

TASTE AND PRICE ARE KEY IN PLANT MEAT SALES

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Even though plant meat companies have struggled to universally prove that their products are more nutritionally sound than conventional meat, the explosive sales growth of the early 2020s has come to a halt, with a significant decline seen in 2022 and continuing into 2025. It is difficult to pinpoint exactly why plant-based meat sales first began to decelerate in the U.S. in 2022. One possible explanation could be the lingering effects of the COVID-19 pandemic, or simply unmet consumer expectations. There are clear indications that the alternative meat category did not achieve the expected levels of consumer habituation, as evidenced by low repeat purchases.

It's too early to fully explain the reasons behind the slowdown in plant meat sales growth. Undoubtedly, there were several COVID-related issues, such as fewer grocery shopping trips, increased competition, inflationary pressures, and possibly a reduced consumer interest in healthy options during the pandemic. However, a more fundamental reason could be that plant-based meat products fail to meet consumers' long-term taste preferences. Additionally, the lack of clean label statements may also play a role. If so, then it might be time to change negative consumer perceptions by simplifying the lengthy list of ingredients and favor "Green & Clean".

Food manufacturers are increasingly under pressure to replace artificial flavors and colors with natural ingredients. These clean-label

and health-related initiatives often involve fermented plant-based solutions that offer unique taste profiles. Younger consumers expect more than just plant-based products that mimic meat; they want plant-based foods to feature clean labels and lower salt levels, ensuring a balanced nutritional profile and superior organoleptic taste, including the elimination or masking off-flavors often associated with plant protein ingredients.

The Art of Flavor and Aroma

Flavors and aromas are especially important for plant-based meat products that aim to mimic beef. When real beef is cooked, hundreds

of different aroma compounds are released, creating the ultimate taste that consumers love. There's no doubt that replicating the natural flavor, aroma, and texture of meat presents the biggest challenge for alternative meat products. Neutralizing undesirable aromas and flavors, as well as eliminating anti-nutritional

factors, are significant hurdles to overcome.

Designer yeast ingredients used in plant-based meat products provide natural flavor bases and umami richness, enhancing savory perceptions. These designer yeast extracts mask off-notes in plant proteins—such as beany, metallic, and astringent flavors—that often linger long after eating.

Consumers expect a high degree of satisfaction when incorporating or switching to plant-based diets. Advanced progress in developing yeast extracts to neutralize off-flavor compounds in plant proteins is within reach and will fundamentally change the taste, texture, and odor



of plant-based products. Naturally occurring yeast enzymes can convert aldehydes that cause off-flavors. Designer yeast can be produced using both GMO and GMO-free biological solutions, although most plant-meat manufacturers prefer to avoid GMOs to broaden market appeal and maintain natural and clean label status.

Nothing New

Yeast has been used for centuries as an aromatic stimulant to improve the taste of foods, beverages, and plant-based meat products. Yeast extract is derived from fresh yeast and is a natural-origin ingredient. The macromolecules of yeast cells are broken down into smaller components, such as peptides, free amino acids, nucleotides, and glucans. Yeast extracts are a perfect fit for products that need a natural label. Most plant-based meat products contain nucleotide yeast extracts, which help mask the beany off-flavors inherent in plant proteins like pea and soy. Yeast extracts are now routinely used to deliver meaty notes and umami flavor, and to mimic the taste of smoked, roasted, or grilled meats.

Fine Tuning by Design

The use of enzymes such as protease, amylase, and bromelain—termed hydrolyzation—breaks down protein chains into predetermined lengths. Generally, higher enzyme dosages and longer incubation times at set temperatures result in higher protein or amino acid content. However, longer incubation can sometimes produce a bitter note. Even small processing changes can significantly affect protein performance, such as its dispersibility, solubility, foaming, gelling, and emulsifying properties.

The arrival of designer enzymes now allows for targeted modification of specific functionalities in plant protein ingredients. These functionalities include:

- Reduced bitterness
- Umami flavor creation
- Bioactive peptide production
- pH stability
- Digestibility
- Dispersibility

- Solubility
- Reduced allergenicity
- Gelation and emulsification
- Salt tolerance
- Temperature stability
- Non-dusting and non-lumping properties
- Low-glycemic index
- Lighter color versions

Yeast-modulated flavors are, by far, the most expensive ingredients in plant-based meat alternatives. As a side note, potato protein, when used in formulations, is the second most expensive ingredient and may eventually be replaced by designer functional modified food starches as they become available. Also “vegan” egg protein, made using precision fermentation, will slowly move to the forefront and can be considered a good alternative for methylcellulose. In addition, the “mushroom fungi” mycelium protein

phenomenon’s are a difficult marketing issue to tackle in their communication with core customers. Plant-based meat companies understand that consumers who are curious but hesitant to retail purchase and try their products at home may be more likely to order them at a restaurant than buy them at the supermarket. The reasoning is that consumers see less risk in ordering plant-based foods when they don’t have to prepare them at their home kitchen. Once they try and enjoy plant-based meals at restaurants, they are more likely to purchase them at the grocery store. The future of the meat segment could very well be “grilling without the killing,” which applies to both hybridized cell-cultivated meat and plant-based meat or blends thereof.

