company well, creating a $2.5 billion annual sales business with a strong position across Asia and South America. Selecting a probiotic for a stress-management benefit – and one that's backed by science – was a big step. But Yakult 1000 clearly delivers a benefit the consumer can feel. It has proved a huge hit, achieving $1 million of sales every single day during 2022. The market for probiotic yoghurt and dairy drinks addressing digestive wellness and immunity is crowded and growth elusive. Harnessing an effective probiotic to mood benefits may be a way for probiotic brands to start to widen their appeal. This move will have to come from the US and Asia (European regulatory restrictions make it impossible to communicate a probiotic benefit). And 2023 could be good timing for a products that effectively tackle brain health, stress and sleep. With the economic challenges – inflation, an economic downturn, perhaps both together – that are spreading over the world and look set to stay for the next 2-3 years, managing stress will become a bigger issue for more people. And it won't just be Millennials who will feel the stress; around the world, meeting the needs of the Baby Boomers is about to come back into fashion. The unprecedented Yakult1000 sales boom is said to have started with a comment by Matsuko Deluxe, a famous Japanese TV personality. After she told viewers that "I sleep better after taking Yakult1000" in early 2022, the product became explosively popular and was in constant short supply. Also fuelling the boom were positive user reviews on social media.



Yakult1000 (home delivery product), MSRP 130 yen per 100ml bottle



Note: Net sales for year ended March 31, 2022 are before the application of the revenue recognition standard.

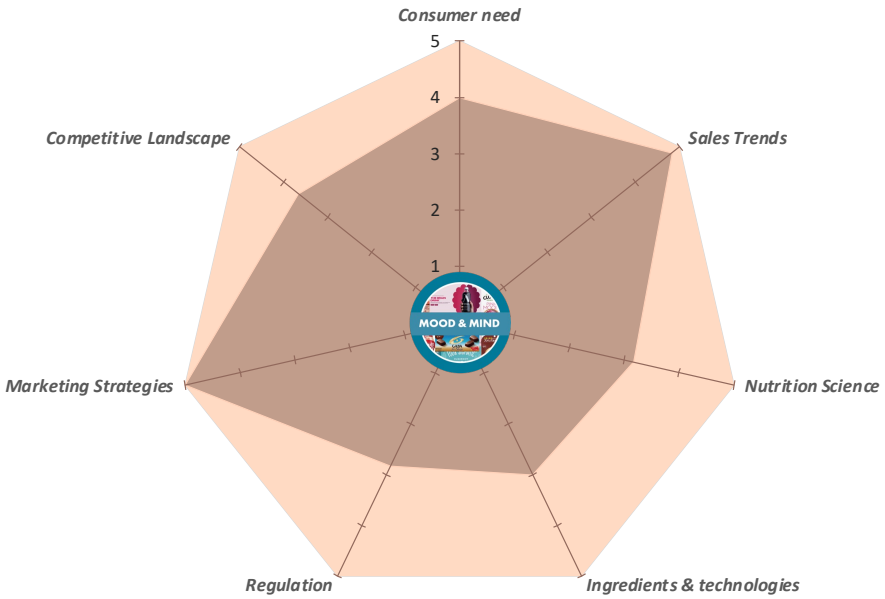
Source: Nikkei Newspaper December 23, 2021

Since about 2017, Finnish-American mushroom drinks company **Four Sigmatic** has grown steadily, marketing a range of powders and beverages with claimed Mood & Mind benefits. Products are based on mushrooms such as lion's mane and cordyceps, blended into coffee and cacao drinks. The company has added a line of coffee creamers that it says contain the market's highest dosage (500mg) of functional mushrooms. Each of the products offers one of three specific benefits: Think for a clearer mind and increased productivity; Gut Health for maintaining the gut microbiome; Balance for stress regulation and glowing skin. Think is made with cacao, coconut milk, MCT oil, lion's mane, reishi, and cordyceps mushrooms.

Made with ingredients you'll soon swear by



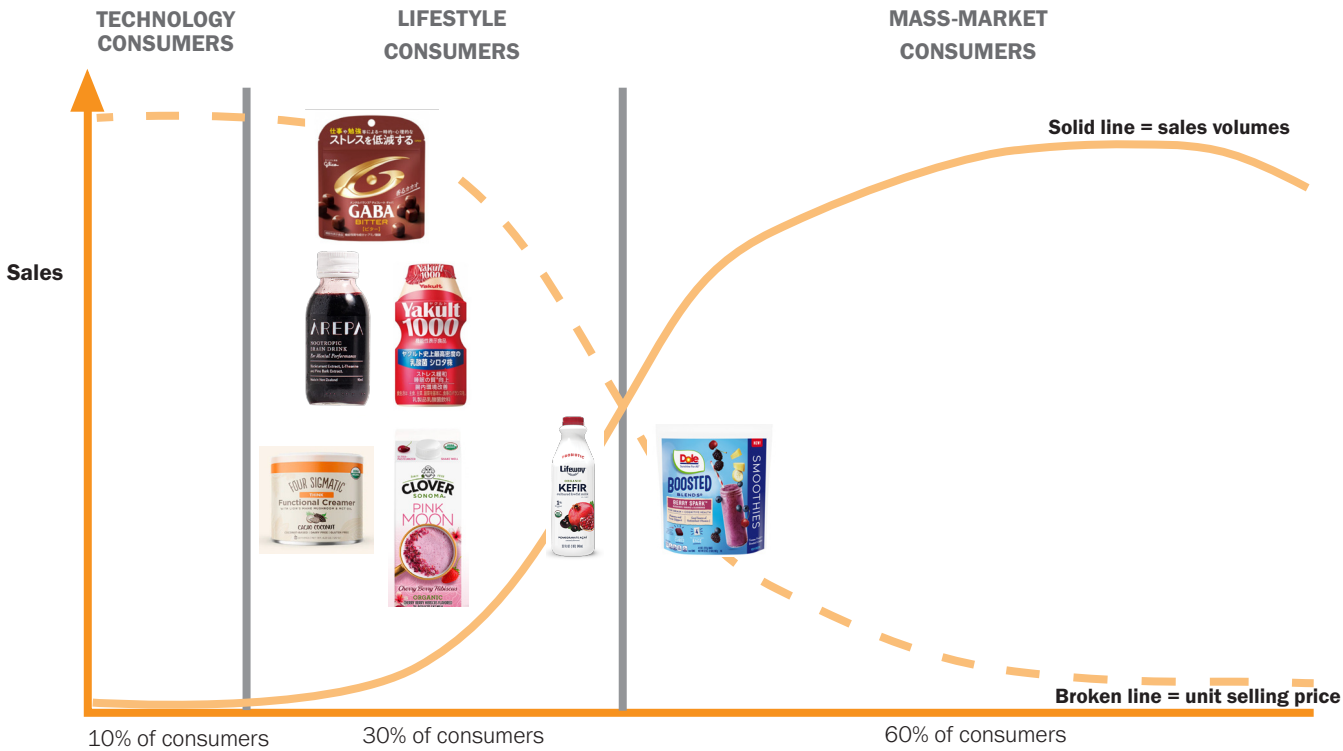
CHART 54: TREND DIAMOND – KEY TREND 8, MOOD & MIND



MOOD & MIND CONNECTS TO 7 OTHER KEY TRENDS



CHART 55: PRODUCT LIFE-CYCLE – KEY TREND 8, MOOD & MIND



KEY TREND 9



REAL FOOD & THE UPF CHALLENGE

The consumer mood is for real food. Avoiding ultra-processed foods (UPFs) and choosing real foods are two sides of the same coin.

Seeking fewer and simpler ingredients is a consumer behaviour that has been around for 20 years already – UPFs are a new label for the next phase.

SOME FOODS ARE PROCESSED SO MUCH, LOST NUTRIENTS MUST BE ADDED BACK IN. WE JUST USE THE NUTRIENTS NATURE PROVIDES.



There's no one legal or regulatory definition of ultra processed foods (UPFs) but the concept is being popularised by the media. The NOVA definition is embraced by academic researchers.

GLOBAL FOOD RESEARCH PROGRAM
University of North Carolina at Chapel Hill

Ultra-processed foods:
A global threat to public health

NEWS
Even more evidence links highly processed food to a greater risk of cancer and death

Innovation: technology for better processing





Old-fashioned goodness reinvented

"Simple ingredients, unbeatable taste. We are obsessed with high quality real food that tastes delicious"





"Real Food. Real Nutrition. Real Impact"



Real food for sports



Brands are already moving to simple processing & ingredients



Avoiding ultra-processed foods and seeking 'real foods' are new labels for established consumer behaviours that have already been around for more than 20 years. What's different is that they are now entering a new phase. creating new opportunities and challenges and no-one can afford to be complacent or to ignore them. It's a set of consumer preferences that the food industry and grocery retailers have responded to for two decades. Seeing it as a business opportunity, we have responded to consumers wishes and – unintentionally – we actively promoted this trend.

