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Beyond the Headlines, U.S. Retail Datasets Indicate a Bright Future for Plant-Based Meat

February 2023





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Full-Year 2022 Data Shows Plant-Based Meat Performed as Well or Better than Comparable Conventional Meat Products

Background

“The report of my death was an exaggeration,” Mark Twain famously quipped to a reporter from the New York Journal in 1897 after the press declared him dead.¹ If plant-based meat could talk, it would probably be saying the same to news reporters now.

In recent months a number of news headlines have declared the meat alternatives category to have plateaued. These headlines are the whiplash inverse of many of the same outlets declaring just a year or two prior—after plant-based meat sales skyrocketed 74% between 2018 and 2020²—that the category would imminently take over the world. Consider for example Bloomberg, which in January ran a cover story declaring “*Fake Meat Was Supposed To Save the World. It Became Just Another Fad*” (January 19, 2023).³ A mere 18 months earlier the company had published an ebullient press release from its in-house research and analytics division Bloomberg Intelligence predicting plant-based meat sales would grow from \$4 to \$72 billion in the next ten years.⁴ As recently as December the company ran a piece entitled “*Brazil, the World’s Biggest Beef Exporter, Is Turning Away From Meat*” (December 12, 2022) which declared “plant-based meat substitutes are gaining as alternative” and cited 25% year over year growth in sales in Brazil.⁵

So, which is it: Is the plant-based meat sector about to grow seventeen-fold by the end of the decade? Has it flatlined? Or are the broad directional trends in the food system so opaque that it’s impossible to tell one year where things will go in the years ahead?

The answers are no, no, and no. Outlets like *Bloomberg* and others were badly wrong two years ago when they projected seventeen-fold growth of the plant-based meat sector in under ten years, and they are badly wrong again today with their current gloomy narrative. The inaccuracy on both ends is not a function of drastically shifting market dynamics. It is a reflection of media outlets doing what they are financially incentivized to do: constructing simple and dramatic narratives that grab reader attention.

¹ <https://books.google.com/books?id=dOD7iIN1R38C&pg=PA317#v=onepage&q&f=false>

² <https://gfi.org/marketresearch/>

³ <https://www.bloomberg.com/news/features/2023-01-19/beyond-meat-bynd-impossible-foods-burgers-are-just-another-food-fad>

⁴ <https://www.bloomberg.com/company/press/plant-based-foods-market-to-hit-162-billion-in-next-decade-projects-bloomberg-intelligence/>

⁵ <https://www.bloomberg.com/news/articles/2022-12-12/meat-consumption-falls-for-67-in-brazil-top-beef-exporter#xj4y7vzkg>

On both ends this has been done through cherry-picking one or two data points that, when combined with our innate cognitive biases, paint a story that is highly engaging but ultimately misleading. Two years ago outlets like *Bloomberg* pointed to a few data points, such as the 73% category growth over the prior two years in the U.S., and simplistically concluded such hypergrowth would continue for the next decade. The implicit assumption was that what has happened in a given market for the prior two years will keep happening for the next ten. The current negative narrative on the sector is similarly over-simplistic (and inaccurate), built on two data points and a few faulty assumptions.

The performance of one company is not indicative of a category's future

The first data point is that sector poster child Beyond Meat has seen a drop in revenue and a sharp drop in stock price, a data point packaged with the assumption that the financial performance of Beyond and its stock price are indicative of where the plant-based meat sector is heading. The second data point is that plant-based meat sales in the U.S. did not grow in 2021⁶ or 2022, and total volume sold has slightly declined.⁷ (Sales outside the U.S. are mixed; in some countries sales continued to climb⁸ while others saw a similar flattening.⁹) Packaged with this data point are the assumptions that a reversal in consumer interest in the category is the causal reason for the flattening in sales, and that emerging tech sectors that are ultimately going to succeed will experience consistent year over year growth.

It is certainly the case that major player Beyond Meat saw a decline in year over year sales in 2022, and a sharp drop in stock price from the start of the year. But is it reasonable to assume that Beyond Meat's performance is indicative of how the plant-based meat category and other companies in it are performing, or how the category will perform in the years ahead? Consider that one of Beyond Meat's main competitors, Impossible Foods, reported retail sales growth of 50% in 2022.¹⁰ Many other plant-based meat companies had similarly strong growth.¹¹ Or consider that electric vehicle poster child Tesla saw its share price plummet 70% in 2022¹² while the EV category as a whole saw record-smashing sales.¹³ The fact is that the performance of one company in a category is simply not indicative of how other companies in the category are performing or of where the category as a whole is heading.

