2024 STATE OF THE INDUSTRY:

Plant-based

meat, seafood, eggs, dairy, and ingredients

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Editor's note

Plant-based meat offers a globally scalable way to meet rising demand and diversify the food supply.

In 2024, the sector progressed in published research, product innovation, and manufacturing capacity. The scientific innovation ecosystem expanded with a notable investment of $90 million to launch three Bezos Centers for Sustainable Protein in the United States (North Carolina), London, and Singapore. New products launched, like plant-based whole-cut steaks and chicken breasts. And new plant-based manufacturing facilities opened across the dairy, meat, and ingredient categories.

Amid this momentum, the plant-based foods sector also continued to face challenges in 2024. Some of the largest markets, particularly the United States, have experienced consecutive years of retail sales declines. Reflecting elevated interest rates and a subdued funding environment, investments in plant-based companies have fallen. Gains in research and development increasingly reveal the promise of plant-based meat, but greater global support is needed to help plant-based meat production sustainably scale up, bring down costs, and create delicious, in-demand foods.

Like many transformative innovations in their early days, plant-based meat, seafood, eggs, and dairy face a set of difficult—if predictable—challenges, including early-stage funding constraints and technical and cost hurdles. Yes, these challenges are big. But in 2024, several bright spots emerged. Diversified companies reaffirmed their commitment to the sector by investing in new facilities, product launches, and partnerships.

Globally, pockets of growth developed—from plant-based milk and creamer in U.S. foodservice to upward trends in plant-based meat retail sales in several European countries. A growing global network of innovators is making such progress possible, while still just scratching the surface of what's possible in the pursuit of protein innovation.

If the world is to satisfy growing demand for meat in vastly more sustainable ways, however, we'll need far more progress and at a quicker pace. In 2024, the World Bank published Recipe for a Livable Planet, which examined 26 of the agriculture, forests, and food sector's most promising emissions mitigation interventions. The analysis ranked a shift toward alternative proteins second for climate mitigation potential, at 6.1 GtCO2 eq per year—six times the equivalent of eliminating air travel worldwide. If we are to fulfill growing global demand for meat in ways that reduce emissions, continuing to innovate and diversify protein production is essential.

At GFI, we see a path forward that will help feed more people in ways that use fewer resources while bolstering food security and economies. Our annual State of Alternative Proteins report series equips food system stakeholders with an in-depth understanding of the alternative protein sector, including its biggest challenges and its major opportunities. This report, 2024 State of the Industry: *Plant-based meat, seafood, eggs, dairy, and ingredients*, details the major innovations and developments that moved the field forward.

We remain grateful and inspired by all those around the world who are advancing alternative proteins, and as such, helping to write this next extraordinarily important chapter of food and agriculture.

About GFI's State of Alternative Proteins series

GFI's State of Alternative Proteins series serves as our annual alternative protein sector deep dive. The series compiles business developments, key technologies, policy updates, and scientific breakthroughs from around the world that are advancing the entire field. To read other reports, visit the series homepage.

Symbols to look for

Throughout the State of Alternative Proteins series, look for symbols highlighting how developments in the past year advanced the alternative protein sector in the areas of health and nutrition, sustainability, and path-to-market progress.

Health

Sustainability

Path-to-market

Please note that the Good Food Institute is not a licensed investment or financial advisor, and nothing in this report is intended or should be construed as investment advice.

Executive summary

In 2024, global retail sales of plant-based meat, seafood, milk, yogurt, ice cream, and cheese rose five percent to reach $28.6 billion, according to Euromonitor. In the United States, the plant-based food retail market totaled $8.1 billion, more than double what it was just seven years ago, but representing a slight decline from $8.5 billion in 2022, according to SPINS data. While the impact of high inflation played out in the market and consumers expressed widespread frustration around grocery costs, positive signs for the plant-based sector emerged in 2024, including innovative new product launches, a growing demand for plant-based eggs, and improved velocities (how fast items are turning over at shelf) across several plant-based categories.

Behind the scenes, the plant-based meat sector progressed in other ways—expanded production capacity, new science and innovation hubs, and important path-to-market wins. At the same time, the sector continued to face challenges, including technical and cost hurdles, decreased investments, and varying sales performance across global markets. Consumer research makes clear a major driver: some products do not currently meet consumers' expectations for taste and price, and more work is required for companies to connect with consumers on the particular benefits of plant-based products, like health and sustainability.

As a sector still in its relatively early days and just scratching the surface of its potential, each year brings milestones across science, industry, and policy. These are among the notable advancements of 2024.

Commercial landscape

- **New and expanded manufacturing capacity:** At least 26 plant-based facilities opened, expanded, or were announced in 2024, including the retrofit of conventional protein facilities. **Danone** converted a conventional yogurt facility to plant-based yogurt production, while **Lactalis Canada** reopened a former dairy plant as a plant-based milk facility. **Cocuus** and **Revo Foods** opened 3D food printing facilities in Spain and Vienna. Irish shellfish producer **Errigal Bay** and New Zealand oat milk producer **Otis** each opened oat milk facilities in their respective countries.

- **New product launches:** In the meat and seafood categories, **Kraft Heinz** introduced plant-based hot dogs and sausages as part of their joint venture with **NotCo**, **Unilever**'s The Vegetarian Butcher brand introduced new plant-based chicken and fish products in select European regions, and **Nestlé** debuted new ground plant-based meat products in Latin America and Africa. Dairy launches included **Danone**'s plant-based infant formula and yogurt products, **Lactalis Canada**'s new plant-based milk brand, and **Bunge** and **Arla Foods**' plant-based butter products.

- **New strategic partnerships:** At least 13 partnerships were formed in the plant-based sector in 2024, with activity centering around plant-based meat product development, production technology, and plant-based dairy. For example, plant-based meat producer **Steakholder Foods** formed at least three partnerships centered around producing products using Steakholder's 3D printing technology, including agreements focusing on plant-based beef, fish, and regional cuisines.

Investments

- **Significant deals:** The three largest plant-based deals in 2024 were **Heura**'s $43 million, **Oatside**'s $35 million, and **Plantible**'s $30 million Series B rounds.
- **The long-view context:** The investment environment of the past two years has been fundamentally different from the low-interest-rate period before 2022, when the 30 largest rounds in privately held plant-based protein companies were raised.
- **Total raised:** Privately held companies primarily involved in plant-based meat, seafood, eggs, or dairy have raised $8.4 billion since 2006, while publicly traded companies have secured $2.5 billion.

Science and technology

- **Faba bean protein is an emerging ingredient of interest:** Faba beans have a favorable neutral taste, light color, high protein content (20%-25%), accessible genomics for straightforward breeding, and, like peas, are nitrogen-fixing pulses that benefit soil health. In 2024, **Roquette**, **Bunge**, and **Wide Open Agriculture** leveraged these benefits in their new faba bean protein isolates.
- **Research ecosystem expansion:** New research centers and collaborations were announced across the globe, with a notable investment of $90 million by the Bezos Earth Fund. The funds were pledged to three Bezos Centers for Sustainable Protein at North Carolina State University, Imperial College London, and the National University of Singapore, which will bring stakeholders together across disciplines to develop and commercialize alternative proteins.
- **Assessing the sensory landscape:** In 2024, the world's largest publicly available sensory analysis of plant-based meats was published by Food System Innovations NECTAR initiative, establishing new benchmarks for innovation and transparency in the sector. Most plant-based products still have room to win over consumers, but top performers in every category show what's possible with more R&D—while the average plant-based nugget has already achieved taste parity with its animal-based counterpart. The study identified specific R&D areas in flavor, texture, and appearance for each of the five categories surveyed, with meatiness needed in all five.

Government and regulation

- **Chile:** In January 2024, the Chilean Court of Appeals of Valdivia dismissed a lawsuit filed by the Association of Milk Producers of the Los Ríos Region, which sought to prevent Chilean plant-based dairy company NotCo from using the term "milk" on their plant-based beverages, which are labeled as "NotMilk." The court of appeals found that NotCo's plant-based milk label clearly states the product is not milk and is unlikely to confuse consumers who want to purchase cow's milk, setting a valuable precedent for other plant-based products in Chile.
- **Europe:** In November 2024, the European Food Safety Authority Panel on Genetically Modified Organisms found Impossible Foods' soy leghemoglobin to be safe for consumption. The ingredient is made from modified yeast using precision fermentation and is what lends the signature "bleeding" quality to their alternative protein products. The soy leghemoglobin is now pending final approval by the European Commission and the EU member states.
- **United States:** In January 2025, the U.S. Food and Drug Administration (FDA) released draft guidance on the Labeling of Plant-Based Alternatives to Animal-Derived Foods. The guidance would apply to plant-based meat, seafood, eggs, and dairy (other than milk, which was addressed separately by FDA in 2023). The draft guidance states that plant-based food labels can include the names of animal-derived foods, so long as the labels are not misleading.

Unless otherwise cited, all of the investment information presented in this "Executive Summary" is from GFI's analysis of data from the Net Zero Insights platform. Please note that aggregated data has not been reviewed by Net Zero analysts.

Commercial landscape

Overview

The plant-based meat, dairy, and egg industry has achieved significant growth over the past decade. According to Euromonitor, global retail sales for plant-based meat, seafood, milk, yogurt, ice cream, and cheese grew from $17.7 billion in 2015 to $28.6 billion in 2024 (Euromonitor does not report on plant-based eggs). Plant-based meat sales rose from $2.2 billion to $6.1 billion over the same period.

Yet global sales growth for these products slowed in recent years, and some regions have experienced consecutive years of retail sales declines. Investments in plant-based companies have fallen amid a subdued funding environment, leading to company closures and industry consolidation. According to consumer research, many products on the market do not yet meet consumers' taste and/or price expectations, and more work is needed for companies to reach consumers effectively on the benefits of plant-based products, like nutrition and sustainability.

There are tailwinds for brands that can effectively meet consumer needs. A 2024 study conducted by GFI found that almost three-quarters (71 percent) of U.S. consumers aged 18 to 59 are open to consuming plant-based meat and/or dairy. Almost a fifth (18 percent) of these consumers indicate they have already reduced their conventional meat consumption, and 82 percent "strongly" or "somewhat" agree that "more people will eat plant-based meat in the future."

Progress occurred across several fronts in 2024. Diversified companies reaffirmed their commitment to the plant-based sector by investing in new facilities, product launches, and partnerships. Plant-based facilities opened across the dairy, meat, and ingredient categories, and new, innovative products, from whole-cut steaks to chicken breasts, debuted across formats, regions, and distribution channels.

Amid an evolving landscape, the sector continued to innovate and diversify in 2024.

Facilities

Increased plant-based protein manufacturing capacity adds diversity and resilience to the global food supply and allows companies to lower costs through economies of scale. The facilities that opened in 2024 spanned scale-up phases, product types, and production processes, positioning the industry to better address a range of consumer needs.

New openings: At least 26 plant-based facilities opened, expanded, or were announced in 2024. The facilities spanned conversions from conventional dairy to plant-based dairy production, novel processing facilities, and new oat milk manufacturing plants.

- **Danone** converted a conventional yogurt facility to plant-based yogurt production.
- **Lactalis Canada** reopened a former dairy plant as a plant-based milk facility.
- **Cocuus** and **Revo Foods** opened 3D food printing facilities in Spain and Vienna.
- Irish shellfish producer **Errigal Bay** and New Zealand oat milk producer **Otis** each opened oat milk facilities in their respective countries.

Introducing innovation hubs: At least five plant-based technology centers or innovation hubs opened or were announced in 2024.

- Three facilities in the United States included the **University of California Davis**'s Integrative Center for Alternative Meat and Protein (iCAMP), **GEA**'s alternative protein technology center in Wisconsin, and **Givaudan**, **MISTA**, and **Bühler**'s extrusion hub in San Francisco.
- Danish potato producer **KMC** opened a plant-based innovation facility in Denmark, and contract research organization **NIZO** opened an innovation and test center in the Netherlands. These facilities enable pre-commercial product testing and innovation, allowing companies to de-risk processes, demonstrate commercial viability, and reduce scale-up costs.

A growing ingredient supply chain: Five facilities focused on processing legumes and pulses opened or were announced in 2024.

- **INTACT**'s facility in France, **Integra Foods**' facility in Australia, **Louis Dreyfus Co.**'s plant in Canada, **SCHULE Mühlenbau**'s facility in Latvia, and **Lantmännen**'s plant in Sweden all focus on using peas, fava beans, and other pulses to create foods made with plant-based protein isolates and concentrates.