Avoiding Ultra-Proccessed Foods (UPFs) and choosing more 'real foods' are two sides of the same coin, just viewed through different frames. One expression is about free-from and avoidance, the other is a positive about choosing better. Company strategies already embrace both.

Over the next decade, the pressure to do more will increase. We will have to do more to renovate and reinvent UPFs and to deliver products that meet (or at least get close to) consumers' expectations of 'real food'.

This trend is driven by the confluence of evolving science, of media and social media attention, of the power of the web to spread ideas, of consumer choices in the store and the strategies of food and beverage companies.

It began innocently enough in the late 1990s as consumers expressed a growing desire for products that were free-from artificial additives, preservatives and sweeteners. These ingredients helped give people the longer shelf-life and lower calories they wanted. This desire started with the 20% most health-active consumers and then gradually spread to the mainstream.

Our industry responded, some enthusiastically, some reluctantly. Companies defined the trend as 'clean label' (a piece of shorthand that no consumer uses) and what was a threat in the 1990s had by 2010 found its way into most companies' strategies.

This developed into consumers, retailers & the food industry joining in a 20-year mutual cycle of identifying 'something bad' in food and taking it out, including:

- Artificial additives & preservatives
- Gluten
- Lactose
- Dairy
- Sugar
- Carbs
- Grains

Running in parallel with 'taking out the bad' has been 'using only what's good', meaning simple and 'real' ingredients. Kind in the US was a pioneer in this strategy in packaged foods and its success has had a huge influence on other companies.

'Less processed' is a natural progression of this trend to identify something bad for health in our food and take it out.

What are "real foods" and UPFs?

There is no one agreed definition of UPF used by anyone, and no scientific, legal or regulatory definition. It's a term created & popularised by a professor of public health nutrition. The term UPFs is used to describe foods:

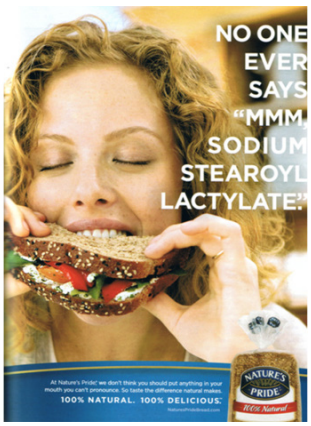
- "With little to no whole foods"
- "Use many ingredients including food additives that improve palatability, processed raw materials and ingredients that are not used in home kitchens such as protein isolate, flavours, colours, emulsifiers…"
- "Processing involves multiple steps
- "Examples: packaged snacks, cookies, ready-to-eat meals, candy, soft drinks."

The term UPF as it is currently used originated with researchers at Sao Paolo University **Carlos Monteiro**. They created a label, 'NOVA' (not an

SEEKING FEWER AND SIMPLER INGREDIENTS IS A CONSUMER BEHAVIOR THAT HAS BEEN AROUND FOR 20 YEARS ALREADY – UPFS ARE A NEW LABEL FOR THE NEXT PHASE OF THIS TREND



2010



2012



2014



2022

acronym), that is easy to understand – because humans like easy labels and simple messages. And they have attempted a definition, developing the NOVA classification system. It classifies foods into four different categories:

1. **Unprocessed or minimally processed foods** such as fruit, vegetables, grains, meat, unflavoured dairy
2. **Processed culinary ingredients** such as oil, honey, sugar, butter
3. **Processed foods** such as bacon, canned or pickled vegetables, freshly baked bread, fresh cheese
4. **Ultra-processed foods** such as crisps, soda, ready meals, flavoured dairy products, sausages, breakfast cereal, pastries, confectionery, biscuits

The problem with this is that it doesn't distinguish between different types of products. Going by the NOVA system, a frozen ready meal with wholegrain and vegetables falls into the same category as a chocolate bar. This illustrates the controversy of defining UPFs – and the confusion it leads to.

"The expectation that convenient, packaged foods will be simpler and less processed – and will become more important over the rest of this decade."

Whether or not you agree on the exact definition of UPFs, it is a term that is starting to build mainstream awareness – in media, academia and among consumers. Most consumers will be of the opinion that ultra-processed equals unhealthy. The food & beverage industry needs to be aware of this, and prepared to respond accordingly.

"Real food", on the other hand, is defined in the minds of consumers, not by university researchers or regulation. Broadly meaning fewer ingredients, simpler ingredients, less processed, even artisanal and closer to home made, it's a concept that exists in every country. It's a definition which people applied to their home cooking or cooking with friends, perhaps to restaurant food and traditional and regional foods, but they didn't expect packaged foods to meet that standard. That is what has changed – the expectation that convenient, packaged foods will be simpler and less processed – and will become more important over the rest of this decade.

TABLE 8: THESE SIMPLE DEFINITIONS ARE FAST BECOMING THE BENCHMARK AMONG RESEARCHERS

There is no one agreed definition of UPFs. However, the classification developed by researchers at Sao Paolo University in Brazil has been seized on by university researchers and the media and is widely referenced. It appeals to people because it is simple and easy to understand. Anyone who wants to challenge it faces an uphill task and will have to come up with an equally easy-to-understand system as an alternative. It may, however, already be too late to dislodge these definitions.

GROUP 1	GROUP 2	GROUP 3	GROUP 4
Unprocessed/ minimally processed	**Processed culinary ingredients**	**Processed foods**	**Ultra-processed foods**
Foods unaltered or altered by processes such as removing inedible parts, drying, grinding, cooking, pasteurization, freezing, or non-alcoholic fermentation. No substances are added. Processing aims to increase food stability and enable easier or more diverse preparation. *Examples: Fresh or frozen fruits/vegetables, pulses, packaged grains, flours, nuts, plain pasta, pasteurized milk, chilled/frozen meat*	Substances obtained directly from Group 1 foods or from nature, created by industrial processes such as pressing, centrifuging, refining, extracting or mining. Processing aims to create products to be used in preparation, seasoning and cooking of Group 1 foods. *Examples: Butter, vegetable oils, other fats, sugar, molasses, honey, salt*	Products made by adding edible substances from Group 2 to Group 1 foods using preservation methods such as non-alcoholic fermentation, canning, or bottling. Processing aims to increase stability and durability of Group 1 foods and to make them more enjoyable. *Examples: Canned vegetables in brine, freshly made breads or cheeses, cured meats*	Formulations of low-cost substances derived from Group 1 foods with little to no whole foods; always contain edible substances not used in home kitchens (e.g., protein isolates) and/or cosmetic additives (e.g., flavors, colors, emulsifiers). Processing involves multiple steps and industries and aims to create products liable to replace all other NOVA groups. *Examples: Packaged snacks, cookies/biscuits, instant soups/ noodles, ready-to-eat/heat meals, candy, soft drinks*

Source: Nova Food Classification System, School of Public Health, University of Sao Paulo, Brazil.

Media push

Journalists find it easy and enjoyable to write stories about foods that are "natural and naturally healthy" – and this media embrace is what helped make Naturally Functional into a strong Mega-Trend even 20 years ago (we first identified it in *NNB 10 Key Trends* back in December 2004).

"The concept of UPFs is being popularised by the media."

Media enthusiasm for real foods has played a major role in the success of avocado, blueberries and many other foods. Equally, stories about foods that may do you harm are another staple of journalism and there is enough emergent research on alleged harms from UPFs to supply a steady stream of scare stories.

The concept of UPFs is being popularised by the media – a business that is all about getting clicks to generate ad revenue. And stories about "foods that heal" and "foods to avoid" score highly on clicks, as do 'scare' stories. The average young journalist:

- Is under pressure to post 5 stories a day (up to 10 in some media channels)
- Has no time to research, phone someone or check facts
- Has no scientific training, so they find it easier to understand and write up a story on (say) the benefits of blueberries or broccoli than on something that requires some scientific enquiry, such as prebiotics or beta-glucans.
- To save time they simply post press releases (with a few tweaks) on website as news stories. Those of us experienced in press release writing can spot these every day. They trust that scientists and universities are a credible source of information when they send out press releases.