Plant-based meat performed as well or better than comparable conventional meat products in U.S. retail in 2022

⁶ <https://gfi.org/marketresearch/>

⁷ Roerink, Anne-Marke. "Meat Alternatives Had a Tough 2022 Despite Level Prices." IRI Worldwide and 210 Analytics, January 2023.

⁸ <https://www.bloomberg.com/news/articles/2022-12-12/meat-consumption-falls-for-67-in-brazil-top-beef-exporter#xj4y7vzkg>

⁹ <https://www.ft.com/content/9cb81801-eb42-455c-ad3e-805fb9bd46c7>

¹⁰ <https://www.naturalproductsglobal.com/food-and-drink/impossible-foods-retail-sales-grew-more-than-50-in-2022/>

¹¹ <https://business.express/heura-closes-h1-2022-with-more-than-93-yoy-turnover-paving-the-way-to-spare-more-than-1-million-animal-lives-in-2022/>

¹² <https://www.google.com/finance/quote/TSLA:NASDAQ>

¹³ <https://www.entrepreneur.com/business-news/electric-vehicles-broke-sales-records-in-2022/443053>

The second data point underlying the recent media narrative is the flattening in sales and decline in volumes sold of plant-based meat in the U.S. Retail sales volumes dropped 5.4% in full-year 2022, according to data recently released by IRI Worldwide and 210 Analytics.¹⁴ That sounds moderately bad, but what few media outlets have reported on is the baseline data: the performance of conventional meat volumes during the same period. And guess what? Conventional meat volumes also dropped in 2022. And many higher-priced meat categories saw volume declines significantly higher than those experienced by plant-based meat.

In 2022 retail volumes of fresh meat and poultry dropped 2.3%, processed meat and poultry fell 3.8%, and units sold (IRI's equivalent measurement for the frozen category) of frozen meat, poultry and seafood were down 4.1%. Among the pricier meat categories dinner sausage volumes dropped 5.1%, bacon was down 7%, processed chicken fell 7.6%, frozen seafood units dropped 8.3%, fresh seafood plunged 14.9%, and shrimp cratered 20.6%. And these 2022 declines came on top of a 5.9% drop in total meat sales volumes in 2021.¹⁵

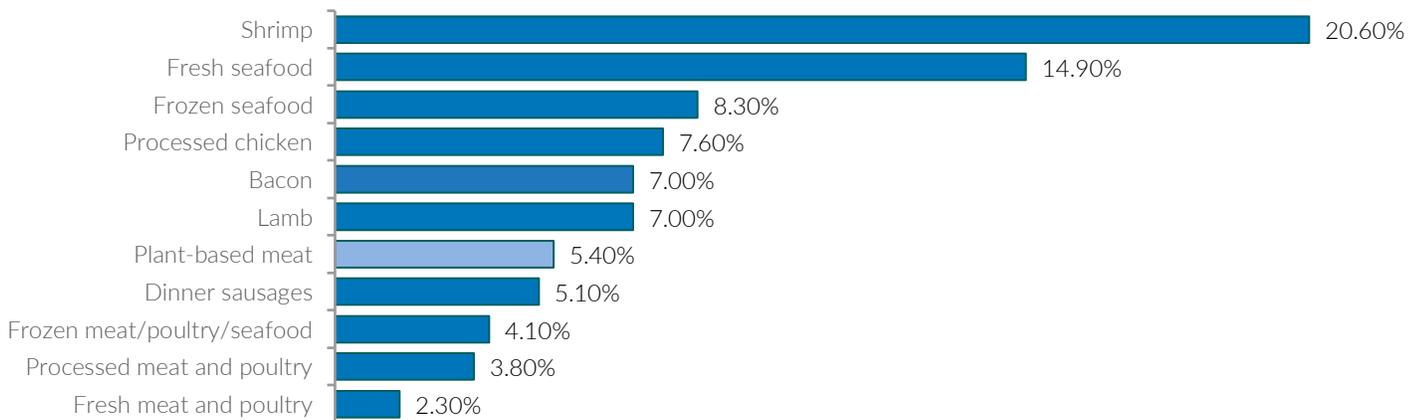


Figure 1: Decline in sales volumes of select meat categories and plant-based meat in the U.S., 2022

