GROW YOUR PLANT-BASED WORLD

CREATING THE NEXT GENERATION
OF PLANT-BASED BEVERAGES

Tetra Pak. Your end-to-end solutions partner.

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INTRODUCTION

Opening up new opportunities in plant-based beverages

The global plant-based beverages market is set to be worth $19.7 billion by 2023[1], effectively doubling in value in just six years. This report explores how food and beverage manufacturers can take advantage of the plant-based opportunity, identifying what the key drivers are and where the growth will come from. It delivers practical insights into how to create a differentiated and on-trend product that resonates with today's health conscious and environmentally-aware consumers – across all demographics.

TETRA PAK'S EXPERTISE IN THE PLANT-BASED CATEGORY

Tetra Pak is the only end-to-end integrated solutions provider for the production of plant-based beverages. We support your business all the way from the spark of an idea to commercial production and beyond. We do this by combining marketing insights with prototyping, and utilising our complete portfolio of technology for processing and packaging.

Tetra Pak is the only partner that helps beverage manufacturers discover and develop the perfect plant-based product, which Tetra Pak will fast-track to market.

A GROWING OPPORTUNITY

Plant-based food and drink products can no longer be considered a niche market, they are a growing mainstream opportunity. In Europe and Central Asia, the consumption of plant-based beverages from rice, nuts, grains and seeds is expected to increase by CAGR of 20% between 2018-21[2], while the plant-based beverage market in Asia-Pacific, including rice, nut, grain, soya and seed milk, stood at 14.9 billion litres in 2019, expanding at a CAGR of 6.9% from 2014 to 2019[3]. However, while all markets are experiencing strong consumer demand for new and exciting plant-based alternatives, there are different consumption habits arising from ingredient preferences and market maturity that need to be taken into account when developing concepts.

The soy+ trend

In the Asia Pacific region, the consumption of plant-based beverages as part of the daily diet is the norm. Soy is widely available, inexpensive and is firmly established as the dominant base ingredient. The challenge for manufacturers in this mature market is how to add value to a category that is already heavily commoditised. The strong trend here is soy+. This retains soy as the main base but uses the addition of innovative ingredients that add functional benefits and health claims to differentiate products, extend ranges and attract consumers in new ways. Western brands are also growing in appeal, perceived as trendy with a novelty factor, these imports are trusted by consumers and introduce them to new soy-alternatives such as oat and almond.

APAC is the biggest plant-based market in the world with 93% of the soymilk market and 63% of the rice, nuts, grains and seeds-based market.[4]

The novelty factor

In North America and Europe, plant-based beverages are a more recent trend and there is no single dominant ingredient. Almond has the greatest market share in the USA and grew 14.5% in 2017-18[5], while in Europe oat is the bestselling ingredient accounting for 35% of the rice, nuts, grains and seeds market, followed by almond at 31% and rice at 16%[6]. This is a great opportunity for manufacturers, in that consumers have no strong preference or established pattern of consumption to be tempted away from, but also presents challenges in that consumers are less brand loyal and are constantly looking for novelty and the next on-trend superfood to try. The focus for concept development here is around adding value through diversification. This could be by introducing new base ingredients, by adding supplementary ones that support a health or texture claim and by extending into new category areas such as cream and drinking yoghurt.

Oat is the leading ingredient for plant-based beverages in Europe, accounting for 35% of the market.

The meat-free generation

Across all markets, there are several global trends that are driving growth. The health and wellness trend remains strong, as consumers want to eat well and are increasingly mindful of the food they consume. There is a positive perception that plant-based products are nutritionally-sound, alongside greater understanding of how food is produced and the emergence of today's more ethical consumer. The adoption of vegetarian and flexitarian diets as part of this trend is now broadening into veganism, with the number of vegans quadrupling in the last five years[7]. Transparency, sustainability and sourcing are important considerations, whether it is local production and GMO-free ingredients or packaging and transportation. The iGen and millennials are aware of how dietary choices impact the planet and are making informed lifestyle and purchasing decisions that reflect these environmental values - 15% of millennials are already meat-free, rising to 32% by 2021[8].