THERE'S NO SHORTAGE OF RESEARCHERS AND HEALTH AUTHORITIES WHO HAVE DECIDED ALREADY THAT THE UPF LABEL IS A USEFUL ONE, AND A STEADY STREAM OF NEW STUDIES THAT CAN BE CITED TO GIVE CREDIBILITY TO THE CONCEPT

Ultra-processed foods:
A global threat to public health

GLOBAL FOOD RESEARCH PROGRAM
University of North Carolina at Chapel Hill

"UPFs' poor nutritional profiles, hyper-palatability...and content of biologically harmful compounds all wreak havoc on health. Policy interventions are needed to curb rising UPF consumption and...combat associated negative health outcomes and premature mortality."

WHO: Plant-based meat substitutes not suitable for health

Scritto da Redazione / 08 Feb 2022

"Research has shown that frequent consumption of these ultra-processed foods has negative health impacts."

THE MEDIA HAS ALREADY GRABBED THE UPF CONCEPT AND IS RUNNING WITH IT

NEW YORK POST

LIVING

Eating junk food for a month took 10 years off my life: doctor

By Hannah Sparks May 18, 2021 | 1:36pm |

A British physician who used his body as a test subject claims that one month on a junk food diet has shaved 10 years off his life.
For four grueling weeks, Chris van Tulleken, an infectious diseases doctor for the University College London Hospital system, ate a strict diet of frozen pizza, fried chicken, fish sticks, cereals and other ready-made meals which pack a long list of chemical ingredients. Van Tulleken chronicled the effects of the diet in a new BBC show, "What Are We Feeding Our Kids?" It exposed the "catastrophic" toll of what he calls "Ultra Processed Foods," shortened in the show to UPF.

The Telegraph 9 May 2022



Why your 'healthy' diet is anything but – and the swaps to make now

Ultra-processed food remains a hidden villain in supermarkets, and even the healthiest choices are deceptive

NEWS

Even more evidence links highly processed food to a greater risk of cancer and death

A pair of studies suggest that a diet high in ultra-processed food raises one's risk of colorectal cancer and mortality overall. They're not the first to find that correlation.

The consumer

Consuming 'real food' and avoiding ultra-processed food is culturally fairly polarised. Americans, for example, are accustomed to using instant cake mixes, ready-to-heat sauces and a wealth of other products that are barely consumed in parts of Europe. Northern Europe leans the same way as the US, with a high proportion of UPFs in the diet.

Real food, by contrast, is one of the underpinnings of the Mediterranean diet, promoted by public health authorities for 30 years as one of the healthiest eating patterns you can adopt. And in reality, as Chart 56 shows, southern Europeans do have a much lower percentage of UPFs in their diet. Inevitably, the constant media attention to the benefits of the Mediterranean diet and its identification with real food and less-processed food is gradually influencing consumer choices in high-UPF markets.

Avoiding UPFs also means, to a growing number of consumers, choosing fresh and natural foods. In its annual consumer survey when the International Food Information Council (IFIC) asked Americans what were the most common attributes of a healthy food the top answer, given by 37% of people, was 'fresh'. 'Low in sugar' came second at 32%. 20% of consumers said a healthy food was one with minimal or no processing. IFIC said its research showed that "The health halo around 'all natural', 'fresh' and 'clean' products has increased."

The evidence is growing that consumers are increasingly thinking about UPFs. In the New Nutrition Business annual 5-country survey of 2,600 consumers in the US, Australia, the UK, Spain and Brazil the percentage who say they are trying to avoid ultra-processed foods has been growing steadily and in 2022 was the highest ever, reaching 29%.

Another perspective that a small but growing group of consumers are taking on UPFs relates to whether they are made with industrial oils/seed oils (see KT7). This relates to concerns about excessive linoleic acid in the western diet, which may contribute to inflammation. These consumers (about 4% of Americans) perceive industrial oils as part of the UPF problem and "avoiding seed oils" is a piece of terminology that already shows up widely on social media and even in academic research. Brands are also beginning to flag the free-from industrial oil message on the label, notably Hu Kitchen, the most successful vegan chocolate brand, which is part of Mondelez. This new perspective reflects the continuing fragmentation of consumer beliefs about health.

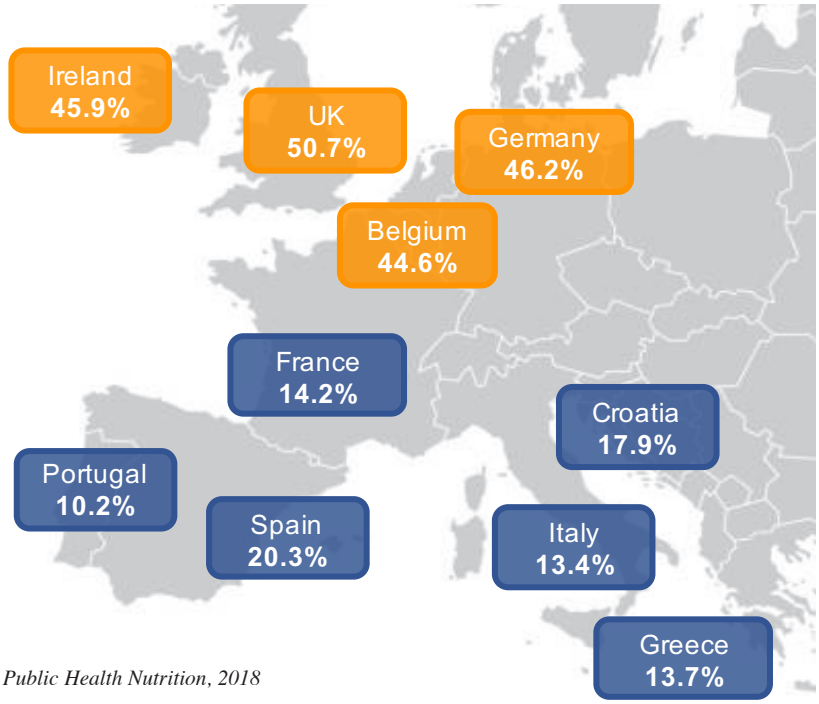
The idea that real food is better dates back 10 years and is influenced by popular writers like Michael Pollan, author of *The Omnivore's Dilemma*, published in 2006. His work has been



Retailers, such as Fresh Thyme Market in the US (which has a "Get Real" slogan on its signage), have responded to consumer desires and normalized 'free-from what's bad for me'.

Chart 56: % of diet that is ultra-processed foods, northern vs southern Europe

Whole "real" foods are normal in some countries, where they are associated with health. The numbers of people looking for "real" foods in northern Europe and the US because of sustainability and health will increase over the next 5–7 years. It confirms a lot of people's intuitive beliefs that the Mediterranean diet is healthier.



Source: Public Health Nutrition, 2018

highly influential among journalists in many countries. One of his arguments was that people should "eat only foods your grandmother would recognize". This seemed unrealistic back in 2008, but it is catching on among the most health-active consumers – even if the food they choose is in reality one that would be more recognisable to a grandmother from Spain or Italy than one from 1950s America.

Avoiding UPFs and choosing real food also gets momentum from the fact that for many consumers it connects to ideas about sustainability and provenance. For some the belief that real foods are also more nutrient dense is also important, and this is being highlighted by social media influencers.

Marketers of natural cheese snacks have a competitive advantage because they are selling a simple, natural product, processed simply with few ingredients. The 'real' message has been taken up in the US by **Sargento** with its **Balanced Breaks** cheese snacking line, which has over $250 million in annual retail sales. **Whisps**, one of the biggest players in dried cheese snacking in the US also emphasises the simplicity of their product and that it is made with "Old World Methods."