Despite these drops in volume there are few headlines proclaiming the meat category is a flop, or that bacon or seafood are doomed. Nor should there be. And it would be incorrect to make a similar assumption about plant-based meat based on its own dip in volume. The reality is the broad forces of covid, inflation, and recession have affected the entire meat category, driving volume declines across the board and larger declines among pricier categories.¹⁶ On average plant-based meat is still two and a half times more expensive than staple meats like fresh pork and chicken, and is pricier than any major meat category save lamb (which itself dropped 7% in sales volumes last year).^{17 18}

¹⁴ Roerink, Anne-Marke. "Meat Alternatives Had a Tough 2022 Despite Level Prices." IRI Worldwide and 210 Analytics, January 2023.

¹⁵ Roerink, Anne-Marke. "Another Record Year for the Meat Department." IRI Worldwide and 210 Analytics, January 2023.

¹⁶ <https://www.iriworldwide.com/IRI/media/Library/IRI-Lessons-from-the-Great-Recession-April-2022.pdf>

¹⁷ Roerink, Anne-Marke. "Another Record Year for the Meat Department." IRI Worldwide and 210 Analytics, January 2023.

¹⁸ Roerink, Anne-Marke. "Meat Alternatives Had a Tough 2022 Despite Level Prices." IRI Worldwide and 210 Analytics, January 2023.

The bottom line is that adjusted for price, plant-based meat sales volumes performed better in U.S. retail in 2022 than conventional meat. Even without adjusting for price—a major driver in food purchasing decisions—conventional meat sales volumes performed only a hair better than plant-based meat sales volumes in U.S. retail in 2022 despite the fact that the country was enduring the worst economic deterioration since 2008 and the highest inflation rates since the 1970s.

Emerging technology sectors typically experience years of growth in sales and years of declines in sales on the path to long-term success

Lastly, consider the assumption implicit in most of the recent articles that two years of flat sales after a period of hyper-growth means we have passed peak penetration for plant-based meat and that sales will either plateau or drop from here. Is that assumption reasonable? If we look at the growth patterns of other emerging sustainability-driven categories, we see that it is not.

Consider solar energy. U.S. solar installations climbed steadily for a number of years, jumped dramatically in 2016, and then saw a sizable decline in 2017 and a further decline in 2018. Only in 2019 did installations resume growth before hitting a new record high in 2020 and another in 2021.¹⁹

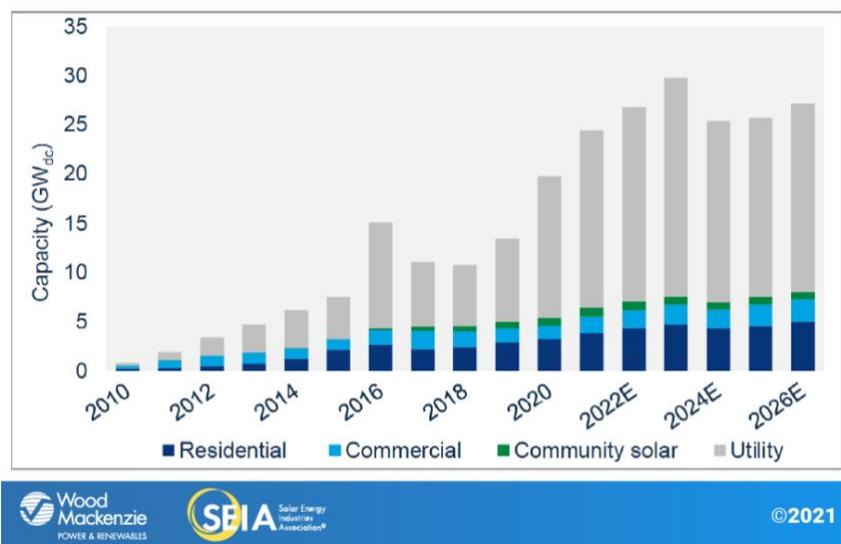


Figure 2: US PV installations, 2010-2021, and forecast 2022-2026

¹⁹ <https://www.seia.org/sites/default/files/inline-images/SMI-2021-Q2-ES-Fig7.png>