Plant-based meat facilities: Four facilities dedicated primarily to plant-based meat production opened in 2024.

- The 2024 openings included **SWAP Food**'s plant-based whole-cut facility in France, a **Garden Gourmet** plant in Serbia, **Innohas**' facility in South Korea, and **Plant & Bean**'s 25,000-ton-capacity plant in Thailand.

Photo credit: Hart & Highland

Company landscape

Tables 1 and 2 provide alphabetized lists of the top plant-based meat and milk brands by Euromonitor's global retail dollar sales estimates in 2024.

Table 1. Brands with the highest total plant-based milk retail dollar sales globally
Alphabetized

Brand	Parent company	Headquarters	Year founded
AdeS	The Coca-Cola Company	United States	1982
Alpro	Danone S.A.	France	1919
Blue Diamond	Blue Diamond Growers	United States	1910
Coconut Palm	Coconut Palm Group Co. Ltd.	China	1956
Kikkoman	Kikkoman Corp.	Japan	1917
Lolo	Wanxiang Sannong Group	China	1969
Oatly	Oatly Group AB	Sweden	1994
Silk	Danone S.A.	France	1919
Vitasoy	Vitasoy International Holdings Ltd.	Hong Kong, SAR, China	1940
Yangyuan	Hebei Yangyuan Zhihui Beverage Co. Ltd.	China	1997

Source: Euromonitor International Limited [2024] © All rights reserved. Note: Private label brands are not included.

Table 2. Brands with the highest total plant-based meat and seafood retail dollar sales globally
Alphabetized

Brand	Parent company	Headquarters	Year founded
Beyond Meat	Beyond Meat, Inc.	United States	2009
Field Roast	Maple Leaf Foods, Inc.	Canada	1991
Gardein	ConAgra Brands, Inc.	United States	1919
Garden Gourmet	Nestlé SA	Switzerland	1866
Impossible Foods	Impossible Foods, Inc.	United States	2011
MorningStar Farms	Kellanova (fmr. Kellogg's)	United States	1906
Quorn	Monde Nissin Corp.	United Kingdom	1985
Rügenwalder Mühle	Rügenwalder Mühle	Germany	1834
Tivall	Nestlé SA	Switzerland	1866
Yves Veggie Cuisine	The Hain Celestial Group, Inc.	United States	1993

Source: Euromonitor International Limited [2024] © All rights reserved. Note: Private label brands are not included.

Involvement by diversified companies

Diversified companies reaffirmed their commitment to plant-based foods by establishing partnerships, debuting new products, and expanding plant-based production capacity through new and retrofitted facilities in 2024.

- **New product launches:** In the meat and seafood categories, **Kraft Heinz** introduced plant-based hot dogs and sausages as part of their joint venture with **NotCo**, **Unilever**'s The Vegetarian Butcher brand introduced new plant-based chicken and fish products in select European regions, and **Nestlé** debuted new ground plant-based meat products in Latin America and Africa. Dairy launches included **Danone**'s plant-based infant formula and yogurt products, **Lactalis Canada**'s new plant-based milk brand, and **Bunge** and **Arla Foods**' plant-based butter products.
- **Partnerships:** Partnerships formed by diversified companies in 2024 included **IFF**, **Unilever**, and **Wageningen University**'s research partnership to address plant-based meat flavor challenges, and **Chunk Foods** and **Better Balance**'s (owned by **Sigma Alimentos**) product development agreement to develop plant-based whole cuts.
- **Facilities: Danone** and **Lactalis Canada** converted conventional dairy facilities to plant-based dairy production, and **Nestlé** opened a plant-based meat production facility.

Table 3. Diversified company involvement in plant-based meat, seafood, eggs, and dairy
2024

✓ Previous activity ✓ New 2024 activity

	Investment	Acquisition	Partnership	R&D and manufacturing
ABInBev				✓
Bunge				✓
Cargill	✓		✓	✓
Coca-Cola				✓
Danone	✓	✓	✓ ✓	✓ ✓
General Mills	✓			✓

Hormel Foods				✓
JBS		✓		✓
KraftHeinz		✓	✓	✓✓
Lactalis				✓
Maple Leaf		✓		✓
Mein Berger Schinken				✓
Nestlé	✓	✓		✓✓
Pepsico	✓		✓	✓
Sigma			✓	
Smithfield				✓
Tyson	✓			✓
Unilever			✓	✓

Source: GFI analysis of publicly reported industry news and events.

New partnerships

At least 13 partnerships were formed in the plant-based sector in 2024, with activity centering around plant-based meat product development, production technology, and plant-based dairy.

- **Plant-based meat and seafood product development:** Plant-based meat producer **Steakholder Foods** formed at least three partnerships centered around producing products using Steakholder's 3D printing technology, including agreements focusing on plant-based beef, fish, and regional cuisines. **Revo Foods** and **Paleo** partnered to develop plant-based salmon, and **Planteneers GmbH** and **Handtmann** collaborated to create marbled and fibrous plant-based meat products.
- **Automated plant-based meat production:** American plant-based meat manufacturing technology startup **Rebellyous Foods** partnered with **RMS Foods** to deploy a fully continuous plant-based meat production system, the **Mock 2**, aimed at increasing production and reducing costs.
- **Plant-based dairy:** Swiss supermarket chain **Coop** partnered with Australian food tech company **Kern Tec** and Swiss dairy manufacturer **Emmi Group** to develop a milk alternative made from apricot pits. **Protein Industries Canada**, one of the country's five innovation clusters, launched a new collaborative project to enhance plant-based cheese's taste, texture, price, and nutritional value alongside industry players like **Daiya Foods** and **Ingredion**.

Curious about the latest information on alternative protein trade organizations? Take a look at a list of alternative protein industry organizations here.

Partnerships help companies improve product quality and accessibility by leveraging shared expertise to develop new products, optimize inputs, conduct research, scale production, and expand distribution. These activities can improve outcomes for individual companies and the industry as a whole.

Product launches

Startups and large consumer packaged goods (CPG) firms debuted plant-based products across product types, distribution channels, and global regions in 2024.

- **Regional trends:** Product launch activity was highest in Europe, where sales and private investment trends remain most resilient.
- **Active categories:** The dairy and beef categories experienced the most product launches and distribution gains, while products also debuted in lesser-known formats, including plant-based octopus, lamb, calamari, and turtle soup.
- **New positioning:** Multiple large plant-based meat companies refreshed their branding in 2024 to better reach consumers around key concerns, including taste and health. **Beyond Meat** unveiled new health-focused formulations and packaging for their plant-based beef and dinner sausage products, and **Impossible Foods** debuted a new brand identity featuring red packaging to appeal to meat-eating consumers.

Plant-based products continue to expand into new product formats, channels, and regions, giving consumers greater access to a variety of high-quality protein options.

For a deeper dive into 2024's alternative protein industry news, check out previous editions of GFI's Alternative Protein Opportunity newsletter.

Sales

Overview: U.S. sales

When GFI began tracking plant-based food sales in U.S. retail, we sized the 2017 market at $3.9 billion, according to SPINS data. By 2022, the market had more than doubled to $8.5 billion. In 2024, plant-based food sales declined slightly to $8.1 billion.

The impacts of high inflation continue to play out in the U.S. market. Consumers express widespread frustration with grocery costs and indicate they are making different choices due to high prices, a challenge for plant-based categories typically priced at significant premiums compared to conventional counterparts. Additionally, there are indications that products need to deliver a more compelling value proposition. Consumer research shows that taste and price are top barriers to eating plant-based meat, and consumers are also looking for benefits like health to motivate them to switch.

Despite the challenging environment, there were positive signs in 2024. In retail, plant-based price increases slowed, velocities (an indication of how fast items are turning over at shelf) improved across many categories, and new products were launched. Six in 10 U.S. households purchased plant-based foods, and nearly 80 percent of those households purchased more than once, similar to the prior year. In foodservice, plant-based milk and creamer continued to grow. The nascent category of plant-based eggs saw impressive gains, which seem poised to continue as highly pathogenic avian influenza (HPAI) spreads among egg-laying hens in the United States.

Key insights from 2024:

- **Retail sales:** The U.S. plant-based food retail market totaled $8.1 billion in 2024, more than double what it was just seven years ago. Sales were down 4% in dollars and 5% in units versus 2023 levels.
- **Retail category performance:** Several plant-based categories grew in U.S. retail, including protein powders and liquids, tofu, tempeh, seitan, and baked goods and other desserts. The plant-based meat and seafood and plant-based milk categories declined, although several large plant-based milk brands experienced strong growth.
- **Retail velocities:** Across many plant-based food categories in U.S. retail, velocities improved, suggesting assortments are being optimized, and prices stabilized.
- **Foodservice category performance:** In U.S. foodservice, plant-based milk sales grew and continued to hold a 12% share of total milk sales. Plant-based creamer and egg sales also increased. Plant-based protein sales were down slightly.

U.S. retail

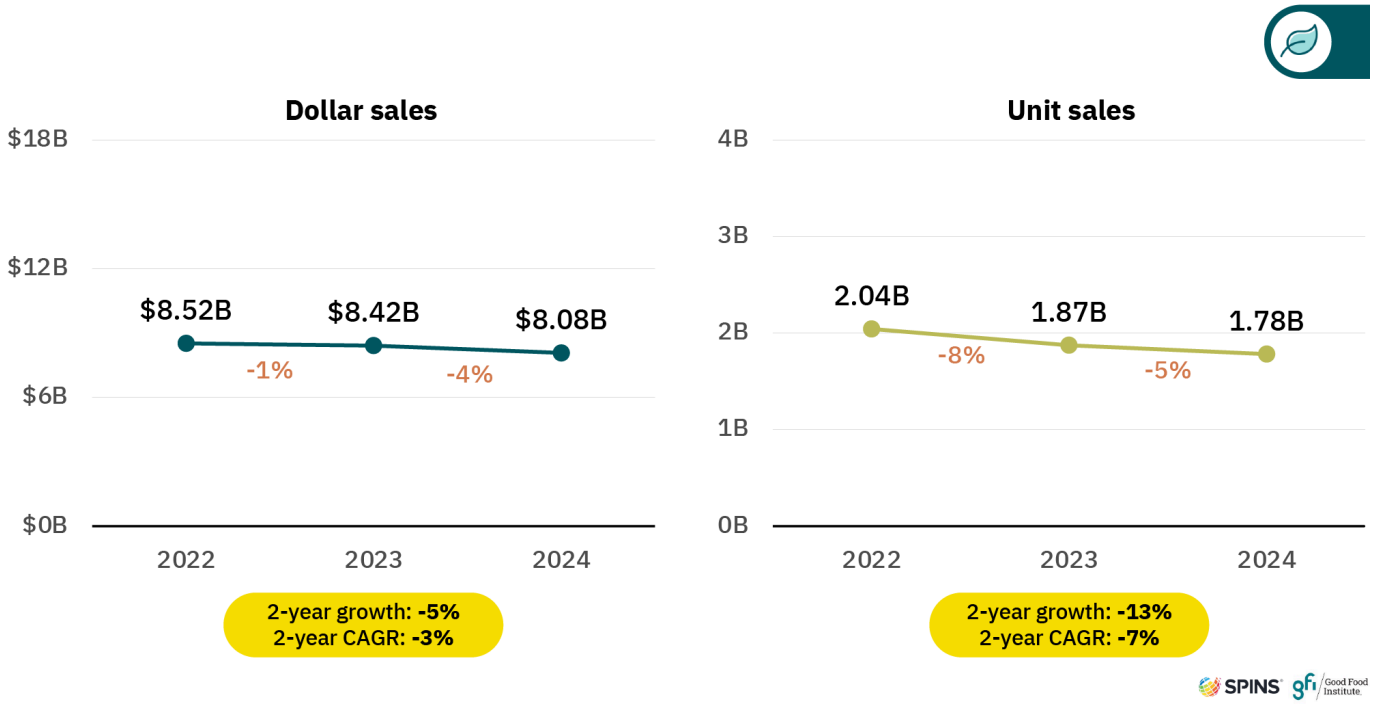
Insights released by GFI and the Plant Based Foods Association (PBFA) and based on retail sales data commissioned from SPINS show that the 2024 U.S. retail plant-based food market totaled $8.1 billion. Dollar sales were down four percent year-over-year, and unit sales were down five percent. Dollar declines were higher than in 2023, while unit declines were lower as prices held fairly steady.