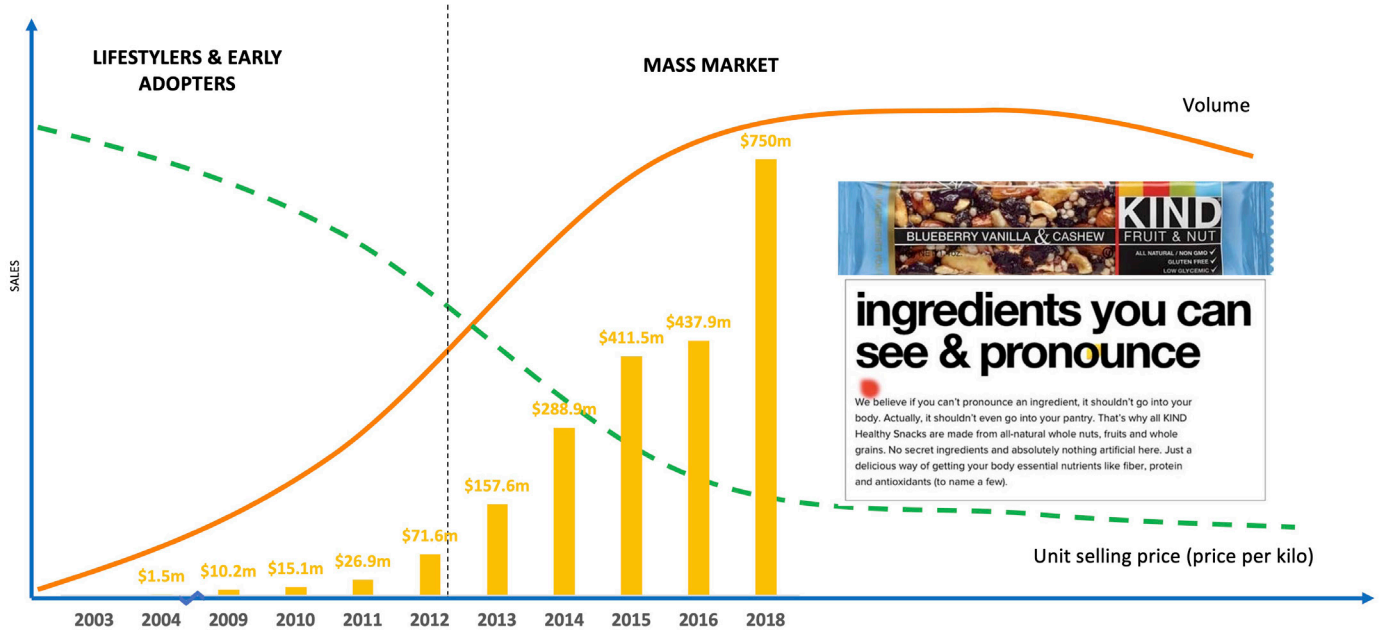






CHART 57: KIND SNACKS WAS A PIONEEER IN THE EVOLUTION OF PACKAGED FOOD TO REAL FOOD

Kind Snacks, today part of Mars, built its success on a simple product, with a distinctive appearance, with very visible whole nuts, fruit pieces and grains, backed by an ingredient list that is natural-looking and uses simple, easy-to-understand terms. Kind steadily advanced into the mainstream. It may fall short of the NOVA classifications - it would be a UPF - but it matches consumer expectations. 'Simple ingredients' are well-established as a consumer preference. 'Simple processing' will likely follow.



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What does it mean for strategy?

The IFIC stated way back in 2010 that "Additives perform a variety of useful functions in foods that consumers often take for granted. Some additives could be eliminated if we were willing to grow our own food, harvest and grind it, spend many hours cooking and canning, or accept increased risks of food spoilage. But most consumers today rely on the many technological, aesthetic and convenient benefits that additives provide."

This is an excellent example of how you must not think. IFIC's points are true. However, technological reality is not the same as consumer beliefs and it is usually not as powerful.

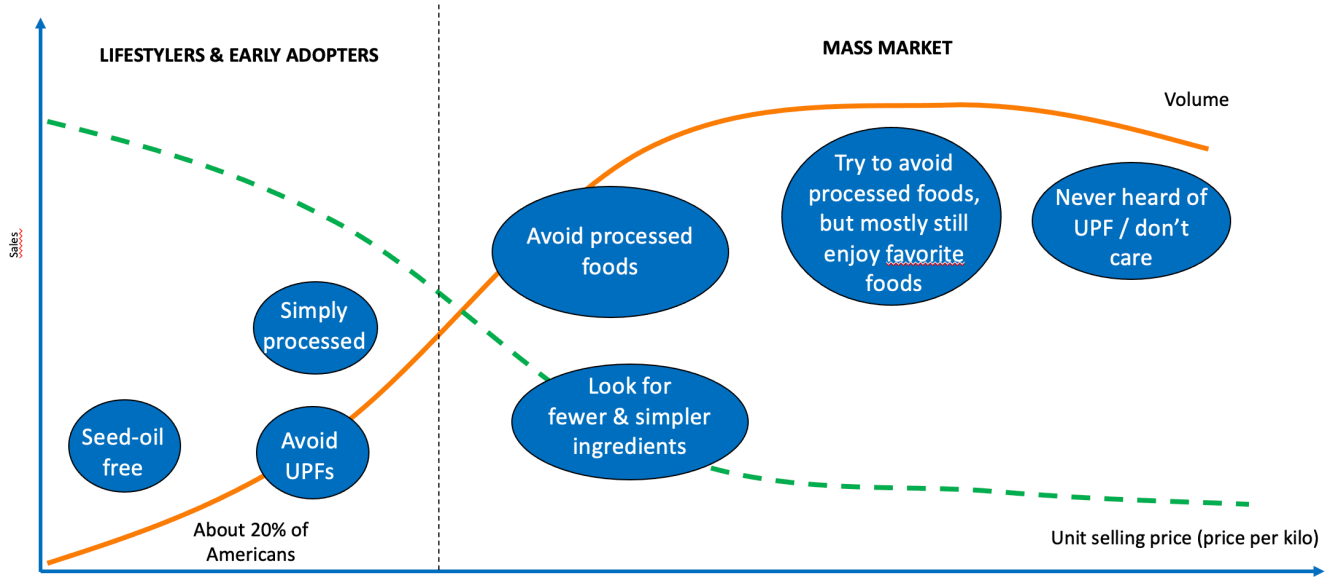
The opportunity is for packaged food companies – gradually, step-by-step, over the next 3-5 years – to renovate products to align with the developing consumer preferences. And that will require technology. The trick is for technology to deliver the safety, convenience and palatability people seek while doing so with as few ingredients as possible and as little processing as possible – or at least with a type of processing that people accept. Ingredient suppliers have an important role to play in enabling this change, just as they have through the last 20 years of changing consumer preferences about clean label and free-from.

You do not need to renovate your entire product line. A significant percentage of mainstream consumers (see Chart 58) will want to continue enjoying their favourite foods just as they are. The realistic end result will be that companies will have some products within their portfolio that meet consumer expectation or less processed and real food – just as they today have some lines that are 'free-from' gluten, or whatever, alongside others that aren't free-from. Nor does your NPD effort need to take a system such as NOVA as the benchmark. The consumer has their own ideas about what ultra-processed is and many (even most) will happily buy a fruit yoghurt or a bar (as Kind has shown) if the product's claim of simple ingredients and processing is credible.

There are many companies for whom 'simply processed' and 'real' are already part of strategy and there are many examples of success on the following pages. Some are entrepreneurial brands, but some are global giants, such as General Mills, whose Oui brand shows that even the biggest, high-volume producer can work within these expectations In short, give your NPD team the resources and anyone can do it.

CHART 58: HOW THE FEWER UPFS AND MORE REAL FOOD TREND WILL EVOLVE IN CONSUMER BEHAVIOUR OVER THE NEXT 5+ YEARS

The term "UPF" may never make it into widespread consumer use. But 'eating real food' or 'avoiding processed foods', looking for 'fewer & simpler ingredients' are already consumer language and the behavior will likely keep growing.



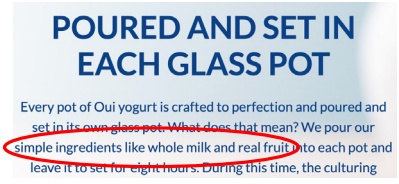
STRATEGY: THE JOURNEY TO REAL FOOD (I)

COMPANIES & BRANDS (I)

INDUSTRY IS QUIETLY MOVING TO 'SIMPLE PROCESSING' AND 'SIMPLE INGREDIENTS'







Yoplait's French-inspired **Oui** yoghurt brings together provenance, authenticity, simple ingredients and artisanal-style packaging and production. It was the first product of its kind from General Mills, or from any major company in the US market. The production process is explained in detail so that the consumer understands that the yoghurt is made with "six simple ingredients", including the live bacteria, whole milk and 'real fruit', which are poured into a glass pot and allowed to set over 8 hours. Oui achieved over $100 million in Year 1 retail sales with 3SKUs, prior to the pandemic. It has since been expanded to 26 SKUs.



The trend towards more consumers wanting 'real food' and wanting to avoid ultra-processed foods is not mass-market, but it's gaining ground in Spain, where **Danone** is attempting, in what may be a test of a marketing tactic, to connect to the trend. An amazing 40% of Spanish people claim to be avoiding ultra-processed foods – the highest number in Europe. The desire for foods to be least-processed is partly cultural, but it may in part owe something to Carlos Rios, a Spanish blogger, nutrition guru and director of **Realfooding**, a movement which encourages its followers to avoid the processed packaged products. Rios has 1.5 million followers on Instagram. Danone has become the first major food company to engage with the Realfooding project. One of Danone's natural drinking yoghurts, with just 4 ingredients, now carries the Realfooding endorsement.