Or consider electric vehicles. Sales of hybrid-electric vehicles grew steadily through 2007 but then declined for four consecutive years, only to rebound to a record high in 2012. In 2014 sales again declined for several years in a row before returning to growth and reaching a new record high in 2021.²⁰ Sales of fully-electric vehicles have followed a similar pattern.²¹

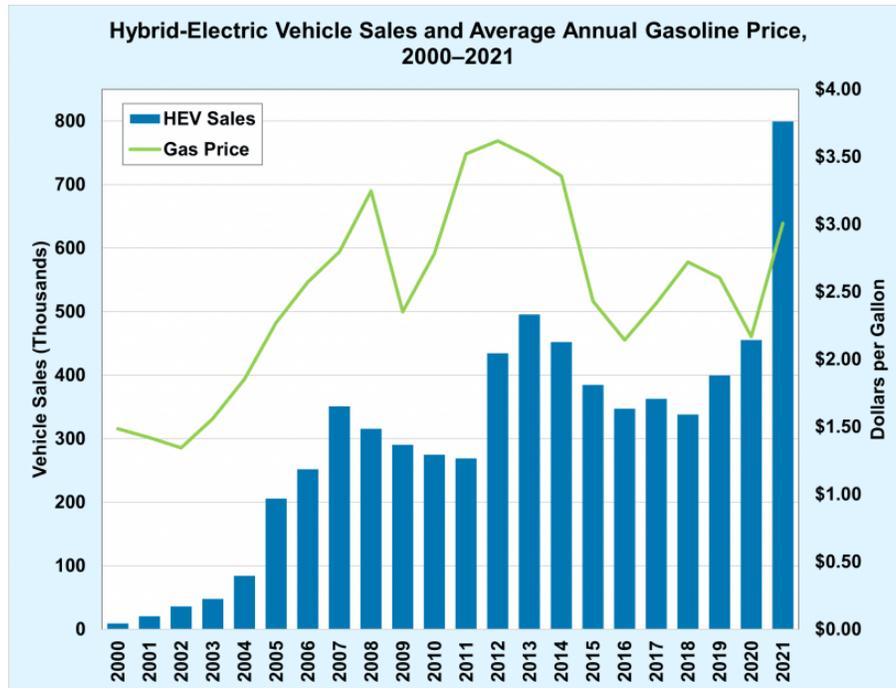


Figure 3: U.S. hybrid-electric vehicle sales 2000-2021

Anyone who counted out solar or EVs after those sectors saw consecutive down years would have badly misjudged the long-term directional trends going on in energy and transportation. Pundits jumping to similar conclusions today on plant-based meat and other meat alternatives would similarly be missing the long-term directional trends going on in the food sector.

None of this is to say there are no issues affecting the short-term growth of plant-based meat—there are. In the United States the period of peak novelty for the category has now passed, and as a result retailers and restaurants are devoting fewer specialty placements to promote products in the category. Price points of plant-based meat products remain too high for many consumers. Taste tests show there is still a sizable quality gap relative to conventional meat,²² and even within the plant-based meat category the quality of brands on

²⁰ <https://www.energy.gov/eere/vehicles/articles/fotw-1254-september-5-2022-2021-hybrid-electric-vehicle-sales-increased-76>

²¹ <https://electrek.co/2022/04/28/us-electric-car-sales-jumped-record-high-last-quarter/>

²² <https://onlinelibrary.wiley.com/doi/full/10.1002/aapp.13247>

shelf varies dramatically. These barriers hinder uptake and contribute to lower-than-desirable re-purchase rates.^{23 24}

But such challenges are nothing new. Early iterations of EVs and solar energy systems (and so many other technology-driven products) were also higher-priced and lower-quality versions of the incumbents they sought to displace. But over time quality improved and prices declined, and with those advances consumer, business and government interest increased. Plant-based meat is progressing methodically down the same path. The price gap is slowly narrowing,^{25 26 27} and some newer brands have products that are significantly better than anything available a handful of years go.²⁸ Further, there are a range of ingredients and technologies just beginning to hit the market—such as cultivated and fermentation-derived animal fats and proteins, 3D printing, and novel texturization methods—that will create a step-change in the quality of meat alternatives in the coming years.