The total food and beverage category was relatively stable in retail in 2024. Unit sales were flat while dollars grew two percent, driven by price increases. Conventional meat and seafood unit sales grew three percent while dollar sales grew four percent. Conventional milk dollar sales grew one percent while units were flat. Most other conventional dairy categories experienced growth.

Despite overall sales declines, the retail plant-based food market showed signs of stabilization and pockets of growth in 2024. While distribution declined across channels, both dollar and unit velocities improved overall and for many categories in both the conventional multi outlet (MULO) and natural channels. While some products were discontinued, others were launched. New and reformulated products reflect brands learning and optimizing to better meet consumer needs as the market evolves.

Average retail prices for plant-based foods grew only one percent (compared to a two percent increase for total food and beverage) after seeing an 18 percent increase over the prior two years. However, prices for most plant-based categories remained two to four times higher than conventional counterparts on a per-pound, per-gallon, or per-dozen basis.

Figure 1. Plant-based foods market, U.S. retail
2022-2024



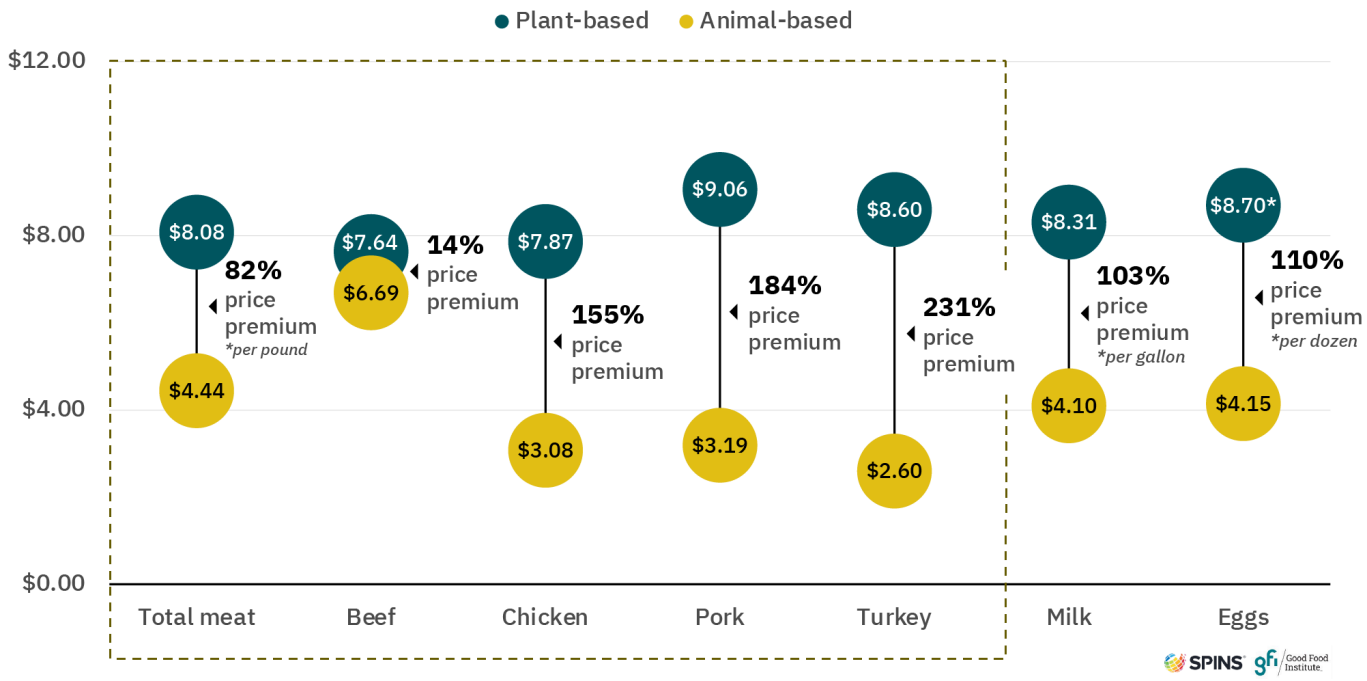
Sales data note: The data presented in this graph is based on custom GFI and PBFA plant-based categories that were created by refining standard SPINS categories. Due to the custom nature of these categories, the presented data will not align with standard SPINS categories.
Source: Total market = SPINS Natural Expanded Channel + SPINS Conventional Multi Outlet Channel + SPINS Convenience Channel (powered by Circana) | 52 Weeks Ending 12/1/2024.

Plant-based milk remained the largest category, worth $2.8 billion in 2024 despite experiencing dollar and unit sales declines. It accounted for about 14 percent of total milk category dollar sales in retail. Some large plant-based milk brands experienced meaningful sales growth in 2024, suggesting their products are resonating well with consumers. Five of the 10 largest brands accounted for 26 percent of plant-based milk dollar sales in 2024 and collectively experienced 10 percent dollar growth.

Dollar sales for plant-based meat and seafood totaled $1.2 billion in 2024, down seven percent from 2023, marking the third consecutive year of declines. Plant-based meat and seafood's dollar share was 1.7 percent of total retail packaged meat dollar sales, or approximately 0.8 percent of the total meat category, including random-weight meat. In the natural channel, the category's share of packaged meat dollar sales was notably higher at eight percent.

Some plant-based categories demonstrated strong performance in 2024. Plant-based protein powders and liquids, bars, ready-to-drink beverages, tofu, tempeh, seitan, and baked goods and other desserts all saw increases in both dollar and unit sales in 2024.

Figure 2. Plant-based versus animal-based price per weight comparison
2024



*Per dozen prices for plant-based eggs were estimated using the egg "equivalent" from product packaging. This differs from previous years when a less robust estimate of ounce equivalent was used; that approach underestimates equivalency for powdered egg replacements. Source: Plant-based meat prices per pound are based on frozen and refrigerated plant-based meat subcategories from SPINS year ending 12/1/24. Animal-based meat prices per pound are based on data for fresh meat subcategories from the Circana year ending Dec. 2024. Plant-based milk prices per gallon and plant-based egg prices per dozen are based on the custom plant-based categories created by GFI & PBFA from SPINS data year ending 12/1/24. Animal-based milk and egg prices from U.S. Bureau of Labor Statistics—December 2024 value.

Table 4. Retail plant-based category dollar and unit sales

2023-2024

Category	2024 dollar sales	Dollar sales growth (2023–2024)	2024 unit sales	Unit sales growth (2023–2024)	Average retail price change (2023–2024)
Plant-based milk	$2.8 B	-5%	721 MM	-4%	-1%
Plant-based meat and seafood	$1.2 B	-7%	195 MM	-11%	+4%
Plant-based creamer	$760 MM	-4%	153 MM	-4%	0%
Plant-based meals	$442 MM	-17%	84 MM	-18%	+2%
Plant-based protein liquids and powders	$450 MM	+11%	30 MM	+13%	-2%
Plant-based yogurt	$400 MM	+1%	143 MM	-4%	+5%
Plant-based ice cream and frozen novelty	$357 MM	-7%	66 MM	-8%	+1%
Plant-based butter	$323 MM	-6%	78 MM	-5%	-1%
Plant-based bars	$290 MM	+1%	71 MM	+2%	-1%
Plant-based ready-to-drink beverages	$264 MM	+2%	64 MM	+2%	0%
Plant-based cheese	$218 MM	-4%	43 MM	-3%	0%
Tofu, tempeh, and seitan	$221 MM	+7%	73 MM	+6%	1%
Plant-based cream cheese, sour cream, and dips	$132 MM	-4%	24 MM	-2%	-2%
Plant-based baked goods and other desserts	$111 MM	+13%	18 MM	+13%	0%
Plant-based condiments and dressings	$80 MM	-15%	13 MM	-16%	1%
Plant-based eggs	$46 MM	+2%	7 MM	-24%*	+34%*
TOTAL	**$8.1 B**	**-4%**	**1.8 B**	**-5%**	**1%**

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*Significant unit sales declines and price increases for eggs were driven by the leading product in the category shifting to a larger package size at a comparably higher price point.
Sales data note: The data presented in this graph is based on custom GFI and PBFA plant-based categories that were created by refining standard SPINS categories. Due to the custom nature of these categories, the presented data will not align with standard SPINS categories.
Source: Total market = SPINS Natural Expanded Channel + SPINS Conventional Multi Outlet Channel + SPINS Convenience Channel (powered by Circana) | 52 Weeks Ending 12/1/2024.

Six in 10 U.S. households purchased plant-based foods in 2024, and nearly 80 percent of those households purchased more than once. Household penetration was down by one point from 2023 and down from an estimated high of 66 percent in 2021.

Repeat rates (the percentage of households buying more than once) have remained relatively steady over that time. Four in 10 households purchased plant-based milk in 2024, the highest penetration among plant-based categories.

Table 5. Purchase dynamics for plant-based categories
2024

	Household penetration	Repeat rate
Total plant-based foods	59%	79%
Milk	40%	76%
Meat and seafood	13%	63%
Yogurt	6%	58%
Cheese	4%	54%
Eggs	1%	56%
Ice cream and frozen novelties	9%	53%
Creamer	14%	66%
Butter	8%	55%
Tofu, tempeh, and seitan	7%	59%

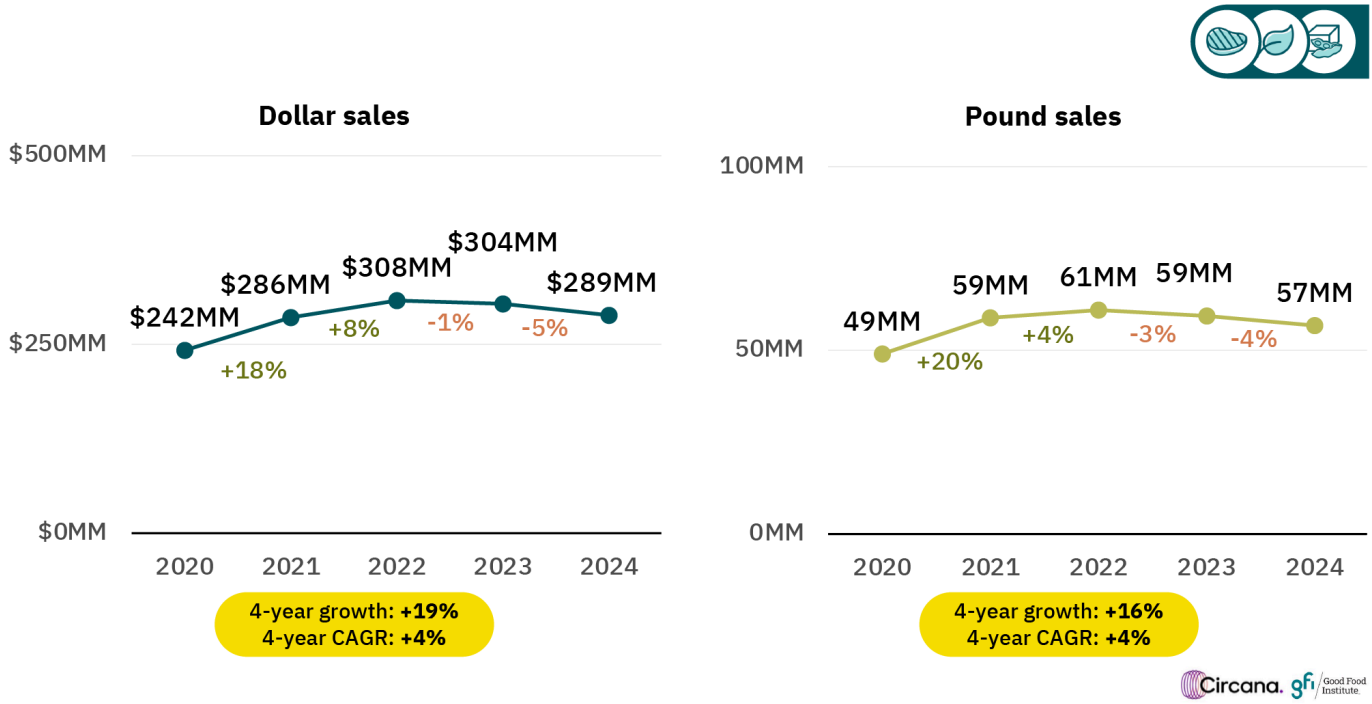
Household data note: SPINS uses a separate process from the sales data to pull household panel data which may result in minor category differences. Source: SPINS, National Consumer Panel (powered by Circana), All Outlets, 52 Weeks Ending 12/1/2024.