DELIVERING THE RATIO OF MACROS YOU'RE LOOKING FOR, FROM REAL FOODS.

Ratio is a range of keto-friendly yoghurts and snack bars launched by **General Mills**. Targeting a younger audience, Ratio is positioned on taste, on getting the benefits of keto conveniently and uses real foods as part of its positioning.

This range of ice cream and frozen Greek yoghurt from **Nestlé** Canada might be more of a marketing play on the 'real' message than something that matches up with consumers' views on simple processing or 'few and simple' ingredients. However, it does add to the tide of messages in the store familiarising consumers with the 'real' concept. What they think if they see the 14-strong ingredient list is another question.



"No artificial colours, prepared from natural sources
No artificial flavours
Made with simple ingredients such as fresh cream, eggs and sugar

Our belief in nothing artificial

We have a simple approach to creating our delicious ice cream and frozen Greek Yogourt: to use only quality ingredients.

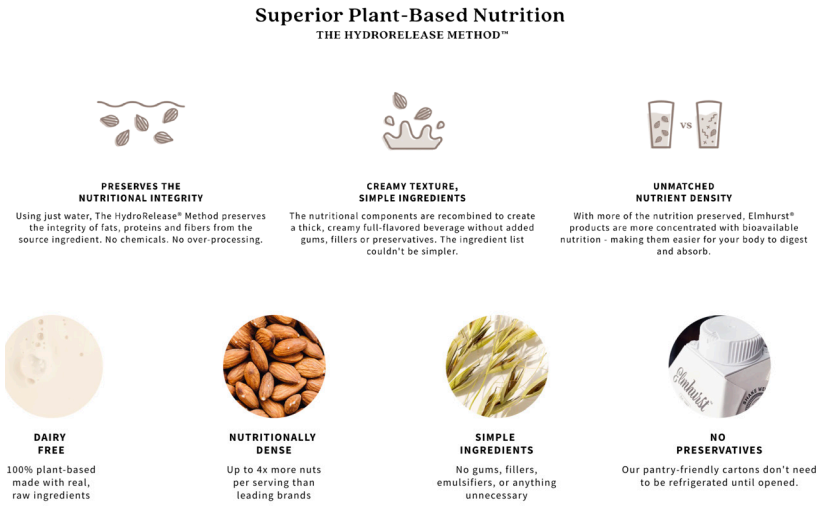
STRATEGY: THE JOURNEY TO REAL FOOD (II)

COMPANIES & BRANDS (II)

INNOVATION: BETTER UPFS, MORE NUTRIENTS

Technology has an important role to perform in enabling packaged products to deliver on opnsumer expectations. US-based plant milk marketer **Elmhurst** is pioneering a Gen 2 strategy in plant milks. It has developed the Hydrorelease method to create a two-ingredient, nutritionally-dense plant milk, in marked contrast to competing plant milks on the market. This enables it to deliver on consumer expectations of simple processing, few ingredients (its oat milk has just 5) and nutrient density.

"Our oat milk captures a full serving of whole grain from this treasure of the prairie."



- **20g whole grain per serving (Whole Grains Council stamped)**
- **Made with 5 ingredients**
- **No added gums or emulsifiers**
- **Vegan, dairy-free**
- **Carrageenan-free, gluten-free**
- **No artificial flavors"**
- **Crafted with our patented HydroRelease™ method**



Antithesis Foods is a US-based company making processed foods healthier using the best food science. "We develop nutritionally dense alternatives to classic crunchy snacks and ingredients, all based on legumes, that are low in calories and net carbs, and high in fiber and protein". The company makes mix-ins & inclusions, gluten-free pita chips, and has a consumer brand, Protos. "Antithesis' proprietary invention allows us to structure fibers and proteins into an aerated, crunchy matrix that mimics ingredients that create crunch such as wheat, potatoes, rice, and corn. From this, we are able to make nutritionally functional products that meet the same texture expectations as traditional junk food snacks."





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STRATEGY: THE JOURNEY TO REAL FOOD (III)

COMPANIES AND BRANDS (III)

FROM THEN TO NOW – OLD-FASHIONED GOODNESS REINVENTED

"Real food" is a long-established but growing niche. Marketers are making credible connections to important growth trends such as protein, collagen and skin, plant-based, mood, nutrient density and more. US-based **Hu Kitchen**, created by three entrepreneurs and now owned by Mondelez, became the world's most-successful vegan chocolate brand by focusing on outstanding tastes and textures using just 5 or 6 simple ingredients. Positioning was about less-processed with simple 'human' ingredients.





Sustainability, provenance and few and simple ingredients add up to a clear real food positioning that has helped entrepreneurial brand **All Real Nutrition** expand from its native Ireland into the US via Sprouts Farmers Markets.





Kate's Real Food, an entrepreneurial US brand, is one of a growing number allying itself with consumers' growing interest in real foods.

"With just 8 wholesome ingredients–you can't go wrong."





STRATEGY: THE JOURNEY TO REAL FOOD (IV)

COMPANIES AND BRANDS (IV)

REAL FOOD FOR SPORTS

People doing sports and focused on performance are highly aware of the comfort – or not – of their digestive system, and many are rejecting old-school sports foods and drinks that use artificial sweeteners.

REASONS TO BUY

Cycling Weekly

+ 100% natural
+ Resemble 'real' food
+ Great taste
+ High carb content

Cycling Weekly: "Of all the energy bars available these might be the ones that most closely resemble a homemade effort."



Veloforte is a small, family owned bakery business in the UK which has carved out a space for itself by giving weekend sports and fitness fans energy snacks that meet their desire for real food, in place of the typical un-natural looking sports brands with long ingredient lists. Veloforte has simply adapted the traditional Italian snack panforte, which the family has been baking for generations, which uses simple ingredients such as fruit and nuts.



"Rich in dual-source carbohydrates to keep energy balanced & sustained"

Sweetened with cane sugar and honey

52.3g sugar per 100g

"No washing, cutting or peeling required. Plus, we don't add any preservatives, colors or added sugars through purees, concentrates and juices".

We are dedicated to simple and easy ingredients made from real plant foods, and in some cases, organic dark chocolate.

Our products have 7 or fewer ingredients because we like to keep things simple.

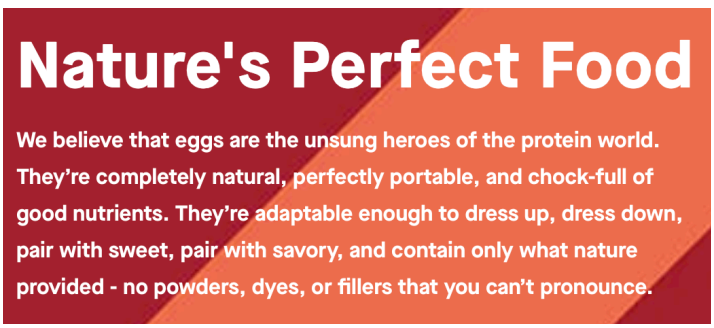


Two ingredients. That's it.

The **That's It** brand provides fruit snacks which are very distinct from most of the fruit snacks on the US market, both in the length of their ingredient list, the quality of the ingredients. They match the growing consumer interest in real food, simple products.

One of the ways that eggs are staging a come-back, aside from the protein content, is by communicating that they are all-natural, naturally nutrient-dense, real food and free-from the food addtives that people fear. The **Peckish** brand in the UK is one that also makes eggs a more convenient, on-the-go snack.

"Eggs are nature's perfect food. Not only are they one of the cleanest forms of protein and chock full of healthy fats, but they are also a versatile staple for almost any diet - including Paleo, Keto, Vegetarian, Dairy and Gluten Free."
Peckish egg snacks: "Whole food protein."





STRATEGY: THE JOURNEY TO REAL FOOD (V)

COMPANIES & BRANDS (V)





"With an insatiable appetite to bring back delicious, traditional, and healthy ingredients to the table, True Made Foods is revolutionizing condiments for good."



GETTING BACK TO THE ROOTS OF GOOD FOOD

Butternut squash. Carrots. Apples. They've been used to sweeten food for generations. We're going back to the power of real food, removing sugar, and moving condiments forward.