To introduce healthier and more environmentally sound meals to



will make inroads in the formulation of hybrid plant-meat foods.

Grilling Without the Killing

It’s fair to ask whether consumers are primarily driven by sustainability trust in plant-based meat, or mostly triggered the emotion of eating slaughtered meat. These

their families, the home chefs “secretly” prepare meat-free dishes without telling their families that all or part of the traditional meat component has been replaced. Plant-based crumbled meat alternatives are used for familiar dishes like spaghetti meat sauce, tacos, burritos, lasagna, tortellini, and pizza. These recipes using “fake

meat” are becoming more common, especially as the vastly improved quality of textured plant-based meat makes it difficult to distinguish from traditional meat dishes, especially when used in combinations with other determining ingredients like flour-bases and sauces.

The Decline of Vegan Name Power

To broaden mainstream appeal, new language is needed to describe plant-formulated foods. Finding the best descriptive name for plant-based meat products is no easy task. In the realm of vegetarian descriptors, certain words may not entice consumers to purchase. The terms “vegan” and “plant-based” might seem interchangeable, but most consumers view “plant-based” as a more positive dietary

diets—might perceive the term “meat-free” negatively. Similarly, the word “vegan” is often used in a negative context, potentially alienating certain consumers. For restaurant chains, it’s wise to downplay the words “vegan” or “vegetarian” and instead market plant-based products as “lifestyle sustainable.” Emphasizing the word “protein” is also a good strategy, as consumers are always seeking “protein moments” in their diets. Highlighting the percentage of protein in plant-based products can enhance their appeal.

Simple name changes that create positive associations—such as linking the flavor and taste of plant-based foods to the natural environment—can often boost sales. Instead of using terms like “meat-free” or “vegan,” marketers should focus on

nutrition, and redirecting more soy protein from animal feed to human consumption could help reduce the negative impacts of soybean agriculture, such as deforestation in the Amazon region.

Despite setbacks in pea protein sales in 2022-2024, global yellow pea agriculture will continue to grow, and it’s projected that about 35 percent of these proteins will be used in plant meat applications, primarily in texturized form. However, the downside of increased pea protein production is the relatively high amount of starch and fiber by-products, which have proven difficult to commercialize. Increasing the protein content of yellow peas would significantly improve manufacturing yields and improve business revenues.

Overcrowded and “McSales” Decelerating

Plant-based meat products have had a rocky history making inroads on fast-food service menus. Overall, plant-based meat still represents only a small fraction of the total global sales, around 1.5 to 2.0 percent.

The McDonald’s “McPlant” burger garnered significant attention for Beyond Meat, but after its much-publicized launch, McDonald’s U.S. decided to halt sales at roughly 600 locations in August 2022. U.S. consumer interest was lackluster, with McDonald’s test locations selling only about 20 plant-based sandwiches per day, and just three to five McPlant burgers in rural areas. The low volume of orders also disrupted kitchen flow, as the McPlant burger needed to be cooked to order, which significantly lengthened drive-thru times, and not to mention some customers being upset that the “vegan



choice. The word “vegan” is often subconsciously associated with deprivation and a strict commitment to causes like animal rights and environmental activism.

Although the term “meat-free” is clear in its meaning, it may imply that consumers are losing something they value. Meat eaters—who make up the largest group that needs to be converted to plant-based

names that promise a pleasurable eating experience, emphasizing taste, flavor, color, and texture.

Wheat, Soy, & Pea

Most plant-based meat products rely on a combination of soy protein or pea protein and wheat gluten in extruded form. Soy protein remains one of the most economical sources of human

burger” cooked on the same grill next to the beef burger.

Shakeout

The plant-based meat sector has become crowded, with companies fighting for a relatively small share of sales. It’s expected that legacy meat companies will eventually acquire or partner with plant-based food startups. Beyond Meat has partnerships with McDonald’s and KFC owner Yum! Brands, which could accelerate the global reach of plant-based foods once favorable economic conditions return. In the UK, the EU, the US and Australia, quite a few plant-meat companies have gone into administration and permanently closed their doors. Some companies like V-Bites found new operational capital and is

trying hard to regain consumer trust and offering huge discounts.

The initial influx of new plant-based meat brands cannibalized existing brands, and the ongoing shake-out in branded and own-label will likely result that only a limited number of the best-known brands will survive. Although UK supermarkets like Tesco, Sainsbury and Safeway are known for aggressively promoting their own brand, they often create friction with their plant-meat suppliers using heavy negotiating tactics to get their purchasing prices at rock bottom. These tactics might work in the short term, but ultimately contribute to a further shakeout of the supply chain.

Perception is Reality

To turn the tide, plant-based meat

companies will need to undertake drastic business reorganizations. Declining demand and rising costs have rendered many companies unprofitable. A turnaround plan should include reducing operating expenses and transitioning to a leaner structure, as well as trimming product portfolios by discontinuing slow-selling items. Resources should be focused on traditional plant-based products with higher growth potential, such as iconic burgers. Companies like Beyond Meat and Impossible Foods, as well as supermarket private-label products, could also emphasize breaded plant-based chicken products, as 50+ percent of chicken sold is now consumed as breaded fried chicken, mostly through fast food outlets. The future could even hold a plant-protein-formulated Big Mac Chicken.

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