15% OF MILLENNIALS ARE ALREADY MEAT-FREE

A recipe for success

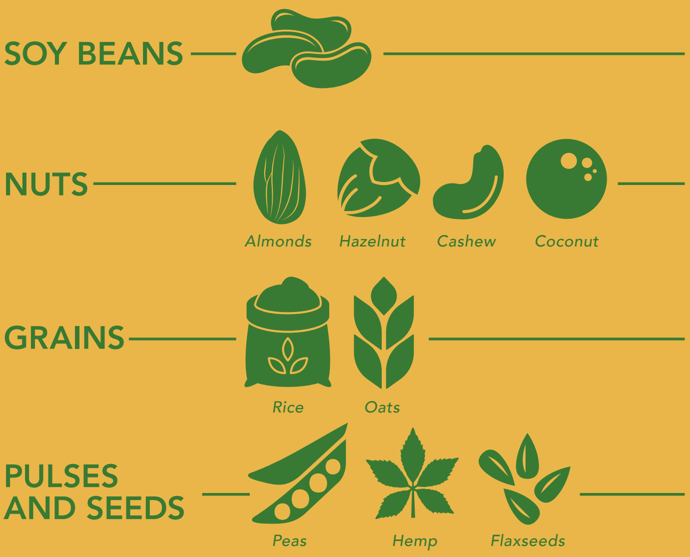
All of these factors combine to create a growing consumer demand for non-dairy alternatives. To successfully develop and deliver plant-based beverages, insights are needed in order to understand the characteristics of a particular market and identify where the opportunities lie. In this market, differentiation is essential. There is a need to diversify, to innovate with new ingredients, to explore new categories and to find new ways to stand out on the shelf. This report looks at each of these elements and how manufacturers can incorporate them into their product development.

NEXT GENERATION INGREDIENTS

When it comes to plant-based beverages, it's all about the ingredients – or lack of them. Whether it's a pure base or a blend, the ingredients should be kept at a minimum and recognisable – or intriguing – if they are to appeal to today's label-savvy consumer. This means that having the right ingredients is crucial.

Third generation ingredients

Identifying which ingredients have shelf-appeal and which ones are no longer quite on trend could mean the difference between a best-selling product and one that gets left on the shelf. Consumers are tempted by the new, and want to be part of the next big trend. They are moving towards a more diversified non-dairy experience, so formulating with emerging ingredients will differentiate your plant-based beverage and resonate with audiences.



We are now into the third generation of plant-based alternatives which is seeing pulses and seeds, such as pea, hemp, chia and quinoa, being increasingly used both as new base ingredients and to support 'with added' style label claims to existing products. These third-generation dairy alternatives are quickly gaining traction - in Europe and Central Asia, plant-based beverages from rice, nuts, grains and seeds experienced a CAGR of +31% between 2017-20[9], and in the USA, dairy alternatives such as rice, pea, hazelnut grew by over 30.5% in 12 months[10] with South America also showing strong consumer demand.

Plant-based beverages from rice, nuts, grains and seeds grew by over 31% in 2017-20 in Europe and Central Asia

A hybrid approach

A balance is needed between finding ways to add value to existing products using new ingredients and creating new product lines from alternative bases. As a new base, pea is consumer-friendly, ticks the protein trend, and is a high-quality alternative to soy. Similarly, oats are perceived to have good health properties (high in fibre, lowers cholesterol, and is good for digestive and gut health) and as a base is extending into new category types such as oat cream. The oat category has experienced an EQ growth of 91% during 2018[11].

At the same time, first generation ingredients such as soy and almond remain strong in their traditional markets and still account for a significant market share. Hybrid products that blend new added ingredients with established bases (such as soy in China) are an effective way to build on cultural preferences and to create added value in the plant-based category. Adding chia oil or quinoa successfully leverages a current superfood health trend to differentiate existing lines.

The formulation challenge

New ingredients behave differently and this has implications on formulation development and processing requirements. Extracting a new base from raw materials is more complex than adding an ingredient to an existing formulation.
It requires ingredient knowledge and processing expertise to ensure that concepts can move to formulation and scalable prototyping quickly and effectively prior to entering full production.

MAKING BETTER SENSE OF PLANT-BASED

Plant-based beverages need to offer consumers the same rich, satisfying textures that they expect from dairy products. Adding sensory appeal to plant-based products by formulating indulgent texture sensations is a great way to add value and to stand out in the non-dairy category.

Texture matters

Texture is an undeveloped territory for plant-based innovation and offers a distinct way to differentiate products. Though texture innovation is increasingly crowded in some food categories, few new plant-based drinks launches currently look to promote alternative textures or mouthfeel. Consumers are attracted to texture claims, and in fact they expect them - so highlighting sensory qualities should be a priority when creating concepts in this category. Creaminess and indulgence are the traditional dairy category's legacy to its non-dairy partner, and plant-based manufacturers that recognise this can take advantage of these texture-based positionings. Claims such as "thick and creamy", "full bodied", "indulgent" and "smooth" all resonate with consumers and can add further value as they offer a premiumisation opportunity as well.