US company **True Made Foods** uses vegetables and fruits to provide the sweetness in its range of sauces, enabling it make a "no sugar added" claim. The company positions itself as 'going back to the power of real food' because of its simple ingredients and processing. Launched in 2017 it retails in WalMart and Kroger.

"The ketchup that will save America. Our No Sugar Ketchup is naturally sweetened with apple, butternut squash and carrots, yet even the pickiest eaters love it for dipping, dunking, and squeezing. Each bottle contains more than ½ a pound of American-grown fruits and veggies, plus the iconic ketchup taste you expect at every cookout."

EMPHASISING REAL BY CONNECTING TO SEASONS

California-based Alexandre Family Farms underscores the natural and real identity of its products by communicating the seasonal variations which naturally occur in the fat content of milk from its grass-fed cattle. Australian snack company Fine Fettle also references seasonality for its range of veggie-forward crackers.

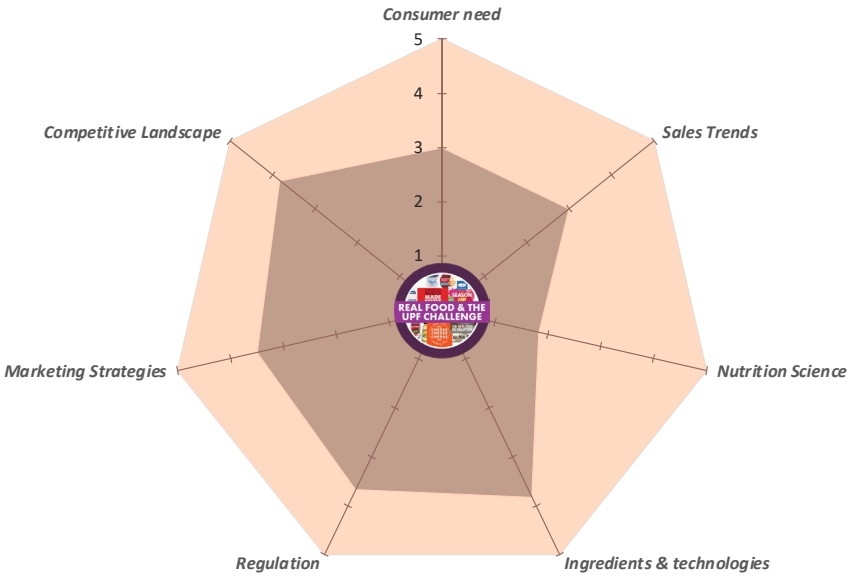
"Real veg squished and dried into snacks"



"The fat content of our 100% Grass-fed products changes naturally with the seasons. We choose to leave the milkfat levels exactly as they are on the day of milking – giving you the seasonal benefit of full fat."



CHART 59: TREND DIAMOND – KEY TREND 9, REAL FOOD & THE UPF CHALLENGE



REAL FOOD CONNECTS TO 7 OTHER KEY TRENDS



CHART 60: PRODUCT LIFE-CYCLE – KEY TREND 9, REAL FOOD & THE UPF CHALLENGE



KEY TREND 10



PROVENANCE & AUTHENTICITY

People want 'somewhere' more than they want 'anywhere'.

Drivers:

- Fragmentation
- Naturally functional
- Sustainability
- Back story
- Consumer curiosity

Brands and ingredients that succeed will be those that connect to somewhere meaningful.

FROM ECUADORIAN FARMS TO YOUR TABLE





What it means to consumers:

- *Local to me*
- *From somewhere specific*
- *Safe and trustworthy*
- *"Real" less-processed food, healthier*
- *Old-fashioned goodness*

4 STRATEGIES IN PROVENANCE & AUTHENTICITY

1 PROVENANCE FROM HERE - LOCAL AND AUTHENTIC

People want the opposite of global.





2 PROVENANCE FROM "THERE"

Consumers are open to products from far away if they are natural, authentic and have clear provenance



3 PROVENANCE MADE "IN THE STYLE OF"

People are food explorers, and they will welcome a food that speaks credibly of "elsewhere" – even if it's not made there.



4 PROVENANCE GUARANTEES THE BENEFIT

An emergent strategy: selecting an ingredient that can only be sourced from a certain place – and delivers a benefit.



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The idea of foods and food ingredients having "provenance" – a back-story anchored in place, culture, heritage, trust, perhaps made in a traditional way – has been around since at least the 1990s, when it was associated with smaller brands. But, since about 2010, it has been growing in importance, driven by the steadily-increasing number of people who want foods from 'somewhere', not just 'anywhere'.

Provenance & authenticity is a proven way to grab consumers' attention, create confidence in your brand or ingredient and achieve sales growth. It doesn't inform all of consumers' food choices, but it does inform many – and it has appeal across most age-groups. It can work with every category and connect credibly with most of the major growth trends, from Animal Protein to Plant Protein, from Mood & Mind to Plants Made Convenient.

In fact, 26% of people look for the country of origin on food and drink labels, according to ingredient giant ADM. Marketers are also driving this movement, increasingly making specific and positive links between particular foods, cultures and good nutrition.

Provenance has long been an important message in many Asian markets, where people connect specific ingredients with clear provenance with quality, food safety, health and wellness. It has evolved from meaning simply a geographic location as a selling point – such as the "Milk from New Zealand" message that is widely used in Asia – to something more complex.

Provenance is becoming ever-more closely connected to other growth trends and has consistently shows itself to be a valuable element in the positioning of successful brands, whether that's Greek yoghurt, Icelandic skyr, Yoplait's French-style yogurt or Pao de queso, (a Brazilian grain and gluten-free snack with a digestive wellness benefit).

Provenance is increasingly embraced by mainstream consumers and as a result even the biggest companies are learning how to successfully create brands with authenticity and provenance.

The trend is extending its influence beyond brands; it is both a strategic challenge and opportunity for ingredient suppliers, because of the value that lies in ingredients having a positive back story about health and about traditional usage, as shown by growing demand for turmeric, matcha tea and others. In a world where ingredients can be 'from anywhere', people find it reassuring that they come 'from somewhere' – and they're voting with their pocketbooks in favour of provenance.



The 120-year-old **St Michel** brand markets itself internationally with the tagline "The Authentic French Taste". Its products are made in France with authentic French recipes using French ingredients. They are found in supermarkets from South Korea to the US to Dubai and 15 other countries. It earns €500m a year in sales.

The trend benefits from multiple related drivers:

Fragmentation (MT1) is also driving demand for products with provenance, as people look for brands that are 'different' or align in some way with consumers' fragmenting beliefs about health.

Naturally functional (MT2): "Natural" and "naturally healthy" is now firmly established as a basic requirement for success in many categories. Around the world a growing percentage of consumers want products that are 'natural'. The consumer's concept of naturalness and health is expanding beyond ingredients to embrace provenance and how something is made.

Sustainability (MT5): Products that have provenance are perceived to be more aligned with sustainability by many consumers. Makers of plant-based meat substitutes such as Beyond Meat have already made the serious mistake of imagining that concerns about sustainability will drive people to buy plant-based meat substitutes made in an anonymous, far-away factory. By contrast, meat substitute makers in Sweden are doing better by emphasising the local provenance of their ingredients. Many consumers will favour that which is produced nearby (or at least in their own country), and will even favour meat that's grass-fed/organic/regenerative/local from a 'real' farmer who is 'somewhere' over an anonymous corporate meat substitute with ingredients from 'anywhere'.

Back story: Authenticity is a factor in a lot of consumer decision-making. Probiotic products such as dairy or kombucha benefit from an 'authentic' back-story of traditional use of good bacteria, making the proposition credible.

Consumer curiosity: We are all food explorers now – in wealthy markets at least – with about 25% of us, mostly in the biggest cities, locked into an endless, restless search for new and exciting products with an interesting story to tell. What consumers are looking for depends on the category, is fragmented and cannot easily be categorized – but a provenance message is clearly grabbing the attention of food explorers.

What does it mean for strategy?

There are four strategies in Provenance & Authenticity:

1. **Provenance from here, local and authentic**
2. **Provenance from there**
3. **Provenance, made "in the style of"**
4. **Provenance guarantees the benefit**

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STRATEGY 1: PROVENANCE FROM HERE, LOCAL & AUTHENTIC (I)

CONSUMERS & MARKET DEVELOPMENT

There is no one definition of 'local'. For some consumers it can mean 'from my region', for others 'from my country'. Whichever definition a consumer has in their mind, it signifies to most people that the food or ingredient is more environmentally sustainable (by producing fewer greenhouse gas emissions in its transport), and/or that is a way of supporting 'our' farmers and producers. Even the biggest food companies are working on making the 'from here' message part of the identity of their brands. Meanwhile supermarket chains are making it easier for shoppers to identify products locally or nationally sourced.