U.S. foodservice

The U.S. foodservice sector experienced moderate growth in 2024, the second consecutive year of relative stability after the volatility caused by the COVID-19 pandemic. Circana's data on total food operator purchases from broadline distributors showed that in 2024, dollar sales increased four percent and pound sales increased two percent. Animal-based meat and milk also grew.

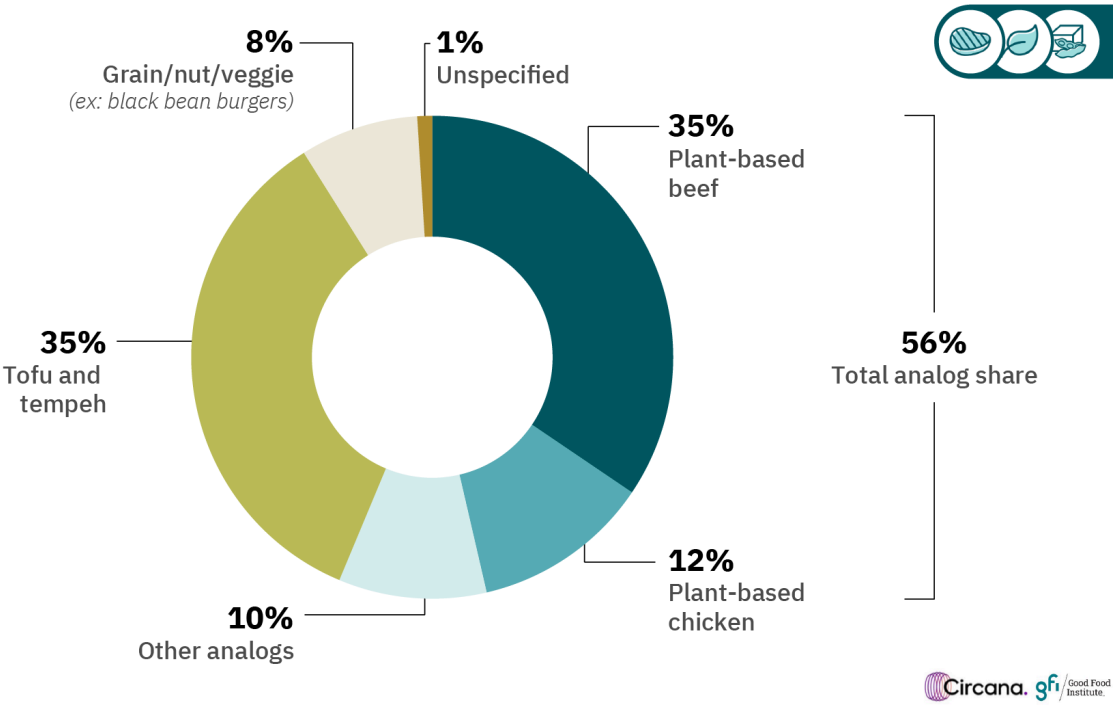
Mirroring trends seen in retail, the plant-based proteins category (which includes analog plant-based meat and seafood products, tofu, tempeh, and grain/nut/veggie items such as black bean burgers) declined in foodservice in 2024. Dollar sales were down five percent and pound sales were down four percent. Most analog animal types and formats as well as grain/nut/veggie products experienced losses. Notable bright spots were the overall plant-based pork category and other specific formats, including pork patties, chicken tenders, and chorizo sausage, which all grew. Additionally, tofu and tempeh both saw sales gains. Tofu and plant-based beef each accounted for about one-third of plant-based protein pound sales.

Figure 3. Plant-based proteins market, U.S. broadline distributor foodservice sales
2020-2024



Source: Circana/SupplyTrack, Product Class: Plant-based proteins (analogous meat alternatives, grain/nut/veggie alternatives, tofu/tempeh). Dollar and pound sales are 12 months ending December 2024 vs. four prior years.

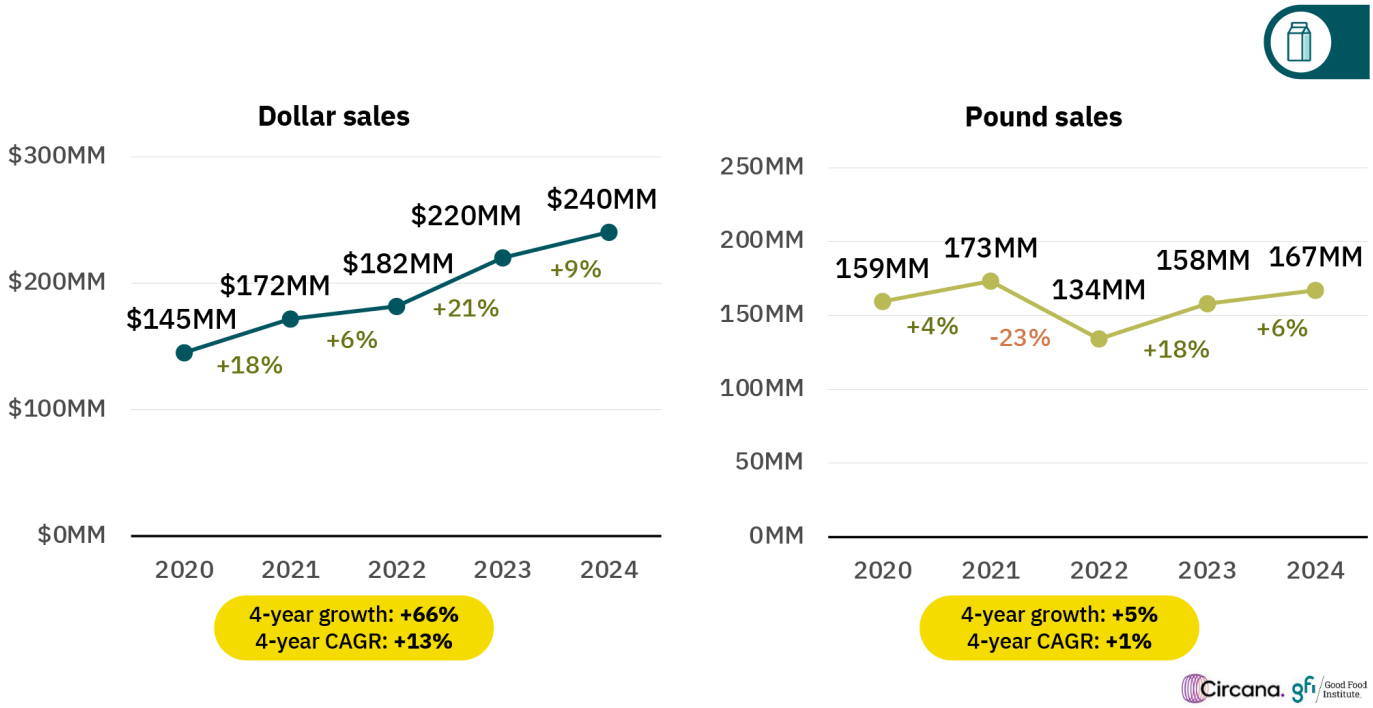
Figure 4. Share of plant-based protein pound sales from U.S. broadline distributors
2024



Note: Based on product substitution type
Source: Circana/SupplyTrack, Product Class: Plant-based proteins (analogous meat alternatives, grain/nut/veggie alternatives, tofu/tempeh). Dollar and pound sales are 12 months ending December 2024 vs. four prior years.

Plant-based milk grew in foodservice in 2024, with dollar sales up nine percent and pound sales up six percent. Animal-based milk sales also grew, so plant-based milk continued to hold a 12 percent pound share of the total milk category in broadline distributor sales. Plant-based creamer dollar sales grew five percent in 2024, while the relatively small plant-based cheese category experienced dollar sales declines of 12 percent.

Figure 5. Plant-based milk market, U.S. broadline distributor foodservice sales
2024



Source: Circana/SupplyTrack, Product Class: Milk alternatives. Dollar and pound sales are 12 months ending December 2024 vs. four prior years.

The plant-based egg category remains small in U.S. foodservice but has grown quickly over the past several years. In 2024, plant-based eggs reached $7.3 million, an increase of 28 percent over 2023 (and twice the size of 2021). Animal eggs also experienced dollar sales growth driven by price increases, while pound sales were flat.

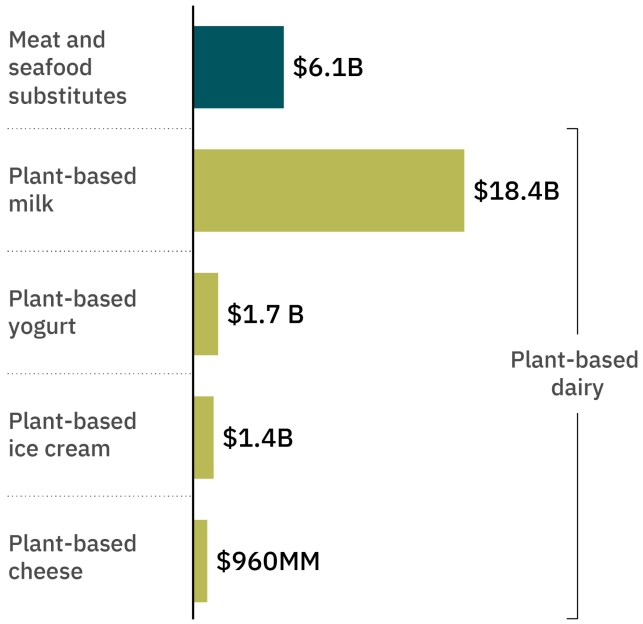
Plant-based eggs hold a less than one percent share of the foodservice egg market but may be poised to capture additional share as animal egg prices continue to rise due to increasing rates of highly pathogenic avian influenza.

Global retail

Global retail sales of plant-based meat, seafood, milk, yogurt, ice cream, and cheese totaled an estimated $28.6 billion in 2024, a five percent increase over 2023, according to Euromonitor International. This total further breaks down as follows:

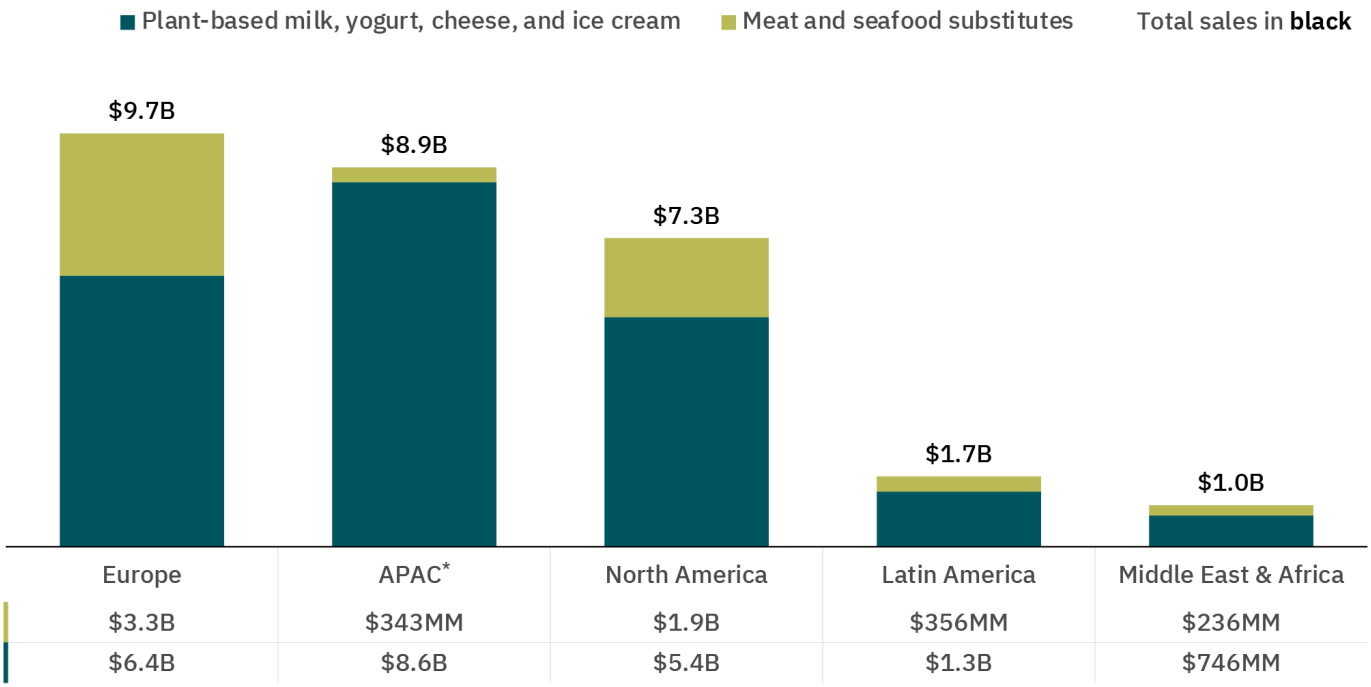
- **Global retail plant-based meat and seafood sales:** Global retail sales totaled $6.1 billion, up approximately 4% from 2023. Sales were concentrated in Europe and North America.
- **Global retail plant-based dairy sales:** Estimates reached an impressive $22.4 billion, up 5% from 2023. The Asia Pacific region accounted for over a third of plant-based dairy sales (driven by plant-based milk). Europe and North America were also significant markets. Plant-based milk accounted for over 80% of global retail plant-based dairy sales. Plant-based yogurt, ice cream, and cheese remain nascent categories across markets. However, growth in the plant-based cheese category (+11%) outpaced the overall dairy category in 2024.