Meanwhile, studies conducted at the tail end of 2022 continued to find high levels of consumer interest, with younger consumers showing the highest levels of interest.^{29 30} A survey of 30,000 consumers from around the world, released by GlobeScan and EAT Forum this past November, even found a whopping 42% think most people will be eating plant-based replacements to meat in the next decade.³¹ That expectation is surely overly rosy, but it indicates directionally where consumers want and expect the world to go. And reports from market research agencies released in the back half of 2022 almost uniformly predict plant-based meat sales will average 11-15% annual growth through the end of the decade.^{32 33 34 35 36 37 38}

²³ <https://onlinelibrary.wiley.com/doi/10.1002/aapp.13280>

²⁴ <https://onlinelibrary.wiley.com/action/downloadSupplement?doi=10.1002%2Faapp.13280&file=aapp13280-sup-0001-Supinfo.pdf>

²⁵ Roerink, Anne-Marke. "Meat Alternatives Had a Tough 2022 Despite Level Prices." IRI Worldwide and 210 Analytics, January 2023.

²⁶ Roerink, Anne-Marke. "Another Record Year for the Meat Department." IRI Worldwide and 210 Analytics, January 2023.

²⁷ <https://www.foodnavigator.com/Article/2022/07/26/plant-based-now-cheaper-than-meat-in-the-netherlands-vegan-burgers-are-on-average-78-cents-cheaper-per-kg#:~:text=out%20My%20account-,Plant%2Dbased%20now%20cheaper%20than%20meat%20in%20the%20Netherlands%3A%20,78%20cents%20cheaper%20per%20kg&text=Mapping%20the%20price%20differences%20between,their%20cheapest%20plant%2Dbased%20counterparts.>

²⁸ <https://onlinelibrary.wiley.com/doi/full/10.1002/aapp.13247>

²⁹ <https://www.winsightgrocerybusiness.com/products/study-consumers-are-choosing-plant-based-foods-health-convenience#:~:text=Other%20reasons%20why%20shoppers%20said,%25%3B%20they%20can%20eat%20more>

³⁰ <https://www.supermarketnews.com/meat/plant-based-foods-still-hot-report>

³¹ <https://eatforum.org/content/uploads/2022/11/EAT-Forum-Report.pdf>

³² <https://www.businesswire.com/news/home/20220923005384/en/Europe-Plant-Based-Meat-Products-Market-Report-2022-Increasing-Importance-of-Environment-Sustainability-Driving-Growth---ResearchAndMarkets.com>

³³ <https://www.prnnews.com/news-releases/global-plant-based-meat-market-report-2022-2027-favorable-marketing-and-correct-positioning-of-plant-based-meat-presents-growth-opportunities-301600736.html>

³⁴ <https://www.yahoo.com/now/global-plant-based-meat-market-153000210.html#:~:text=Key%20Takeaways%3A,a%20rapid%20CAGR%20of%206.9%25.>

³⁵ <https://www.globenewswire.com/en/news-release/2022/08/09/2494549/0/en/Meat-Substitute-Market-to-Reach-USD-12-30-Billion-by-2029-Europe-to-Gain-Ground-from-Rising-Popularity-of-Plant-based-Products.html>

³⁶ <https://www.globenewswire.com/news-release/2022/09/19/2518729/0/en/Demand-for-Global-Plant-Based-Meat-Market-Size-to-Surpass-USD-15-8-Billion-by-2028-Exhibit-a-CAGR-of-15-Plant-Based-Meat-Industry-Trends-Share-Value-Analysis-Forecast-Report-by-Fac.html>

³⁷ <https://www.statista.com/outlook/cmo/food/meat/meat-substitutes/united-kingdom>

³⁸ https://www.einnews.com/pr_news/596335759/global-plant-based-meat-market-is-expected-to-reach-usd-14-65-billion-growing-at-a-cagr-of-14-50-says-bonafide-research