COMPANIES AND BRANDS (I)



"From Sweden"
"The taste of Sweden is always the best taste."

"Vegetarian products for those who want to eat more plants without compromising on taste, quality or Swedish provenance."

HK Scan, Sweden's biggest meat producer, has entered the plant-based protein space with meatballs, mince and sausages. Scan says the launch was partly motivated by a perceived gap in the plant-based meat market for options made in Sweden from Swedish ingredients. 'Made in Sweden' appears on the front of the pack. According to the company, most other meat alternatives on the Swedish market are made from imported ingredients.



US A2 milk brands **Origin** and **Ten Finns** communicate their 'always local' credentials. The companies market a full range of A2 products: liquid milk, but cream, cheese, butter and ghee.



Portugeuse airline **TAP** offers an option of a charcuterie pack of cured meats on its in-flight meal service, leaving passengers in no doubt that they're heading to the sun, sea and Mediterranean food of Southern Europe.

Finland-based **Raisio** is one of the largest and most innovative food companies in the Nordic region. Its ingredient business specialises in gluten-free oats and plant proteins, extracted from fava beans. It makes the Finnish provenance of its fava bean protein – for use by food processors in savoury dishes – one of its selling points. Many consumers will choose a product made with fava bean with a transparent origin over a product made with soy that could have come from anywhere.

"Fava bean sourcing is 100% Finnish"

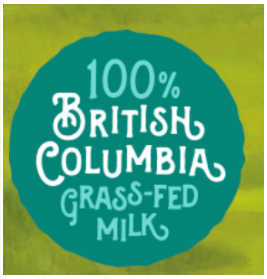


STRATEGY 1: PROVENANCE FROM HERE, LOCAL & AUTHENTIC (II)

COMPANIES AND BRANDS (II)

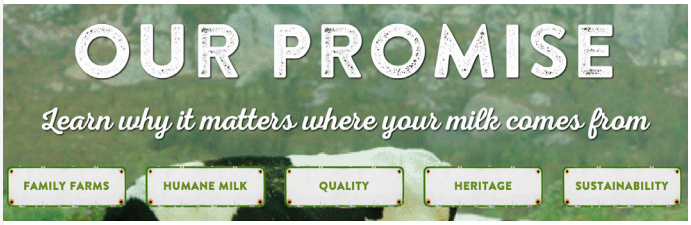
Yogurt maker **Tree Island**, based in British Columbia on the Pacific coast of Canada, makes its local credentials the pillar of its identity. All its products are made with Canadian ingredients, produced as close as possible to their factory, such as 'Pacific strawberries'. The company's other pillars are its 'real food' credentials, simple and natural ingredients and grass-fed dairy.





"Sixty years ago, Islanders consumed 85% of their diet from local producers. In 2004, it was reported that Islanders only received 10% of their food from on-island sources. But things are changing...We are rebuilding our local economy with agriculture at its heart."







Third-generation family-owned **Clover Sonoma Dairy**, in Petaluma, California is focused on innovation, marketing Moon Milks (milks with added botanicals for hormone health), kefir and kids nutrition products. In parallel the company emphasises its local credentials, adding to its consumer credibility.

Kungsörnen, a brand from Swedish food giant **Lantmännen Cerealia**, offers a range of pasta that is made in Sweden from Swedish durum wheat. The product is a result of 16 years of R&D work to create a variety of durum wheat that can survive and thrive in the Swedish climate. The pasta is manufactured in Kungsörnen's factory in Järna outside Stockholm and said to be "made from wheat that has been allowed to grow and ripen slowly during mild summer days and long, light summer nights".





"From Sweden."



"Made with care in our own pasta factory in Järna."

STRATEGY 2: PROVENANCE FROM THERE

CONSUMERS & MARKET DEVELOPMENT

Consumers don't want only what's local. They know that not everything they want is available nearby and they are open to products from 'far away' – provided that they are natural, 'authentic' and have some clear and credible provenance. People will buy both products that are 'local' and those from 'far away' – they are not mutually-exclusive preferences. It is emerging as one of the most effective strategies. This trend matters not only for brands, but for ingredients suppliers. Selection of a particular ingredient from a certain locality creates value and confidence in the consumer's mind and this is true for most categories, whether that is a brand in Thailand using 'US protein' or a company offering authentic Italian tomatoes.

COMPANIES AND BRANDS

The Azores are part of the republic of Portugal. They are an archipelago composed of nine volcanic islands in the North Atlantic Ocean, about 1,400 km west of Lisbon. The climate and landcsape mean they are a vacation destination for people from all over Europe. The main dairy company – **Nova Açores** – has built a strong provenance brand on this foundation. The company's milk is sourced from grass fed cows, "who choose their pasture, their time to rest and their pace to ensure a milk of excellence with better lipid, protein and vitamin profiles than conventional milk." The company is a cooperative. Marketing communicates that "we work every day to bring to your table our traditional and genuine flavors from the islands of São Miguel, São Jorge and Faial." The brand reinforces its provenance with a strong commitment to animal welfare and good environmental practices.



"We know that the respect we have for animal welfare and for the nature that surrounds us, allows us to create products that have unique and unparalleled flavors that, when tasted, transport us to their origin, where we walk the paths of the islands dotted with hydrangeas and we come across cows grazing freely in the green pastures that surround us."



Fonterra, the New Zealand dairy group, uses its New Zealand provenance in the US market as a strong pillar of its Anchor butter brand. The other pillars are grass-fed, carbon zero and organic. Packaging features imagery of New Zealand pastures and a QR code that takes consumers to Provenance.org, a third-party which provides supply chain transparency, to show how Anchor's certifications make for a better environment. Grass-fed is a strongly credible proposition for New Zealand products.

STRATEGY 3: PROVENANCE, MADE "IN THE STYLE OF" (I)

CONSUMERS & MARKET DEVELOPMENT

Made here, but in a style from far away, may account for the single-biggest percentage of sales of products with a provenance strategy. The idea of a product that is authentically associated with a certain geography and a certain type of production has big appeal, provided it tastes good and has an interesting and credible health benefit. This strategy is behind the success of Greek yoghurt, skyr (the Icelandic yoghurt), kefir, kimchi, kombucha, sourdough and many other products. It's a strategy which works well in an era when many people are now food explorers, forever seeing new and exciting foods on Instagram and other social media.

COMPANIES AND BRANDS

US brand **Freshé** got its inspiration from "tinned meals" from Europe. In Spain and Portugal canned fish are often marketed with a variety of flavours and local ingredients in strikingly designed cans. Each can is intended as a meal in itself and in Portugal they are often given as gifts. **Freshé Meals** are "small, convenient, protein-based meals that go anywhere, nourish your body and are mindful of the environment". Handsomely packed in BPA-free tins, made from certified sustainable protein, and including all-natural ingredients, the brand is making fish look special.

"From the vivid coastlines of Portugal and Spain...Ready-to-eat globally inspired small meals with simple ingredients, vibrant superfoods and sustainably sourced protein, infused with savory herbs and spices. Crafted in time-honored style."





Provence Nicoise



Sicilian Caponata



Thai Sriracha

"With Freshé Meals, you can travel the world from meal to meal. Open. Enjoy. Energize."



US-based **Afia Foods** has taken traditional "real" foods with Middle Eastern provenance and few-and-simple ingredients and reinvented them as a convenient healthy option for modern Americans. Mediterranean foods have become synonymous with healthful eating, thanks to nutritionists' constant promotion of the "Mediterranean diet". Afia Foods, a challenger brand founded by Farrah Moussallati Sibai, markets its falafel and kibbeh balls in US supermarkets H-E-B, Publix, Walmart and Sprouts. Sibai is a Syrian who grew up in the UK and who adapted authentic family recipes. Products are sold frozen with the falafels, emphasising their plant-based credentials.

Kuna Pops are a flavoured snack based on rice flour and quinoa flour, with chia seeds. Retailing in the US in outlets such as Sprouts, the brand has a strong provenance message, connected to its owners' origins in Ecuador, where the ingredients are sourced. Grupo Bimbo, the Mexican-based group which is America's biggest bakery company, is an investor.