In 2018, only 7% of plant-based drinks launched in Europe and Central Asia included a texture claim[12]

Taste and texture go hand-in-hand and are key attributes for product quality and creating a positive drinking experience and mouthfeel. 'It tastes good' was the top reason that 47% of consumers drink non-dairy milk in a study in the USA[13], more important than being a source of protein and nutrients. Crucially, a product must live up to its texture claims. Understanding how ingredients deliver these sensations, and how they perform in the processing environment requires formulation know-how and prototyping expertise.

Flavour sensations

Flavour can also be used to differentiate products, to expand product ranges, as well as introduce seasonal options and short product runs. While unflavoured still accounts for the majority of the plant-based drinks market, flavoured launches in the rice, nuts, grains and seeds category are growing strongly – in Europe they grew by 72% between 2016 – 18, compared to just 12% in the unflavoured/plain category[14]. Diversity in taste and flavour innovation are big drivers in this non-dairy segment and range from traditional ingredients such as turmeric and maracuja to popular flavours like vanilla and cocoa. Fruit blends are also well-liked, added to oat or seed bases to produce flavoursome, dairy-free smoothies that fit with a healthy and vegan lifestyle.

Launches of flavoured plant-based drinks were up 72% in 2016-18

ADDING VALUE WITH CLAIMS

'Source of protein', 'low fat' and 'high fibre' – these are the types of product claims that appeal to consumers. There is increasingly an expectation that all food and drink carry an added-value claim to attract attention and boost the likelihood of a product making into the buyer's basket – virtual or otherwise. In the plant-based beverages category, the right health or functional benefit claim can build on existing positive health associations.

The protein opportunity

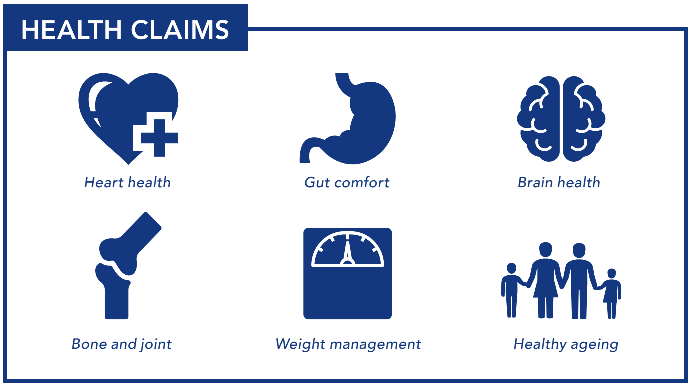
Protein is a key trend and is particularly relevant to plant-based beverages. Alternative sources of high-quality protein is one of the main concerns when moving away from dairy to follow a plant-based or meat-free lifestyle. Claims relating to protein quality can be used to reassure consumers that numerous emerging new 'green' protein sources are as healthy and nutritious as animal protein sources. Consumers are receptive towards plant-based protein and interestingly, they perceive non-dairy as high in protein. Over 45% of US consumers drink non-dairy milk because it is nutritious and over 35% because it is a good source of protein[15]. There are still a limited number of products with added protein in the ready-to-drink plant-based beverages category and this represents a significant opportunity or 'white space' for manufacturers.

57% of European consumers say plant protein is just as nutritious as animal protein[16]

Functional benefits

Consumers are looking for claims that support specific health and wellness areas. Developing concepts with functional benefits is an opportunity to create and conquer new space in the plant-based beverages category. New ingredients and superfoods resonate with consumers and can be used to enrich products and support functional claims in a wide variety of health-related issues. Chia and flax are both good sources of Omega 3 fats, while chia is also a source of dietary fibre and Vitamin B12. Sesame provides calcium to support bone and joint health, both of which can be a concern when switching away from dairy. Oat-based drinks offer many attractive health benefits - on top of being high in fibre and helping to lower cholesterol, they are also good for gut and digestive health which is emerging as one of the top food-related health trends. Plant-based drinks support many general health claims including bone and joint, weight and healthy ageing options through value added and fortified claims such as 'added calcium', 'vitamin fortified' and 'low fat'.

Chia oil is a good source of dietary fibre



Clean and natural

As part of the growing clean label movement, consumers want natural ingredients and fewer of them. Beverages made from plant-bases are well placed to leverage this trend with no artificial ingredient and "free from" claims. Consumers with food sensitivities can also benefit from non-dairy alternatives which are naturally lactose free.

