TRANSFORMATIONAL PLANT MEAT

By Henk Hoogenkamp, Protein Applications Expert

The transformational journey from animal protein nutrition to plant protein nutrition is a long and winding road. It has taken years of trial and error to create a plant-based meat analog product that is almost indistinguishable from animal meat. The science and technology are not quite there yet, but a little progress is made every day.

Let's not forget that plant-based meat and -milk are in the very early stages of the global protein transition. Still a steep improvement in terms of taste, texture, nutrition and craveability will be needed to win over a significant portion of consumers.

The road to concoct a "veggie burger" that is juicy and flavorful with the right bite and texture is not easy to navigate. Fortunately, with the arrival of cellular biotechnology, major development hurdles that once seemed unsurmountable, can now be successfully taken. In fact, assembling certain compounds and ingredients from plants allows a level playing field when compared to the traditional formulated and processed meat products.

The mission of the entrepreneurial-driven plant-based meat alternative companies is to improve human health, positively impact climate change, conserve natural resources, as well as reduce animal suffering during the slaughtering cycle.

Slowing Down

During the 2015-2020 years, sales of plant meat alternatives enjoyed steady growth, and promising consumers to end the factory-scene slaughtering animals and a "save-the-planet" health halo.

Jumping a few years forward to 2023, the exponential growth in sales of plant-based meat products has halted. The consumption of plant meat foods remains mostly an occasional choice with only 10 percent of consumers eating these vegan or vegetarian foods weekly.

At this stage it is difficult to explain why the double- and triple digit growth rates have sputtered, and now show a deceleration. Although plant protein prices of soy-and pea protein have increased substantially in the first months of 2022, more branded plant meat products are now sold on promotion. This is a strong indicator that plant meat companies are trying to keep market share.

The reasons why consumers are cooling on plant meat products can be the lingering effects of Covid, the influence of inflationary pressure or simply that they are not ready to make long-term commitments to give up on eating meat or fish altogether.

In terms of economic hardship caused by geographical political uncertainties like war, energy crisis, looming food supply issues and rampant inflationary grocery bills, shoppers have the emotional tendency to return to conventional behaviorally induced food purchasing patterns. In this sense, it comes as no surprise that the animal>plant protein transition has come to a standstill or even decline.

In the US, 2022 saw a purchasing decline of nearly all categories of plant nutrition ranging from plant yogurt, burger alternatives, and plant-formulated cheese. The most expensive plant alternatives show the steepest decline in sales. An added complexity is that plant-based nutrition is losing some of its hyped glory now that increasing number of consumers associate these products with unfamiliar and hard-to-understand labels. Also, the drive to help the environment and "planet health" has lost many consumers' interests and this "social media" issue is largely moved to the back burner.

The Need to Diversify

To meet country-specific regulations, plant-meat companies such as Beyond Meat, Impossible Foods, and Nestle have various product iterations. For example, co-manufacturing facilities for Beyond Meat burgers in Canada, and also in China and the Netherlands, may use formulas different from their US flagship product. Impossible Foods has a co-manufacturing arrangement with OSI and this brings the advantage of quickly branching out and conquering the world with plant-based nutrition.

To secure supply and costs of its core protein ingredient, it is likely that the large "plant meat" companies such as Impossible Foods, Beyond Meat, Morning Star Farms (Kellogg's), and Nestle's Garden Gourmet, would forge closer relationships with their plant protein suppliers. Moreover, it can be expected that these companies would want to diversify the plant protein options in their products to minimize dependence on just one crop. At this moment, both soy protein and pea protein are clearly the plant proteins of choice with some other emerging options -such as barley protein, mung bean, fava bean, rice protein, and chickpea protein- gaining momentum.

The plant-meat companies are both striving to build more sales, as well as aggressively reducing costs to get its products at the same level as animal-derived meat. In the plant-meat industry, marketing costs often equal the manufacturing costs. Ultimately the marketing costs will become less as the younger generation of consumers will likely increase consumption volume. To reach this goal will be important not only to reduce or end the need for animal-slaughtering by 2040, but also for optimizing cost efficiency for quick-service restaurants.

Pizza Hut & McPlant

McDonald's made a U-turn after introducing the McPlant Burger in the US in 2021, with lots of fanfare, only to walk away from the experiment a few months later due to disappointing sales.

Despite an influx of external headwinds like heavy inflation, a bearish stock market and supply chain issues, both Impossible Foods and Beyond Meat continue to roll out new plant meat entrees. For example, Impossible Foods introduced a series of ready-to-eat plant-protein formulated convenience meals, while Beyond Meat linked with Pizza Hut Singapore introducing an alt-protein Italian sausage crumble plant-meat pizza.