FROM ECUADORIAN FARMS TO YOUR TABLE

STRATEGY 3: PROVENANCE, MADE "IN THE STYLE OF" (II)

Bachan's, an "authentic" Japanese barbecue sauce brand, launched in 2019 in California. Inspired by founder Justin Gill's multi-generational family recipe, Bachan's four Japanese sauce flavours are available at more than 11,000 retailers nationwide, including Costco, Whole Foods Market, Sprouts Farmers Market, Target, Kroger and H.E.B. The company also sells online and holds five of the top 10 best-selling BBQ sauce rankings on Amazon.com. Named after Justin's grandmother, known to the family as Bachan, the company has established a cult-like following of consumers, and has secured $13 million of new investment.

AUTHENTIC JAPANESE INGREDIENTS

Bachan's is made with real Mirin, premium Japan - brewed Non-GMO Soy Sauce, organic ginger, organic garlic and green onion. Our ingredients are simple and whole - without any preservatives or flavorings. When we say "Our Ingredients Matter" we really mean it!



OUR FAMILY RECIPE

Our recipe has been with our family for generations and we couldn't be more stoked to be sharing it with you all!



"Graham's Skyr is made with pure Scottish milk from our 100 farming partners, live cultures and carefully sourced fruit."

UK-based **Graham's Family Dairy** has become a leader in the skyr category. It produces its Icelandic-style skyr in Scotland and emphasises the Scottish origin of its ingredients, thus combining the best of "local" and "made in the style of".



A UK-based family business founded by a Ukrainian family, **Arrogant Chicken** markets flavoured chicken-based snacks. "Inspired by our Ukrainian roots....Lightly crafted charcuterie snacks that allow us to share with you not only the traditions of Ukraine, but also the beautiful flavours and incredible recipes from around the world".

Meltemi Greek-style yogurt: Two sisters, born in America of Greek heritage, first tasted Greek yogurt during childhood holidays with their grandparents in Greece. Disappointment with the quality and inauthencity of Greek-style yogurt sold in the US (most Europeans who have tasted US made Greek yogurt would agree) was the spur for them to provide a product more authentically in the style of 'the real thing' in Greece. "Fast forward to today, there is more Greek yogurt in America than there is in Greece, but something seems lost in translation. So much of what is labeled 'Greek' is not the wholesome and healthy food that we grew up with. Many brands add tons of sugar or use artificial additives to make their yogurt thick. There are flavors that make no sense."

"We made Meltémi because we believe authentic Greek yogurt tastes better and is better for you...We want you to fall in love with Greek yogurt like we did."

At Meltémi, we don't just like Greek yogurt, we love it.

And this love affair began, where else, but in Greece!



STRATEGY 4: PROVENANCE GUARANTEES THE BENEFIT

This is an emergent strategy that may be a way for ingredient businesses to create value by offering a health benefit with provenance as differentiation, reducing the risk of its ingredient being copied and turned into a commodity. It is about selecting a particular ingredient that can only be sourced from a certain place – and has science to show it works.

It can work well when the ingredient:

- Delivers a 'feel the benefit effect'
- Has a scientific basis for the claimed benefit
- Has a specific provenance
- Is a natural source and easy-to-understand ingredient
- Can be a source of differentiation for a brand using it

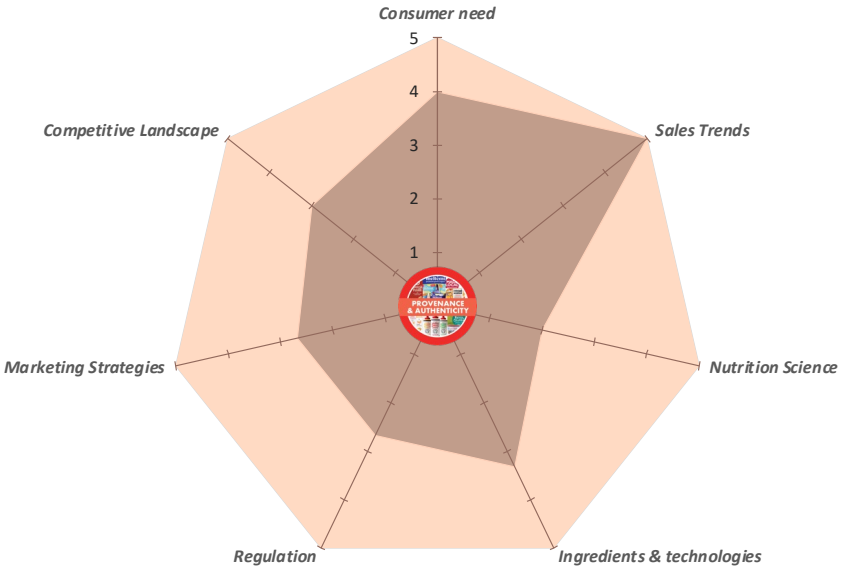




New Zealand provenance strongly underpins **Ārepa,** a mood, mind and performance product founded in 2017 and now in mainstream supermarket distribution. Its flagship ingredient, blackcurrants, are said to be more potent for being grown in New Zealand, where high UV levels give the berries 30% more antioxidants than blackcurrants from elsewhere. Pine bark extract comes from New Zealand pine trees, while green tea extract comes from Japan.

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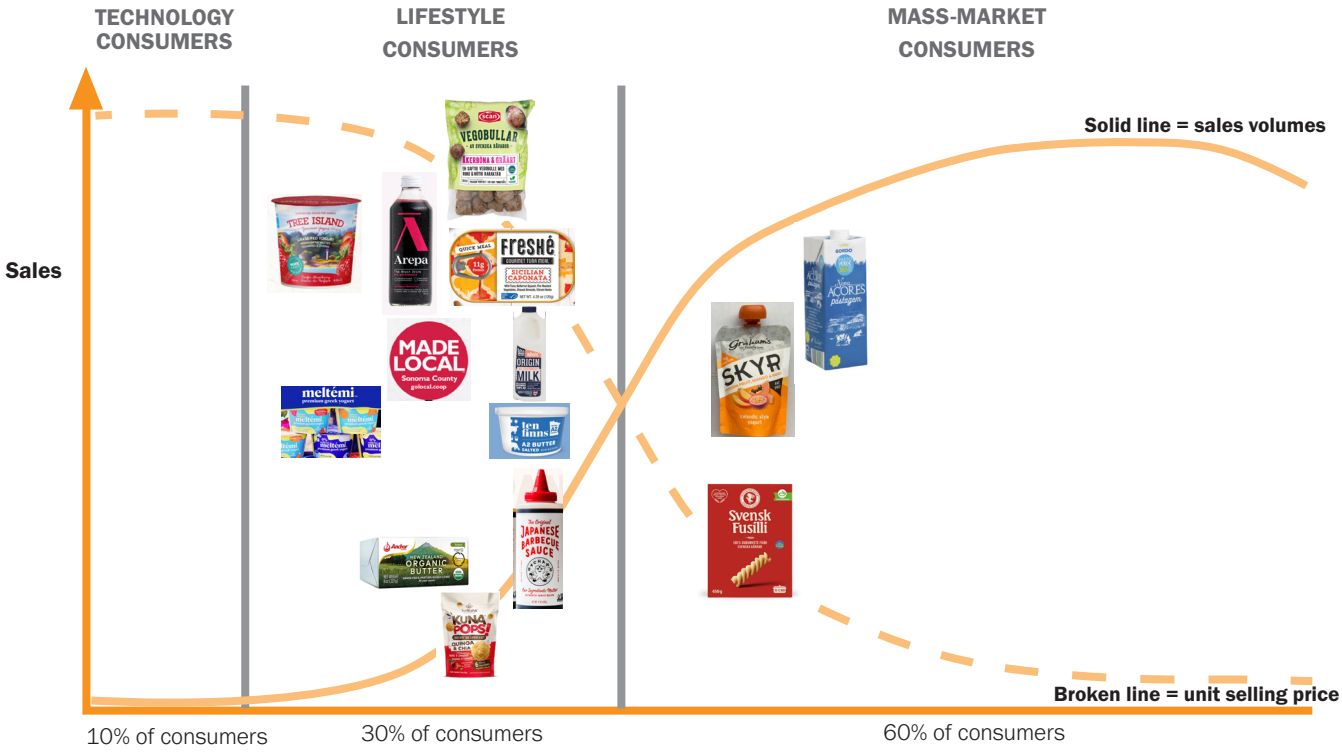
CHART 61: TREND DIAMOND – KEY TREND 10, PROVENANCE & AUTHENTICITY



PROVENANCE & AUTHENTICITY CONNECTS TO 9 OTHER KEY TRENDS



CHART 62: PRODUCT LIFE-CYCLE – KEY TREND 10, PROVENANCE & AUTHENTICITY



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