50% of US consumers who exclusively buy plant-based milk look for no artificial ingredients[17]

Value-added oat and chia milk

Recognising the opportunity to extend into more added-value vegan plant-based beverages, oat milk with added chia was developed for at-home consumption. Its formulation leveraged on-trend superfoods to add functional benefits around Omega 3 and Vitamin B12 that were important considerations for a vegan diet.

DIVERSIFICATION MATTERS

The rise of flexitarian, vegetarian and vegan diets will encourage an increase in food and drink from plant-sourced protein and this will see a diversification of plant-based products into new categories and applications. As plant-based becomes more widespread and the category matures, a new mindset emerges that reflects a shift away from dairy alternatives that are required, to ones that are desired. This represents a significant opportunity for beverage producers in terms of their concept development and added-value through premiumisation.

Halo effect

As momentum builds in the demand for plant-based beverages, and the quality and diversity of products available increases, a halo effect will see the plant-based experience moving beyond beverages into broader applications such as yoghurt, drinkable yoghurt, creams, ice-cream and cheese. This will create opportunities for new players to enter the market via a specific category, but also those with an established presence in beverages to build on their brand presence, extend their ranges and diversify into new product categories. Plant-based yoghurt, ice cream, frozen yoghurt, cream and creamers all saw year on year increases in new product launches between 2016 and 2019[18] and offer a natural first step from beverages.

Plant-based innovation is shifting away from products that are simply required, to ones that are truly desired

Consumption patterns are changing too and this creates opportunity for manufacturers to directly target different usages. 53% of US consumers said they had bought non-dairy milk within the previous three months[19] and while all demographics are using non-dairy alternatives across different applications such as an ingredient in baking, in smoothies and added to coffee/tea, iGens are doing this more than other generations. Sales of plant-based milks are likely to continue to grow as iGens become adults, start purchasing their own groceries and cooking meals at home.

iGens are driving sales of plant-based beverages

Non-dairy is not necessarily always an either/or choice, nine out of ten consumers who drank plant-based beverages also used dairy too, so careful positioning of products as complementary to and existing alongside dairy should also be considered.

Creating new consumption occasions

Creating desirable plant-based concepts is about creating new consumption occasions for these products. On-the-go represents a significant growth opportunity, both in sport nutrition as a post-workout drink (already in demand from 26% of iGens[20]) and in the kids ready-to-drink (RTD) category as an alternative to both dairy and sugary drinks. The kids value-added market is already worth $1.8 billion[21] and growing – non-dairy milk companies must develop products that appeal to both parents and kids or risk losing out to more innovative players.

Targeting the $1.8 billion kids category

Innovative ingredients and innovative packaging were key factors in this drink brand successfully launching a non-dairy, value-added alternative for kids in the USA. Recognising the opportunity for a premium, on-the-go plant-based option, this flaxmilk with added protein and child-friendly flavours was a perfect hit and a perfect fit for kids' hands too.

Packaging is key here too. Pack size can differentiate a product with individual portions representing a great opportunity for manufacturers in the out of home consumption, breakfast drink or sports nutrition categories, while the more established larger carton sizes are suitable for in home consumption with the family. Ambient packaging can be used to create value for consumers through user-friendly features such as reclosable caps for on-the-go consumption, no chilling requirement and ease of transport.

In Asia-Pacific, new products containing plant protein account for 36% of beverage launches and 31% in food launches[23]

PROCESSING WITH PLANT POWER

Plant-based is a new and rapidly evolving category that is filled with almost endless possibilities for new formulations and combinations. But this also means it presents new challenges for manufacturers, particularly around processing. Manufacturers must consider the key elements of processing in order to develop a desirable product.

These key elements range from the choice of ingredients, the processing technology that is suited to selected ingredients getting an acceptable taste and texture for a product, minimising separation of a product and having manufacturing 'flexibility' to switch between different ingredients. These elements can drastically alter the way products are manufactured in conjunction with their shelf-life performance.

Extraction

As with every process, there is a compromise between various parameters and yield performance. Grinding an ingredient in to smaller pieces will increase yield but will be more difficult to separate, causing problems later in the process or even with the package. It is also a matter of taste versus yield, since both yield and taste are affected by temperature, but in different directions. For example, with soya, higher temperatures give a low beany taste but also lower yield, while lower temperatures give a higher yield but also a more beany taste.

Soya extraction process

Soya extraction is the process of converting soya beans into a liquid extract, which can then be mixed with an ingredient like sugar to prepare the soy beverage. This consists of three broad steps:

STEP ONE: Grinding

This step involves the size reduction of soya beans to effectively dissolve and disperse solids into water.

STEP TWO: Fibre Separation

This step involves removing the insoluble solids to improve mouthfeel and enhance stability.