Figure 6. Global plant-based foods retail sales estimates by category
2024



Source: Euromonitor International Limited 2024 © All rights reserved: Staple Foods 2024, Meat & seafood substitutes; Snacks 2024, Plant-based ice cream; Dairy Products and Alternatives 2023, retail value RSP incl sales tax, US$ fixed 2024 exchange rate, current prices.

Figure 7. Global plant-based foods retail sales estimates by region
2024



Source: Euromonitor International Limited 2024 © All rights reserved: Staple Foods 2024, Meat & seafood substitutes; Snacks 2024, Plant-based ice cream; Dairy Products and Alternatives 2023, retail value RSP incl sales tax, US$ fixed 2024 exchange rate, current prices.
*APAC includes both the APAC and Australasia regions as defined in the Euromonitor dataset.

In summary: U.S. market

The overall U.S. plant-based foods market, as well as the categories of plant-based milk and plant-based meat and seafood, experienced declining retail sales in 2024. In U.S. foodservice, plant-based milk grew, while plant-based proteins (which include plant-based meat and seafood) declined.

There were positive trends in the U.S. retail plant-based foods market. Velocities increased across channels for many categories while price increases slowed. The percentages of households buying plant-based foods and buying multiple times were relatively stable.

There were also pockets of growth. In retail, plant-based protein powders and liquids, tofu, tempeh, seitan, and baked goods and other desserts saw meaningful sales gains. In foodservice, plant-based milk and creamer continued to grow, plant-based pork and tofu grew, and the nascent category of plant-based eggs saw impressive gains.

There is still work for plant-based products to meet consumer needs and achieve sustained growth, but consumer research suggests there is a significant opportunity. A 2024 study conducted by GFI found that almost three-quarters of U.S. consumers aged 18 to 59 are open to consuming plant-based meat and/or dairy. Many indicate that to consume (more), they want taste and price to improve and they are looking for benefits like specific health and nutrition attributes. With continued innovation and consumer engagement, the industry can meet these needs.

Plant-based meat and seafood U.S. deep dive

Plant-based meat and seafood is a key category within the plant-based market. Significant growth over the past decade has been driven by products that appeal to mainstream consumers by seeking to replicate the taste, texture, and functionality of animal meat. Recent years have been challenging for this category, but according to SPINS data there were signs of stabilization and bright spots in the market in 2024:

- **Sales declines slowed.** U.S. plant-based meat and seafood retail sales were $1.2 billion in 2024. Sales declined but at a lower rate than in 2023.
- **Velocities improved, especially in the natural channel.** Retail sales declines were driven by distribution losses, but velocities showed improvement, indicating products are turning faster at shelf. In the natural channel, which is often on the leading edge of change in the retail sector, dollar velocity increased 12%, while in the conventional multi outlet (MULO) channel, dollar velocity was up 2%.
- **Retail price increases moderated.** Average U.S. retail prices for plant-based meat and seafood increased 4%, slower growth than the previous two years. However, this was higher than the animal meat price increase of 1%, and plant-based meat and seafood products remain at significant price premiums to animal equivalents.
- **Market shares are higher in some channels and formats.** Plant-based meat and seafood's dollar share was 1.7% of total U.S. retail packaged meat, or approximately 0.8% of the total meat category, including random-weight. In the natural channel, the category's share of packaged meat dollar sales was notably higher at 8%. Some meat types and formats also enjoy higher shares. For example, we estimate that plant-based beef patty products held a 4%-5% share of total retail packaged beef patty dollar sales.
- **Repeat rates are steady.** The percentage of U.S. households buying plant-based meat was 13%, down from 15% in 2023. However, repeat rates have been relatively constant over recent years.
- **Consumers are interested.** Almost three-quarters of U.S. consumers aged 18 to 59 say they are open to consuming plant-based meat and/or plant-based dairy. Within this group, several unique segments of consumers express even stronger interest in plant-based meat if products can meet their needs around the core attributes of taste and price and deliver differentiated benefits like health.

For additional information on the plant-based market in the U.S., explore our retail market insights and plant-based sales analysis.

Table 6. Key plant-based meat and seafood sales metrics and purchase dynamics
2024

	Plant-based meat and seafood
Dollar sales	$1.2B
1-yr. dollar growth	-7%
Dollar share	0.8%**
Unit sales	195MM
1-yr. unit growth	-11%
Unit share	1.1%**
Household penetration	13%
Repeat rate	63%

Sales data note: The data presented in this graph is based on custom GFI and PBFA plant-based categories that were created by refining standard SPINS categories. Due to the custom nature of these categories, the presented data will not align with standard SPINS categories.

**SPINS does not report non-UPC animal-based meat counter sales. To calculate the plant-based meat share of the total meat category, dollar and unit volume assumptions for non-UPC animal-based meat counter sales are added to SPINS UPC animal-based meat sales.

Household data note: SPINS uses a separate process from the sales data to pull household panel data which may result in minor category differences.

Source: Sales data—Total market = SPINS Natural Expanded Channel + SPINS Conventional Multi Outlet Channel + SPINS Convenience Channel (powered by Circana) | 52 Weeks Ending 12/1/2024.

Household data—SPINS, National Consumer Panel (powered by Circana), All Outlets, 52 Weeks Ending 12/1/2024.

Tailwinds for plant-based eggs

Plant-based eggs is a relatively small category that accounted for less than one percent of total egg sales in U.S. retail in 2024, according to SPINS. However, the category appears poised for growth. By the end of 2024, rates of highly pathogenic avian influenza were rising rapidly, driving up the cost of conventional eggs. According to BLS data, the average price for a dozen eggs was $4.15 in December 2024, up 65 percent from the year prior, and continuing to climb. Egg shortages were reported across retailers.

This may motivate consumers to look for alternatives. It also reduces the price premium for plant-based eggs, which were still more than two times as expensive as conventional eggs in December 2024. The last spike in conventional egg prices due to bird flu in 2022 led to significant gains in the plant-based egg market. While some of those gains were lost as conventional egg prices dropped the following year, SPINS data shows retail plant-based egg unit sales were still up eight percent from 2021 to 2023 (while conventional egg sales declined four percent). The plant-based egg category might be even better able to retain consumers this time around. The percentage of households buying plant-based eggs more than once has been climbing steadily, increasing from 44 percent in 2022 to 56 percent in 2024, suggesting products are meeting consumer needs better than ever before.

U.S. retail market data collection

Point-of-sale (POS) data

To size the U.S. retail market for plant-based foods, GFI and PBFA commissioned retail sales data from the market research firm SPINS. The firm built the dataset by first pulling in all products with the SPINS "plant-based positioned" product attribute. The dataset was further edited by adding plant-based private-label products. Inherently plant-based foods, such as chickpeas and kale, are not included. Due to the custom nature of these categories, the retail data presented may not align with standard SPINS categories. Additionally, SPINS pulled in relevant mainstream subcategories (excluding plant-based positioned products) to create the "Conventional" categories discussed. Finally, the total food and beverage category was pulled, bringing in all grocery, frozen, and refrigerated edible items across the retail grocery landscape as well as protein powders and bars. SPINS obtained the data over the 52-week, 104-week, and 156-week periods ending December 1, 2024, from the SPINS Natural Expanded Channel and SPINS Conventional Multi-Outlet and Convenience Channels (powered by Circana).

Photo credit: IFF, Inc.

SPINS defines these channels as follows:

Conventional Multi Outlet (MULO) Channel: More than 110,000 retail locations (powered by Circana) that cover the Grocery Outlet (stores with $2M+ annual all commodity volume), the Drug Outlet (chains and independent stores, excluding prescription sales), and selected retailers across Mass Merchandisers (e.g., Walmart, Target), Club (e.g., Sam's Club), Dollar, all Military, and Amazon F3 (Fresh, Prime Now, Go).

- **Natural Expanded Channel:** More than 2,500 full-format stores with over $2 million+ in annual sales and 30% or more of UPC-coded sales from the Health & Wellness Industry and 15% or more from the Natural Product Industry Product Universes.
- **Convenience Channel:** More than 150,000 convenience locations (powered by Circana) that are less than 5,000 square feet, have extended hours, stock at least 500 SKUs, and provide a mix of grocery items like beverages, snacks and confections, and tobacco.

This is generally considered the broadest available view of retail food sales, although not all retailers are represented. Some companies do not report their scan data to Circana but are represented via projections. Please note that this study's methodology has changed compared to that used in previous reporting by GFI. We do not recommend comparing data released in prior years to the data included here.

Consumer panel data

To understand consumer purchasing dynamics and demographics, GFI and PBFA also commissioned consumer panel data from SPINS. The process for pulling the panel data was separate from that for the POS data, which may result in minor category differences. SPINS combines Circana Scan Panel with proprietary Product Intelligence to provide a unique view into shopper incrementality, loyalty, cross-purchase, demographics, and more. SPINS obtained the data over the 52-week, 104-week, 156-week, and 208-week periods ending December 1, 2024, from all U.S. outlets.

U.S. foodservice data collection

Distributor to operator sales data

GFI, in partnership with PBFA, commissioned foodservice sales data from Circana, focusing on various plant-based and conventional categories. Circana collects point-of-sale data from selected broadline distributors for their SupplyTrack Tracking Service. This data reflects itemized sales from broadline distributors shipped to foodservice operators. The SupplyTrack service currently tracks 19 participating broadline distributors, data from 280+ categories, and collects 700K+ operator purchases monthly. SupplyTrack covers ~42 percent of the total foodservice landscape (86 percent of all broadline distribution). Broadline distributor sales generally skew toward small-/medium-sized chains and noncommercial operators and away from large chains; however, the data reaches both commercial and noncommercial operators across sizes and the following segment types:

- **Commercial**: Quick Service Restaurants, Full Service Restaurants, Convenience Stores, Food Stores, and Other Retail.
- **Noncommercial:** Education, Government, Health Care, Business and Industry, Lodging/Casino, Recreation, and other noncommercial environments.

The SupplyTrack data obtained from Circana covers plant-based protein sales across the U.S. market for the five years 2020, 2021, 2022, 2023, and 2024, all 12 months ending in December.

Global retail market data collection

To analyze the global market, GFI licensed data from Euromonitor, which provides standardized retail sales data across global regions. The company assembles data through a combination of desk research, store checks, trade surveys, and company analysis.

Desk research relies on data and insights from a variety of sources, including Euromonitor's proprietary Passport data, government and official publications, trade press, trade associations, industry study groups, company financials and annual reports, broker reports, online databases, and financial and business media.

In-store checks and web scraping of retailer sites collect data on product innovations, attributes, pack sizes, and formats. They also analyze brand pricing across channels while capturing insights into marketing and merchandising trends.

Trade surveys supply additional or missing data such as: a consensus view of the size, structure, and strategic direction of a category; year-in-progress data where published sources are out of date; and expert views on current trends and market developments.

Company analysis: At the global level, Euromonitor's research combines industry interaction with secondary sources such as broker reports, financial press, company accounts, and databases. The goal is to build "top-down" estimates of major players' total global and regional sales. At the country level, Euromonitor accesses nation-specific company databases, local company websites, and annual accounts in line with local reporting requirements.

Note: Data is based on Euromonitor's "plant-based dairy," "plant-based ice cream," and "meat and seafood substitutes" categories. "Meat and seafood substitutes" includes chilled, frozen, and shelf-stable products. Data may differ from previous reports.

