In focus

What's on the horizon for meat alternatives?

leatherhead food research

a **science group** company

Meat alternatives are increasingly viewed as a healthy and sustainable source of protein for the growing world population. Innovation is rife in this category, and there are significant opportunities for new and established food businesses alike. However, the global regulatory landscape is complex, unharmonised and rapidly evolving. In this paper, we use horizon scanning techniques to offer a snapshot of what lies ahead.

The global protein deficit risk

As world population growth continues, the availability and provision of foods containing protein is under the spotlight. Global demand for meat-based proteins is projected to double by 2050[1]. This will put extreme pressure on global resources, and it may not be possible to satisfy demand, bringing the risk of a protein deficit.

Ensuring people have access to affordable, healthy and sustainable sources of this essential nutrient presents a significant challenge for governments, industry and suppliers.

One avenue that's receiving a lot of attention is alternative protein sources. The food research community has been exploring cultured meats (aka clean or lab-grown meat) and plant-based meat for some time. Recently, a new player has joined the game too: solar protein.

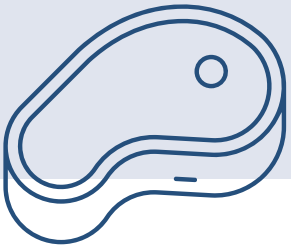
Solar protein

Time magazine listed 'solein' solar protein, from Finland's Solar Foods, in its 'Best inventions of 2020.[2] It's a single-cell protein produced by a fermentation-like bioprocess, combining renewable air and electricity as its primary raw materials. According to the company founders, solein is a hundred times more climate-friendly than any animal or plant-based protein when land-use efficiency, greenhouse gas emissions and water usage are considered.

Various product trials indicate that solein tastes better than plant-based meat and other protein substitutes such as pea protein and hemp. However, production costs are higher.

This is one of the newest protein alternatives and the production process is also used in the US with a few distinctions in the method (use of methane gas) and desired final product (animal feed).

Such products must be authorised as a novel food ahead of launch, which impacts timelines across different markets on top of other considerations as discussed in this paper.



About horizon scanning

Complying with international food policy is a complex matter which may be influenced by religion, trade relations, scientific developments, health, and national dietary requirements as well as political and economic factors. Understanding variations between countries and how they interact with each other is key. Situations can evolve rapidly, and policy changes can be hard to predict without expert insight.

Horizon scanning is an essential process for manufacturers and users of alternative proteins, aiding the effective navigation of this volatile environment. It improves understanding and management of upcoming risks in target markets, provides local and international visibility, and enables more informed planning.

The process involves three core steps:

Step 1 - Assess the level of risk in each market (e.g. through evaluation of the habits and policy making patterns of authorities, international regulatory networks, industry awareness measures)

Step 2 - Identify key influencers (people or organisations)

Step 3 - Extract information from key influencers

Any data gathered is analysed and used to provide evidence-based recommendations.

Step 1 Assess the risk

Global strategies for meat alternatives

Businesses, governments and civil societies such as consumer groups and trade associations are considering how to resolve the anticipated surge in demand for meat-based proteins. Red and processed meat products are under scrutiny, partly due to associated health risks[3] such as cardiovascular diseases and cancer.

A recent comparison study[4] of 90 dietary guidelines worldwide reported that half of countries with key messages about protein mention both animal and plant sources. Furthermore, 23% of the guidelines advise limiting or moderating meat consumption. For instance, Canada revised its dietary guidelines in 2019 to emphasise the benefits of shifting towards a more 'plant-based' diet[5].

As national strategies evolve, some are encouraging a switch to meat substitutes. This is perceived as being more favourable to consumers than simply being advised to reduce meat intake.

What is happening in Asia?

Given its economic and population growth, Asia can expect to see a significant rise in demand for protein. Within the Association of Southeast Asian Nations (ASEAN) some countries are volunteering to lead the change towards meat alternatives. For instance, the Ministry of Agriculture of Thailand has outlined plans to become a hub for plant-based and alternative protein in ASEAN over the next 10 years[6].

On the other hand, the Chinese Dietary Guidelines Scientific Research Report 2021 issued by the Chinese Nutrition Society in February this year does not include recommendations on reducing meat consumption.

The EU stance

The European Commission supports a shift to plant-based diets in its Farm to Fork Strategy as part of the European Green Deal. The Green Deal seeks to make Europe climate-neutral by 2050, improve people's wellbeing and protect natural habitats.