STEP THREE: Deodorisation & enzyme deactivation

This step involves eliminating anti-nutritional factors that are naturally present in soya, in order to make the beverage nutritious and safe for consumption.

An extraction system is also responsible for imparting a rich, creamy mouthfeel and flavour to the beverage – something that empowers manufacturers to design a unique product signature that stands out on the shelf.

Shelf-life and stability

Beverages based on rice, nuts, grains and/or soybeans (RNGS) are increasingly popular and are gaining market share around the globe. Hundreds of different ingredients and thousands of different combinations of raw materials are being used by the world's manufacturers, who must also take into account seasonal changes, which present challenges such as less crop growth and different crop growing conditions.

The rise of RNGS in popularity also presents new challenges for labs, such as assessing the shelf-life stability of these products. Until today, there has not been a way to make that assessment, but a newly-developed test method has shown promising results. The method, which we call the RNGS Stability Test, aims to objectively predict shelf-life stability without a need for real-life storage tests. The problem to solve is whether it is possible to achieve a correlation between a fast and effective method – an "accelerated" test of various products and values – and the same products stored under various periods of time.

Homogenization importance

With the right homogenizing efficiency, both sedimentation and creaming can be maintained at controlled, foreseeable and acceptable levels. The product can be given the right quality with respect to the sensory characteristics – taste, mouthfeel and viscosity, etc. – and it might be possible to minimize the use of additives such as stabilizers and emulsifiers.

Larger particles in RNGS beverages also cause so-called chalkiness – a dry, grainy sensation in the mouth. But, by decreasing the number of particles that are larger than 150 micrometres, homogenization improves mouth feel. And by optimising homogenizing efficiency, 'over homogenization' can be avoided, resulting in reduced energy costs and enhanced quality of the end product.

THE POWER OF PACKAGING

Consumers of plant-based products may be well-informed about and aware of environmental issues. How a product is packaged is therefore particularly important in this category and will communicate a brand's commitment to sustainability. Packaging can both support on standing out on the shelf and enhance a product's plant-based credentials.

Plant-based packaging

Plant-based packaging reflects and supports the plant-based nature of a product and helps reinforce its sustainability credentials. This is important given the reason that many consumers are switching away from animal products is because of environmental concerns, 53% of consumers prefer a brand with good environmental packaging credentials[22]. Beverage cartons have a lower carbon footprint compared to other alternative packaging with renewable content paperboard from FSC™ certified and/or controlled sources. Renewable content in packaging can be increased by introducing new elements such as paper straws or plant-derived caps and tops. By replacing fossil-based plastics with an increased use of renewable polymers derived from sugarcane, which are today used for the production of caps, tops and straws, a product's environmental credentials are further enhanced. Similarly, food manufacturers can now select a packaging material coating that is plant-based and derived from sugar cane to support sustainability measures.

Forest Stewardship Council™ (FSC™) certified-paper board for carton packaging is from controlled sources

Stand out on the shelf

Packaging can also help distinguish a product, making it stand out in the market. Pictures and images add shelf appeal and can be used effectively to communicate desired brand values, reference product ingredients, support functional claims and appeal to consumer needs. The flexibility to create the visual design in the packaging of a plant-based product is a key visual differentiator, while adding further packaging effects such as a craft or matte finish add to the product's shelf appeal.

Improved functionality

Functional packaging that is fit for purpose will deliver a satisfactory consumption experience. For example, post-workout drinks consumed out of home are suited to ambient packaging that is reclosable and available in individual portions. As plant-based beverages diversify into new consumption occasions, packaging needs to be available to fulfil specific demands of each occasion – whether it's larger family sizes with easy pour functionality and closing, or smaller unit sizes for kids' lunchboxes or grab and go experiences.

STEP INTO NEW PLANT-BASED MARKETS

This report demonstrates how the plant-based category is experiencing strong and sustained growth in diverse markets across the world. There is an opportunity to create new, exciting and differentiated products that appeal to today's environmentally-aware, ethically-driven and health conscious consumers.

Forward-thinking organisations that understand how to formulate and fortify plant-based beverages using innovative and emerging ingredients will stay ahead of the competition. Giving your products the sensory appeal and texture attributes that consumers expect, while adding in functional claims to support individual needs, will differentiate your product and satisfy consumers.

To successfully step into these new plant-based opportunities your concept needs to stand out. Carton packaging offers shelf-appeal, functional innovative design and resonates with the values that consumers associate with plant-based beverages and products.

TETRA PAK: PLANT-BASED PACKAGING FOR PLANT-BASED PRODUCTS

Get in touch

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