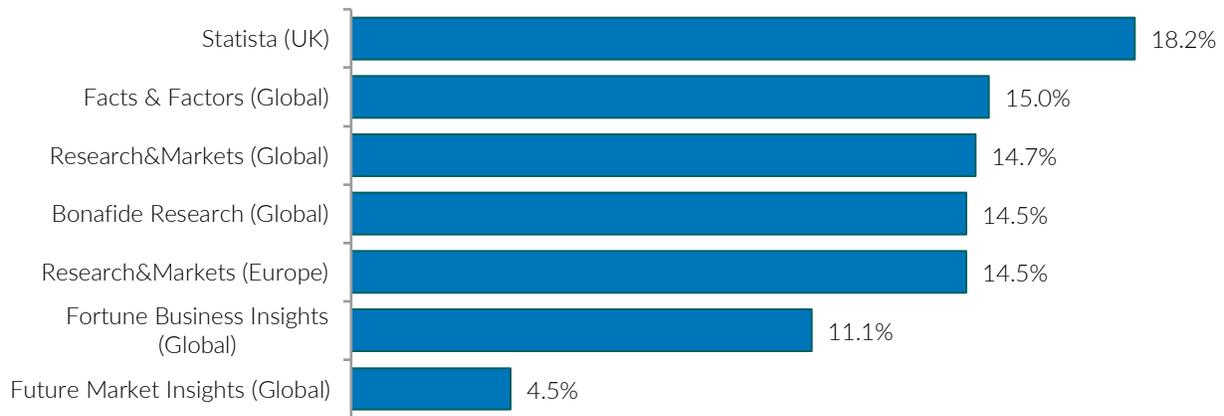


Figure 4: Future growth projections for plant-based meat issued by research agencies in Q3 and Q4 2022

Alternative protein category sales continued to climb in 2022

For context, it is also worth noting that plant-based meat makes up a relatively modest portion of the broader alternative protein category. Plant-based meat accounts for less than 10% of global alternative protein category sales, and U.S. plant-based meat sales are a mere 1% of the category. Alternative protein, an over \$100 billion category that also includes sectors such as plant-based milks (\$35 billion), other plant-based dairy products (\$15 billion), plant-based meals and meal replacements (\$5 billion), plant-based protein powders and bars (\$15 billion), plant protein isolates and concentrates (\$16 billion), and meat alternatives like tofu and tempeh (\$7.5 billion), continued to grow in total sales in 2022.^{39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56} Research agencies project it will grow 10-12% annually through 2030.^{57 58 59 60}

³⁹ <https://www.grandviewresearch.com/industry-analysis/plant-based-meat-market>

⁴⁰ <https://www.marketsandmarkets.com/Market-Reports/plant-based-meat-market-44922705.html>

⁴¹ <https://www.strategicmarketresearch.com/market-report/plant-based-milk-market>

⁴² [https://www.globenewswire.com/news-release/2023/01/10/2586533/0/en/Plant-based-Cheese-Sales-to-Surge-at-15-1-CAGR-through-2033-Amid-Rapid-Gravitation-towards-Veganism-Worldwide.html#:~:text=Rockville%2C%20MD%2C%20Jan,decade%20\(2023%2D2033\).](https://www.globenewswire.com/news-release/2023/01/10/2586533/0/en/Plant-based-Cheese-Sales-to-Surge-at-15-1-CAGR-through-2033-Amid-Rapid-Gravitation-towards-Veganism-Worldwide.html#:~:text=Rockville%2C%20MD%2C%20Jan,decade%20(2023%2D2033).)

⁴³ <https://www.fortunebusinessinsights.com/vegan-yogurts-market-102292>

⁴⁴ <https://www.marketsandmarkets.com/Market-Reports/plant-based-butter-market-90536078.html>

⁴⁵ <https://www.databridgemarketresearch.com/reports/global-plant-based-ice-cream-market>

⁴⁶ <https://www.futuremarketinsights.com/reports/plant-based-spreads-market>

⁴⁷ <https://www.persisencemarketresearch.com/market-research/plant-based-creamer-market.asp>

⁴⁸ <https://www.futuremarketinsights.com/reports/plant-based-meal-kit-market>

⁴⁹ <https://gfi.org/marketresearch/#categories>

⁵⁰ <https://www.prnewswire.com/news-releases/plant-based-protein-supplements-market-is-projected-to-reach-usd-8-94-billion-by-2028--growing-at-a-cagr-of-6-7--brandessence-market-research-301608280.html>