Farm to Fork cites environmental factors, obesity rates and cancer prevention in its rationale for encouraging plant-based diets. It includes 27 concrete actions[7] to transform the EU food system by 2030, including reduced consumption of red and processed meat and higher intake of fruits and vegetables in combination with other actions surrounding the safety and quality of crops, welfare of farm animals and aquaculture.

In accordance with the Green Deal, DG SANTE's Food Policy Strategy (2020-2024)[8] emphasises alternative proteins and meat substitutes. This strategy is being followed by EU members states with national interpretations. Denmark is prioritising development of plant-based foods with high protein content using new technologies, whereas France announced a national plant protein strategy that aims to increase local production of vegetable proteins for human nutrition and feed.

Industry players must monitor and understand evolving global policy trends and market dynamics.

Chatham House report

Global dietary change is one of the major topics of the decade. A recent report[9] by international think tank Chatham House, supported by the United Nations Environment Programme (UNEP), underlines this. It calls on world leaders to redevelop the global food system, changing dietary patterns and encouraging plant-based diets to preserve biodiversity. The report suggests that 2021 presents a unique opportunity to reconfigure the food system due to major international forums and conferences taking place throughout the year

Step 2 Identify key influencers

Consumer perception

Alternative proteins are receiving increased attention from consumers as well as governments, industry and environmental groups. Nutritional, environmental and ethical factors are driving interest here. However, substantiation of these drivers is not always clear, and consumer acceptance is not homogeneous.

It has been found that consumers have polarised views on meat alternatives in developed markets such as the United States and Europe[10]. More specifically, a 2021 study[11] performed in Germany with 1,039 participants demonstrated that meat alternatives are associated with the terms 'vegan and vegetarian,' as well as 'disgust'.

Consumer perception and opinion on replacing meat with alternative proteins varies from market to market. Industry needs to be aware of the dynamics behind this.

Looking beyond Western markets, a 2019 survey[12] concluded that meat consumption is likely to increase in China and India as more consumers can afford it. However, the authors also reported that urban, well-educated and high income consumers are more likely to purchase plant-based meat and cultured meat than those in the US. According to the survey, these markets represent high-value opportunities for manufacturers of plant-based meat alternatives.

One recent report[13] summarised 91 studies on the drivers of consumer acceptance of various alternative proteins, such as pulses, algae and insects as well as plant-based and cultured meat. It found that acceptance of plant-based proteins is relatively high, while insects are the least popular followed by cultured meat, concluding that this is linked to taste and health, familiarity, attitudes, food neophobia and social norms.

The weight of consumer acceptance and perception of alternative proteins may significantly impact national and regional strategies and policies.

Step 3 Gain insight from key influencers

Regulatory landscapes

A dynamic business strategy considers the regulatory environment to identify complications, opportunities and grey areas that may signal future trends. Current labelling regulations for meat alternatives are a case in point.

The regulatory landscape for labelling and marketing plant-based meat alternatives is unharmonised and unlikely to settle soon.

The US situation

In 2019, the US Plant Based Foods Association (PBFA) published a standard for the labelling of plant-based meat alternatives with the consensus of its 160 members. The same association also released voluntary standards for labelling plant-based milks in 2018, and for plant-based yogurts in 2020. These standards allow manufacturers to use qualifiers such as *'plant-based,' 'vegan,' 'meatless', 'meat-free', 'dairy-free', 'non-dairy', 'vegetarian', 'veggie', 'made from plants'* or other descriptors such as *'almond milk'* and *'soymilk yoghurt'*. However, in practice using these descriptors is not easy due to ongoing policy battle at federal and state level.

Also in 2019, the Real Marketing Edible Artificials Truthfully Act (the Real MEATS Act) was introduced into Congress. Amending the Federal Food, Drug, and Cosmetic Act, it clearly defines 'beef' and 'beef products' for labelling purposes to avoid confusion with plant-based alternatives and help consumers make informed decisions. Moreover, the Act requires use of the term *'imitation'* on labels for meat alternatives. However, this is not yet implemented in all states.

Labelling in the EU

A surge in the number of vegetarian and vegan products on the market has led the EU to look more closely at their labelling. In 2018, the European Commission approved the "Mandatory food labelling Non-Vegetarian/Vegetarian/Vegan" initiative which proposed pictorial labels on all food products to reduce ambiguity for vegetarian and vegan consumers.