Investments

Overview

Privately held companies primarily involved in plant-based meat, seafood, eggs, or dairy have raised $8.4 billion since 2006, while publicly traded companies have secured $2.5 billion. In 2024, the plant-based sector attracted $309 million in total funding, virtually all of which was raised by privately held companies.

The wider ecosystem of companies involved primarily in alternative proteins brought in $18.6 billion in funding from 2015 to 2024—$16 billion raised by privately held companies and $2.5 billion secured by publicly traded firms. In 2024, privately held alternative protein companies raised $1.1 billion. The slowdown in funding followed the trend in the broader climate tech and CPG sectors, which also experienced consecutive annual funding declines since 2021. While the broader venture funding sector experienced slight growth in 2024, the increase was primarily due to the rise in artificial intelligence (AI) funding, which rose to nearly $100 billion in 2024 and may have redirected capital flows from other industries.

In recent years, the broader investment environment (particularly elevated interest rates), high production and materials costs, and slowing sales reduced the flow of capital into the plant-based sector, resulting in fewer companies generally receiving smaller quantities of funding.

Private funding is a proxy for the resources available to an industry, not the innovation or progress occurring within it. Plant-based companies expanded into unique product formats, formed new partnerships, and implemented process improvements in 2024. For these advancements to continue, companies need access to more resources.

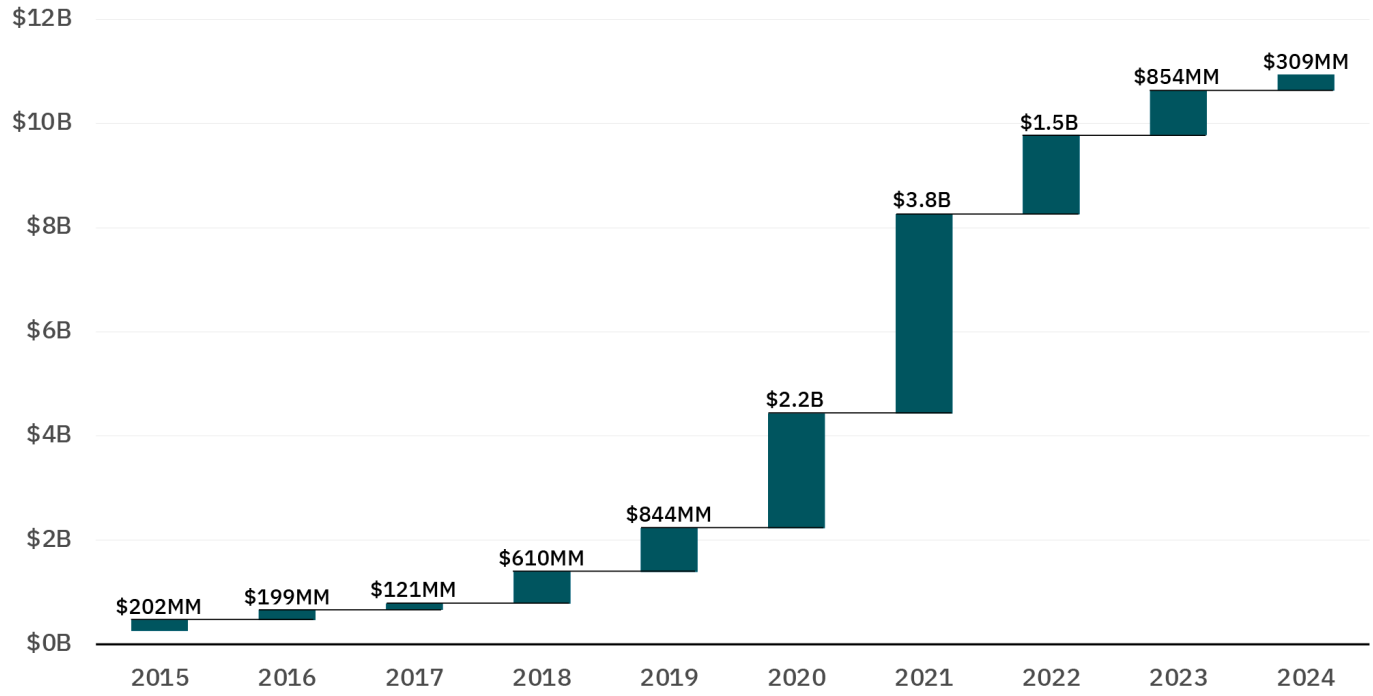
Venture capital is only one piece of the funding puzzle, and plant-based companies must continue to pursue creative and multipronged funding strategies to access the capital needed for the industry to achieve scale.

Key investment highlights from across the plant-based ecosystem include:

- **Significant deals:** The three largest plant-based deals in 2024 were **Heura**'s $43 million, **Oatside**'s $35 million, and **Plantible**'s $30 million Series B rounds.
- **The long-view context:** The investment environment of the past two years has been fundamentally different from the low-interest-rate period before 2022, when the 30 largest rounds in privately held plant-based protein companies were raised.
- **Notable mergers and acquisitions: Ahimsa Companies** acquired British plant-based food company **Wicked Kitchen** and their subsidiaries **Good Catch** and **Current Foods** in June 2024, plant-based chicken nugget company **Simulate** in October 2024, and plant-based pizza company **Blackbird Foods** in early 2025. CPG investment arm **MPearlRock** acquired U.S. coffee creamer and oat milk company **nutpods** in January 2024, and **The Aussie Plant-Based Co.** was acquired out of liquidation by Australian food manufacturer **Smart Foods**.
- **Difficult venture capital environment:** Amid an overall decline in climate tech investments, food, agriculture, and land use was only 8% of venture funding in climate tech in Q4 2023 through Q3 2024, despite comprising 22% of global emissions.

Figure 8. Cumulative and annual investment in plant-based companies

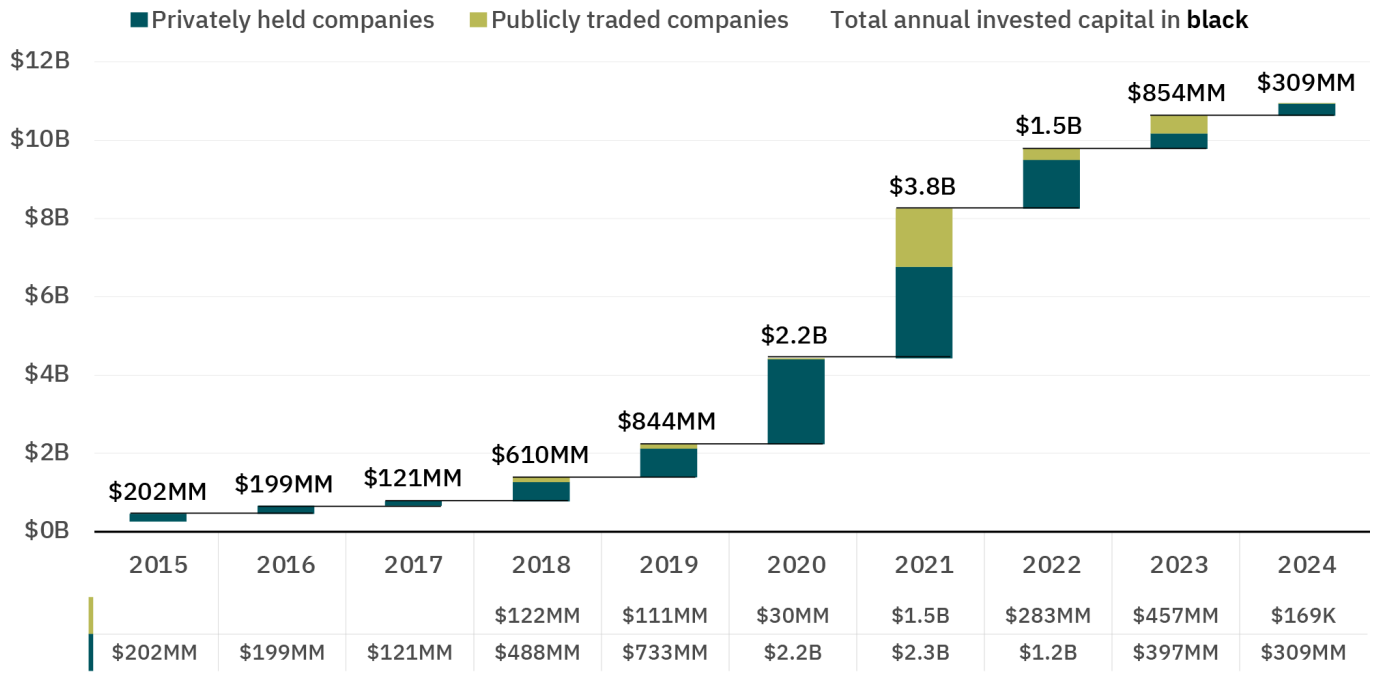
2015-2024



Source: GFI analysis of data from Net Zero Insights.
Note: Aggregated data has not been reviewed by Net Zero Insights analysts. The total deal count includes deals with undisclosed amounts.

Figure 9. Investment in privately held and publicly traded plant-based companies

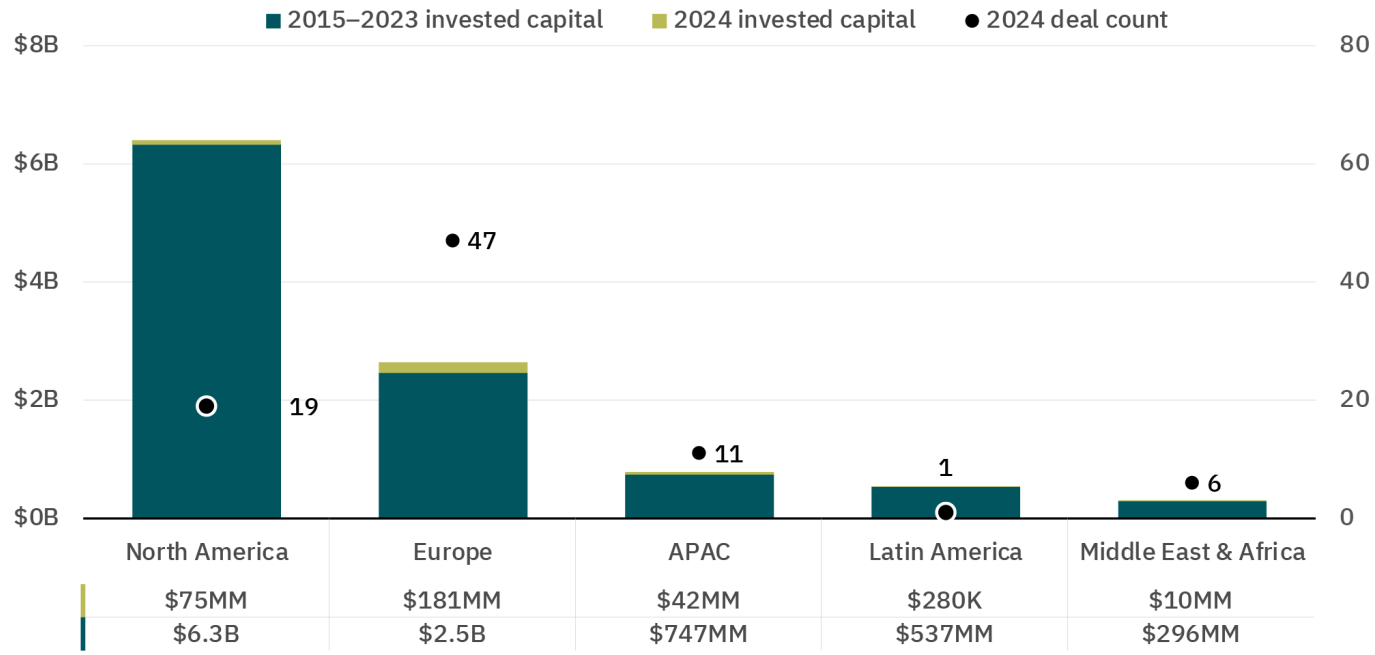
2014-2024



Source: GFI analysis of data from Net Zero Insights.
Note: Aggregated data has not been reviewed by Net Zero Insights analysts. The total deal count includes deals with undisclosed amounts.