⁵¹ https://www.prophecymarketinsights.com/market_insight/Global-Plant-Based-Bar-Market-4658

⁵² <https://www.thebusinessresearchcompany.com/report/plant-based-protein-global-market-report>

⁵³ <https://www.thebusinessresearchcompany.com/report/tempeh-global-market-report>

⁵⁴ <https://www.imarcgroup.com/tofu-market>

⁵⁵ <https://www.maximizemarketresearch.com/market-report/global-seitan-market/78923/>

⁵⁶ <https://www.foodnavigator-usa.com/Article/2022/12/16/special-report-plant-based-dairy-and-meat-by-numbers-declining-trends-continue-but-pockets-of-growth-remain>

⁵⁷ <https://www.globenewswire.com/news-release/2022/10/10/2530992/28124/en/Europe-Plant-based-Food-Market-Report-2022-Increasing-Incidence-of-Animal-Protein-Intolerance-Drives-Growth.html>

⁵⁸ <https://www.prnewswire.com/news-releases/vegan-food-market-size-to-grow-by-usd-21-46-billion-with-40-of-the-contribution-from-north-america---technavio-301607727.html#:~:text=NEW%20YORK%2C%20Aug.,at%20a%20CAGR%20of%2012.25%25.>

⁵⁹ <https://www.yahoo.com/now/global-plant-based-food-market-133000345.html>

⁶⁰ <https://brandessenceresearch.com/vegan/plant-based-food-market-report>

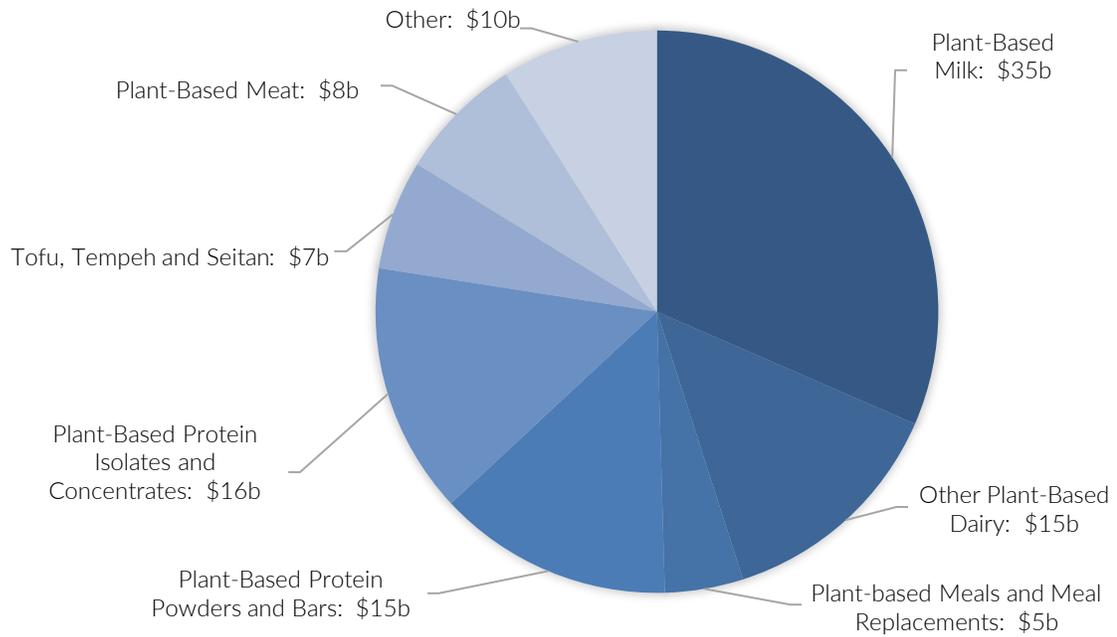


Figure 5: Alternative protein sales by subcategory (current), in USD billions

Conclusion

While not every year will be a year of growth for the plant-based meat sector, and while taking significant market share will require further advances in quality and price, a more fulsome review of the data suggests plant-based meat alternatives—and alternative protein products and ingredients more generally—will clearly make up a larger portion of the protein category in the years to come.