Currently, there are no legal definitions for vegetarian, vegan or plant-based foods in the EU and their labelling has never been more topical. Last October the European Parliament rejected the 'Veggie Burger Ban' while adopting amendment 171 to further restrict use of dairy terms for plant-based alternatives, such as 'vegan-cheese' and 'like milk'. Dairy alternatives, especially milk, face stricter legislative barriers than meat alternatives. This is because 'milk' must comply with the legal description of milk and therefore, plant-based dairy alternatives cannot be labelled as such. Additionally, dairy products have a long list of legally defined names in different member states.

In April the European Parliament, Commission and Council of Ministers began trilogue negotiation, where topics under Common Organisation of the Markets in Agricultural Products are considered. Following strong advocacy initiatives from industry, NGOs and consumers the amendment was silently dropped by the European Parliament.

Further complications are rooted in the varied interpretation of 'plant-based'. Since the term is not lawfully defined, there is no harmonised understanding of it in the EU. So, in Luxembourg the term can be used even if some ingredients are not of plant origin. Sweden refers to vegan and vegeterian definitions in the the Swedish National Food Agency (SNFA) Guidelines. Denmark assesses use of the term on a case-by-case basis and such products should be primarily based on plant material. Nevertheless, if a product, labelled 'plant-based' contained ingredients of animal origin, it would most likely be considered 'misleading' from a regulatory standpoint.

Further policy changes surrounding the transition from meat protein to plant-based alternatives are on the way.

A potential 'meat tax'

In January this year, the EU Parliament debated the Farm to Fork proposal to eradicate VAT tariffs on organic fruit and vegetables. To offset this, the True Animal Protein Price Coalition proposes higher VAT on meat, with the expectation that meat consumption will reduce by 70%. Similar calls are arising elsewhere. For instance, the UK's Prime Minister and Chancellor of the Exchequer are discussing possible implementation of a carbon tax on meat and dairy in the UK which will be discussed at the global COP26 climate summit in November 2021.

Summary and implications for the food industry

Global regulations for plant-based proteins are unharmonised and constantly evolving

There are significant opportunities in the meat alternatives space for existing players and new entrants alike. Government policy aimed at reducing reliance on animal-based protein plays a part in this. Some countries are evolving national dietary guidelines and providing incentives for farmers to grow protein-rich crops. It's also becoming increasingly likely that 'meat taxes' will be implemented in some markets, accelerating the transition to meat alternatives.

However unharmonised global regulations make this a challenging category for the food industry. The lack of a common definition for 'plant-based' in the EU is problematic and in the US there are issues surrounding names and labels that correspond with animal-derived products. It's important to keep abreast of factors like this as they unfold.

In general, it seems that consumers prefer plant-based products to other meat alternatives, but this is not universal. Since consumer perception is a pillar of policy design, it's essential to analyse this when developing advocacy initiatives.

Overall, it is clear that the meat alternatives market has much potential for growth and innovation. Food businesses that monitor, understand and manage the opportunity and its attendant risks will be best placed to benefit. Using horizon scanning techniques is vital to gain local and international visibility of the regulatory climate. It enables better planning and preparation, reducing the likelihood of 'firefighting' when it comes to the authorisation and launch of new products.

How can Leatherhead help?

Our regulatory horizon scanning service offers ongoing monitoring and recommendations for evolving strategies. We provide auditable, evidence-based, actionable assessment to aid knowledge-based strategy design. Our team of technical experts includes former regulators and advocates as well as scientists and regulatory experts who understand commercial requirements. Our relationships with key influencers in various markets mean we can provide insights for the navigation of complex and sometimes patchy regulations. We take a partnership approach where our experienced, multilingual team of regulatory advisors works closely with client stakeholders to ensure our recommendations align with organisational objectives.

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Leatherhead Food Research provides expertise and support to the global food and drink sector with practical solutions that cover all stages of a product's life cycle from consumer insight, ingredient innovation and sensory testing to food safety consultancy and global regulatory advice. Leatherhead operates a membership programme which represents a who's who of the global food and drinks industry. Supporting all members and clients, large or small, Leatherhead provides consultancy and advice, as well as training, market news, published reports and bespoke projects. Alongside the member support and project work, our world-renowned experts deliver cutting-edge research in areas that drive long term commercial benefit for the food and drink industry. Leatherhead Food Research is a trading name of Leatherhead Research Ltd, a Science Group Company.

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