The Changing Perception

Nearly all the current portfolios of plant meat foods mimic the original meat products. Obviously, the main reason is that consumers recognize the original shapes of -for example- a beef burger or chicken nugget, and thus prefer to look for an alternative with a similar shape and appearance. It is likely that in the future completely new creative plant foods will be designed that move away from the traditional forms of meat product appearance.

Although there is no set definition of a plant-based diet yet, plant-based eating is gaining more exposure, probably with the help of the fashion and entertainment industry, which endorses a lifestyle in an inspirational and modern way. Plant-meat foods are appealing to a much larger segment of consumers who have started to make food choices based on organoleptic preference, health, and environmental concerns.

Consumers have multiple motivations to embrace a plant-based diet, driven by personal and planetary health with considerations for wellbeing, environment, sustainability, as well as personal convictions like religion or animal welfare.

It is interesting to know that the Baby Boomer generation (born 1946-1964) will most likely be the first and last generation that consumes meat every day. Rising health awareness and shifting dietary preferences will generate increased demand for plant meat alternatives.

Consumers at Turning Point

Most of the people who purchase plant-based meat products are meat eaters. This category is universally termed as "flexitarians". It is a definite sign of the times that even traditional German meat companies have now joined the market for plant-meat alternatives. Alternative proteins have gained momentum by marketing the idea to omnivores i.e., flexitarians who are proactively trying to eat less meat, yet without scarifying the experience of eating real animal meat. The bottom line is that the successful plant-meat products deliver an identical or close match of the traditional animal-derived product.

A new type of consumer is emerging, and this category can be identified as "flexitarians" whose motivation to purchase plant-based meat options is not necessarily due to more people switching to strict vegetarian or vegan diets. Instead, the flexitarian consumer views plant-meat alternatives not as a replacement for meat, but as an occasional and acceptable nutritious and tasty option.

True veganism appeals to surprisingly only a few people. The true growth of meat substitutes or plant-based meat comes mainly from flexitarians. The latter group consciously eliminates or reduces animal meat from their daily line-up of food and plans for it only a few times each week. When flexitarians explain the reduction of their meat consumption, health is the most cited reason, followed by environmental and animal welfare concerns. Religious reasons are the least cited for cutting back on meat consumption. Eating much smaller portions of meat is the most popular way to reduce meat intake. Especially the "flexitarians" choose to eat smaller portions by substituting them with vegetables or eliminating meat altogether from some meals and eat "plant-meat" foods instead.

The flexitarians are a rapidly growing consumer segment aiming for transformative change, albeit often driven by psychologically and emotionally inclined aspects associated with animal welfare. Germany and the UK have the highest penetration of flexitarian consumers driving the market for plant protein forward. Also, young, and adolescent girls going through puberty often decide spontaneously to stop eating (red) meat.

Health of Environment?

Is it the personal health or the concern for climate change that is the main driver behind the increasing number of people in developed countries actively reducing their meat intake.

Some surveys indicate that health is still the main reason. Some scientific studies demonstrate a connection between high processed meat consumption and several degenerative chronic diseases. A lot of people aged 30 and below are influenced by social media platforms and pressure from peers who do not think it is cool to be a carnivore. An increasing number of people is influenced by the constant barrage of anti-meat publicity from the media raising concerns about climate change.

Climatarians

Within the plant-based food consumer preferences, a new sub-group is trending in the form of "climatarians". These are truly worried about environmental issues, hence are conscious of the impact of the globalization of food production and consumption on planetary health. Within this context, climatarians profoundly believe that regionalization of food production and consumption is the way forward in delivering food products to the market.

Grass = Gas

Humanity needs to feed a fast-increasing global population, and the planet should not be burdened with more livestock to meet the fast-growing demand from a fast-growing global population. Besides the unfathomable amounts of feed, water, and land needed, cattle methane emissions need to be curtailed.

In terms of ecological food sustainability, industrial scale feedlot meat production is probably one of the world's largest environmental problems. Reducing meat consumption will free up vast amounts of animal feed, land, and water. Beef is generally considered the worst part of the meat pyramid because of its very inefficient feed-to-meat conversion and the use of huge amounts of clean water during the outgrow cycle of the animal.

However, to be fair, a significant number of cattle grazes on non-habitual unproductive agricultural land, and as such, contribute to the maintenance of main parts of the geographical infrastructure.✓