Figure 10. Investments in plant-based companies by region

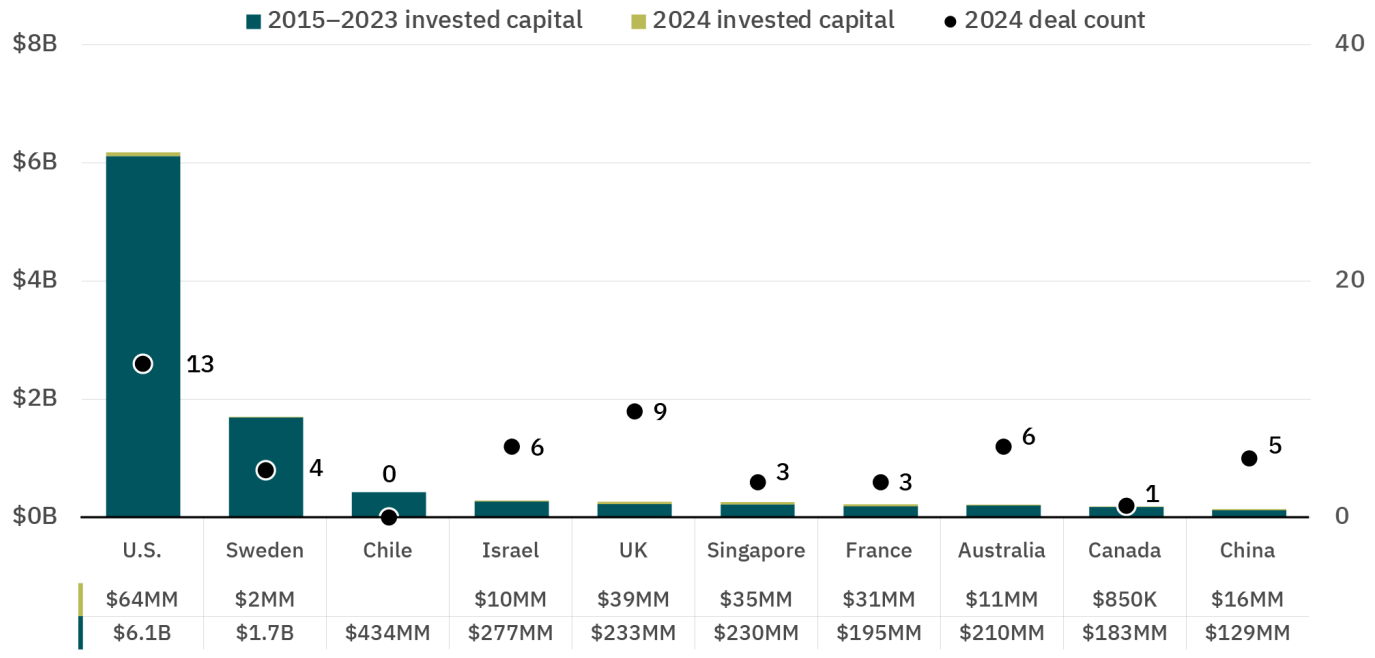
2015-2024



Source: GFI analysis of data from Net Zero Insights.
Note: Aggregated data has not been reviewed by Net Zero Insights analysts. The total deal count includes deals with undisclosed amounts.

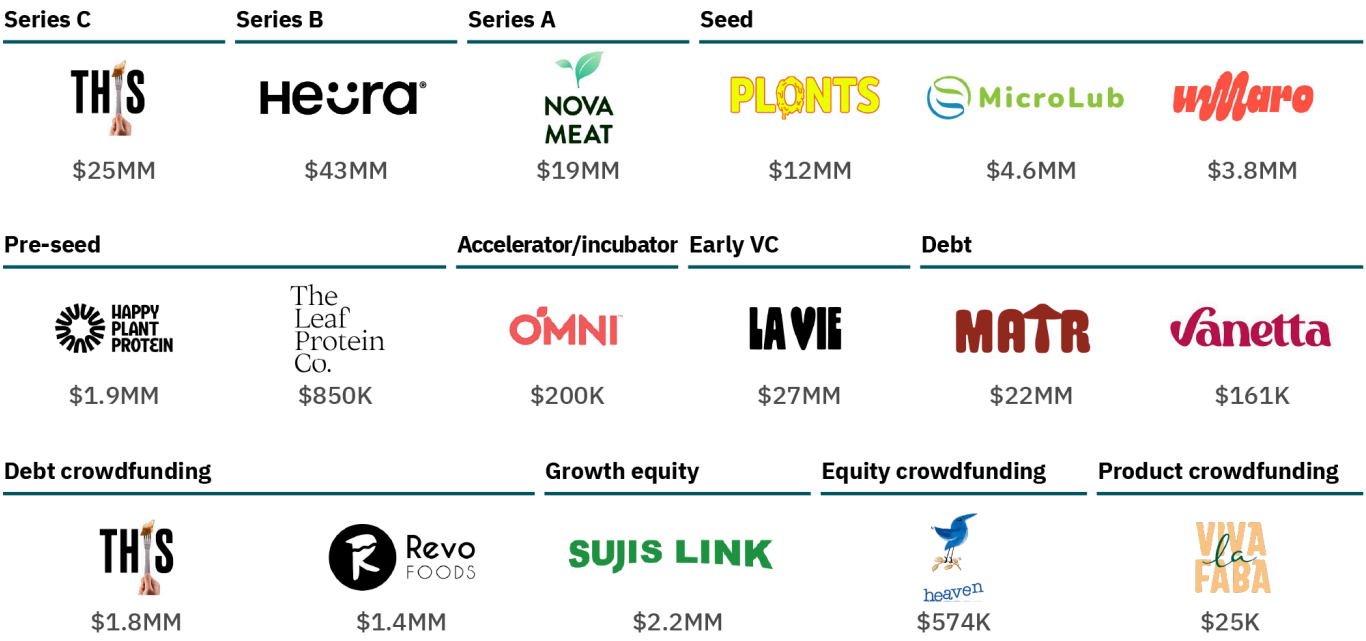
Figure 11. Investments in plant-based meat and seafood companies: Top 10 countries

2015-2024



Source: GFI analysis of data from Net Zero Insights.
Note: Aggregated data has not been reviewed by Net Zero Insights analysts. The total deal count includes deals with undisclosed amounts.

Figure 12. 2024 key funding rounds



Source: GFI analysis of data from Net Zero Insights.
Note: "2024 key funding rounds" includes investments in the 75th percentile or higher by dollar amount for each funding round category that includes more than three deals. For funding round categories that include three deals or fewer, all deals are included. Aggregated data has not been reviewed by Net Zero Insights analysts. The total deal count includes deals with undisclosed amounts.

Key trend #1: A tight capital landscape

The private funding landscape for plant-based meat, dairy, and eggs differs from a few years ago. Global interest rates in 2024 were elevated relative to recent years' lows, and investors have had several years to track the industry's evolution. Investors are demonstrating more discretion in allocating funding to the sector, and it seems that, on average, investments going forward will be distributed to fewer companies and in smaller quantities than during the low-interest-rate environment of 2020 to 2022.

If a company possesses unique technology, an innovative approach, or a high-potential target market, its funding path may diverge from the trajectory of the broader category.

Successful exits for plant-based companies—or alternative proteins more broadly—could lead to a meaningful increase in category-wide private capital flows.

Until that point, plant-based investments will likely remain closer to the levels seen in recent years. Even if the venture market shifts, it is unlikely to soon return to the peak environment of 2021, which was driven by an extended period of near-zero and even negative interest rates following the 2008 financial crisis. Additionally, while that investment environment spurred some venture funders to support capital expenditure projects, venture capital is not typically well-suited to fund new facilities. As a result, companies looking to scale, especially via first-of-a-kind facilities, will likely need to identify alternative sources of funding.

Key trend #2: Consolidation in the plant-based sector

This new investment environment, paired with ongoing sales declines in many regions, means some manufacturers will be unable to secure funding and will downsize, close operations, or merge with other organizations. This was the case for a handful of companies in 2024, but consolidation should not be equated with a weakening plant-based ecosystem. Consolidation is inevitable for any nascent sector, and mergers, acquisitions, and intellectual property transfers can accelerate the dissemination of technology and expertise within an industry.

In the early 2000s, 25 companies were capable of producing the world's smallest semiconductors. By 2018, there were three. Funding, cost, and taste challenges remain for plant-based proteins, but lessons from other industries show that growth can be achieved over a long and winding road. The sector's progress should be judged on multiple factors—including product taste, price, accessibility, and consumer acceptance—rather than the trajectory of private funding alone.

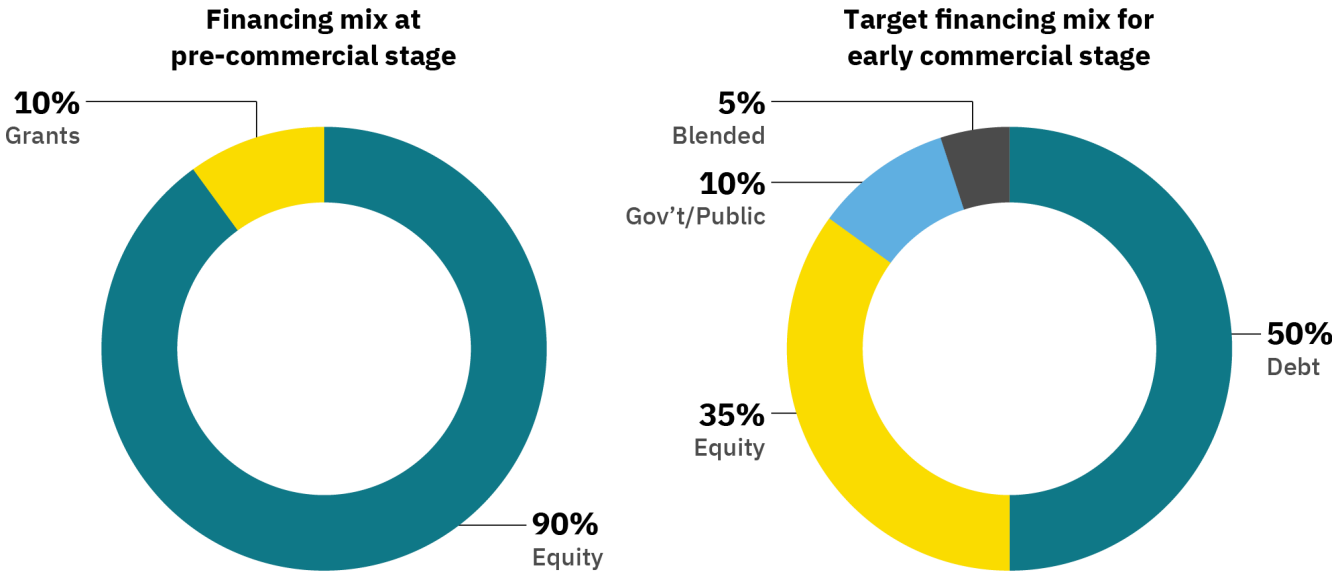
Key trend #3: Various funding sources needed to fuel plant-based sector growth

It is more important than ever that companies, investors, governments, and philanthropists develop innovative funding solutions that support the growth of the plant-based industry. GFI's Funding the build report, published in 2024, explored potential avenues for companies looking to scale, such as equipment leasing, strategic partnerships, sovereign wealth funds, blended finance, and government programs. Still, there are no silver bullets to fill funding gaps in the plant-based sector.

Plant-based proteins hold the potential to improve food security, reduce emissions, and protect public health. To realize these outcomes, plant-based companies need more funding, and governments, investors, and philanthropists should work together—as has been done for clean energy development—to position the sector for long-term success.

Photo credit: Fifth Taste Foods, LLC

Figure 13. Two examples of mixed funding strategies



Source: GFI, Funding the build.

To more accurately reflect investment trends in the cultivated meat and alternative protein sectors, GFI updated our reporting methodology for the 2024 State of Alternative Proteins report series to differentiate alternative protein funding according to whether a company is publicly traded or privately held. Find an overview of our investment data methodology here and take a look at previous editions of the investor newsletter here for a deeper dive into this year's activity.

Unless otherwise cited, all investment data reported in this Investments section was derived from GFI's analysis of data from the Net Zero Insights platform.

Note: Aggregated data has not been reviewed by Net Zero Insights analysts. Total deal counts include deals with undisclosed amounts.

The Good Food Institute is not a licensed investment or financial advisor, and nothing in the State of the Industry report series is intended or should be construed as investment advice.

Consumer insights

Overview

New research expanded our understanding of consumer demand for plant-based meat in 2024. GFI's U.S. surveys found more than half of Americans say they have tried plant-based meat and provided deeper insight on why those consumers eat (or stop eating) plant-based meat. GFI Europe published a comprehensive public look at plant-based meat's retail performance. In Brazil, India, and Southeast Asia, new research on products and consumer perceptions expanded our understanding of these developing and valuable markets.

Unless otherwise cited, all data reported in this section was derived from a survey by Morning Consult on behalf of GFI of n=3,079 U.S. adults, December 2024.

Why do U.S. consumers choose plant-based meat?

U.S. consumers' outlook on plant-based meat stayed mostly consistent in 2024. Continuing trends seen in 2023, research suggests that the category continued to attract new consumers, but also that some previous purchasers stopped buying. Most see plant-based meat as healthy and sustainable, though many are looking for meatier-tasting and more-affordable products. This continues to be true for lapsed users, many of whom remain open to purchasing again in the future if companies can deliver tastier and more affordable products. And consumers' reasons for considering plant-based meat are diverse, ranging from personal health and nutrition to social reasons to convenience, tradition, and more, creating broad opportunities to grow the category.

While retail sales declined slightly in the United States and some consumers stopped purchasing, plant-based meat retained many loyal consumers and attracted some new ones in 2024.

- A total of 69% of U.S. adults have heard of plant-based meat.
- 53% of U.S. adults reported having tried plant-based meat.
- 40% of U.S. adults reported eating plant-based meat in 2024.
- 13% of U.S. adults reported eating plant-based meat in previous years but not in 2024, i.e., lapsed consumers. This equates to 25% of those who have tried plant-based meat (53%).

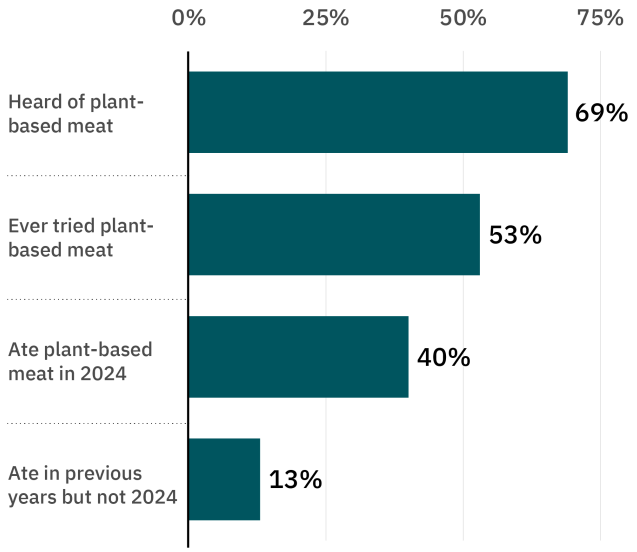
> ✦ *Key takeaway*
>
> In 2024, U.S. consumers continued to purchase plant-based meat, but remained hungry for meatier-tasting and more-affordable products.

For additional insights on consumer demand for plant-based meat in the U.S., see our consumer snapshot reports.

The *Consumer snapshot: Plant-based meat in the U.S.* report offers additional findings on key consumer groups and needs:

- Most plant-based meat eaters are omnivores, and a significant minority identify as "carnivores" trying to maximize their animal protein consumption.
- Health and nutrition are important reasons consumers choose plant-based meat, though taste has the strongest relationship with stated likelihood to consume plant-based meat.
- Many regular users don't find plant-based meat in their primary grocery stores, pointing to continued gaps in retail distribution and merchandising.
- Americans are most likely to hear about plant-based meat on social media, where mis- and disinformation about products is common.

Figure 14. U.S. plant-based meat consumer metrics
2024



Source: Survey by Morning Consult on behalf of GFI of 3,079 U.S. adults, December 2024.

There are many reasons Americans choose plant-based meat, and many people agree it is healthy, high in protein, and good for the environment. However, taste is a top consumer need, and remains a gap.

- People who see plant-based meat as "very" (not just "somewhat") tasty are much more likely to say they are likely to eat it in the future. But only 46% rate it as "very" or "somewhat tasty," and, of that, just 20% as "very tasty."
- Research by Mintel in 2024 similarly identifies taste and health as top purchase drivers among current consumers, and "taste" (36%) along with "price" (38%) as the top two reasons consumers cite for not purchasing plant-based proteins more often.

Sensory research by NECTAR found that of five plant-based product types tested (burgers, hot dogs, bacon, nuggets, tenders), only plant-based nuggets performed comparably to conventional chicken nuggets on overall satisfaction and several sensory metrics, and that the top-rated plant-based brand even outperformed conventional nuggets on flavor. It also found that blended meat products (also referred to as "balanced proteins," incorporating both plant-based and conventional animal ingredients) were rated higher than purely plant-based, characterized by lower levels of dislike and higher levels of moderate liking. Overall liking of both was lower than animal-based, but suggests blended products may at least appeal to consumers not satisfied with the sensory properties of current plant-based meat options. This isn't just true of American consumers: consumers in Southeast Asia also cite a strong interest in blended meat options (see "Are price reductions key to attracting South and Southeast Asian consumers?" below).

Other sensory testing research published in 2024 showed that some plant-based meats outperform blended products. Blended products are also new to market, suggesting that more product innovation and research will need to be done to understand blended products' ability to appeal to conventional meat-eating consumers.

Clear progress on closing the taste gap in the chicken nugget category was further supported by sensory panel data and consumer preferences on plant-based and animal-based chicken nugget and tender products conducted by Givaudan and Ingredion Incorporated in collaboration with the Good Food Institute between 2020 and 2022. That analysis found that several plant-based nugget products met or exceeded conventional counterparts on liking upon consumption.

For more information on how plant-based products deliver on consumers' taste expectations, see GFI's Substack.

Consumers who have tried plant-based meat but stopped eating cite "prefer[ing] animal meat" and being "too expensive" as their top two reasons. However, many remain open: According to a December 2024 survey conducted by Morning Consult on behalf of GFI, 36 percent claim they would purchase if "the taste and texture is exactly like conventional meat when trying a sample in-store." Others would be motivated if "it cost the same as conventional meat" (35 percent) and if "the label shows it has more protein than conventional meat" (24 percent).

Americans choose plant-based meat for diverse reasons: taste, health, specific nutrition goals and needs, sustainability, and more. With a minority of Americans buying plant-based meat regularly and fewer buying frequently, the industry will need to identify and prioritize growth opportunities to drive mainstream adoption and purchase frequency. GFI conducted research in 2024 to segment U.S. consumers on their unique combinations of attitudes and needs, and identified six segments, four of which present distinct short- to medium-term opportunities to grow consumer loyalty or attract new users to the category.

How can European consumers' dietary change goals be supported?

GFI Europe partnered with the Plant Futures Collective and HarrisX to conduct consumer research in the UK and Germany, Europe's two biggest plant-based markets. The findings reveal widespread flexitarian eating habits, as well as intent for further dietary change, but consumers need more support in overcoming barriers to eating plant-based foods.

The research found that 47 percent of German adults report that they are already actively reducing their intake of meat (39 percent) or following a meatless diet (eight percent). In the UK, the figure is 41 percent, with 31 percent reporting actively reducing their meat intake and nine percent saying they follow meatless diets (vegan, vegetarian, or pescatarian).

Furthermore, 51 percent of both Germans and Brits say they want to change their diets further, either by eating less meat and dairy, and/or by eating more plant-based foods. One in five adults in both countries intends to eat both more plant-based foods and less animal meat and dairy, with this cohort being particularly motivated by health and nutrition goals, as well as being more likely to consider animal welfare and the environment.

In both countries, consumers scored plant-based foods lower than animal meat and dairy on factors such as taste, availability, confidence in cooking, likelihood of their friends and family eating these foods, and likelihood of choosing these foods out of habit.

This suggests that to reach more consumers, the sector needs to overcome a lack of familiarity with plant-based foods (for example, by providing easily prepared product formats and simple recipe suggestions), continue improving taste, and clearly communicate the health and nutritional benefits of plant-based foods.

Meanwhile, retailers in Europe have made strides in pricing and merchandising plant-based meat that have been shown to drive consumer purchasing:

- Austria-based **BILLA** saw a 33% increase in sales of their private-label plant-based products priced at parity to or lower than their conventional counterparts, with meat analogues among their top-selling private-label plant-based items.
- Discounter store retailer **Lidl** sold an average of 7% more plant-based protein products during an integrated merchandising pilot in 70 stores in the Netherlands and increased plant-based meat sales by 30% in Germany after bringing plant-based meat products to price parity with conventional meat.

Are price reductions key to attracting South and Southeast Asian consumers?

GFI APAC conducted a first-of-its-kind consumer perception study on plant-based and conventional meat. It found that the market for plant-based meat remains less mature in Southeast Asia, but identifies several opportunities for growth.

- In the six markets featured in the study—Singapore, Thailand, Malaysia, Indonesia, Vietnam, and the Philippines—the consumers who expressed the most enthusiasm for plant-based meat were those who eat conventional meat most frequently, and are most likely to consume more conventional meat.
- Most Southeast Asian consumers cite a desire for more protein diversity and view plant-based meat as a chance to diversify their protein consumption. They also cited strong interest in "blended meat": 93% of surveyed consumers expressed an interest in trying blended meat, including more than three-quarters of people skeptical of trying fully plant-based meat and 80% of those who have eaten it but don't intend to again.

The biggest barrier holding Southeast Asian shoppers back from filling their baskets with plant-based meat, the study showed, is affordability.

- Among consumer segments that expressed high interest in eating plant-based meat, up to three-quarters said they would buy it at price parity with conventional meat. If plant-based meat manages to achieve a price 20% lower than conventional meat, more than 80% of *all* consumers say they would buy it, including about half of those who would otherwise reject it.
- GFI APAC research has shown that local alternative protein products currently run an average of 35% higher than their conventional counterparts, suggesting that price reductions in Southeast Asia have strong potential to drive purchases of plant-based meat.

GFI India conducted in-depth research on Indian consumers and found strong satisfaction with some product segments, but also that gaps remained on sensory attributes, cooking experience, and value. Consumers participated in three weeks of discussion, surveys, and activities to compare plant-based products to their conventional meat counterparts, including cooking and eating classic Indian preparations like kebabs, samosas, and keema in real in-home cooking occasions. While consumers rated products positively in terms of their packaging, and rated a plant-based mutton samosa comparably to its conventional counterpart in terms of taste, they identified several opportunities for improvement in terms of the products' texture, juiciness, and meatiness, and believed that all tested products lagged their conventional counterparts on perceived value. These findings point to specific opportunities to improve plant-based meat products' sensory and cooking experience, and suggest a need for the industry to deliver higher-value products.

Photo credit: Tomorrow Foods

Will Brazilians continue seeking out plant-based meats despite high prices and mixed availability?

A survey conducted by GFI Brazil with over 2,000 Brazilian ABC class consumers (middle and upper class) from all regions of the country revealed that 21 percent are seeking to reduce their consumption of animal products in their habitual diet. Most participants (64 percent) have some familiarity with plant-based meat analogs, and 18 percent have already tried them.

The alternative protein sector in Brazil presents significant opportunities due to the innovation of plant-based meat analogs, especially with a health-conscious audience. However, challenges such as the perception of high prices, the difficulty of finding products, and the need to offer attributes and experiences comparable to animal meat still need to be overcome.

To guarantee the growth and consolidation of the market, companies are prioritizing investment in developing products that are competitive in taste, improving the clear communication of benefits, making products more accessible and visible, and integrating these alternatives practically and familiarly into consumers' daily lives.

Science and technology

Overview

In 2024, researchers matured the plant-based meat industry by responding to consumer taste and cost demands. Key advances were made in optimizing emerging protein ingredient fractionation, texturization techniques with better control and consistency, and animal-free fats that are flavorful, affordable, and nutritious. Several themes emerged:

- **Innovating for the next wave of plant-based meats.** Historically, the ingredients for and production of plant-based meats have relied on crops with secure supply chains established for feed, fuel, and other foods. To form better products, the industry is focused on tailoring crop selection, ingredient optimization, and process scale up for plant-based foods. With fit-for-purpose ingredients and production, plant-based meat manufacturers will be better positioned to improve mouthfeel, flavor, and cost.

- **Confirming the nutritional and environmental benefits of plant-based meats.** Plant-based meat acceptance and trust are critical for mass adoption. Nutrition and health research, clarification of ultraprocessed food definitions, and environmental impact studies from 2024 demonstrate plant-based meat benefits to consumers while urging governments and investors to mobilize support.

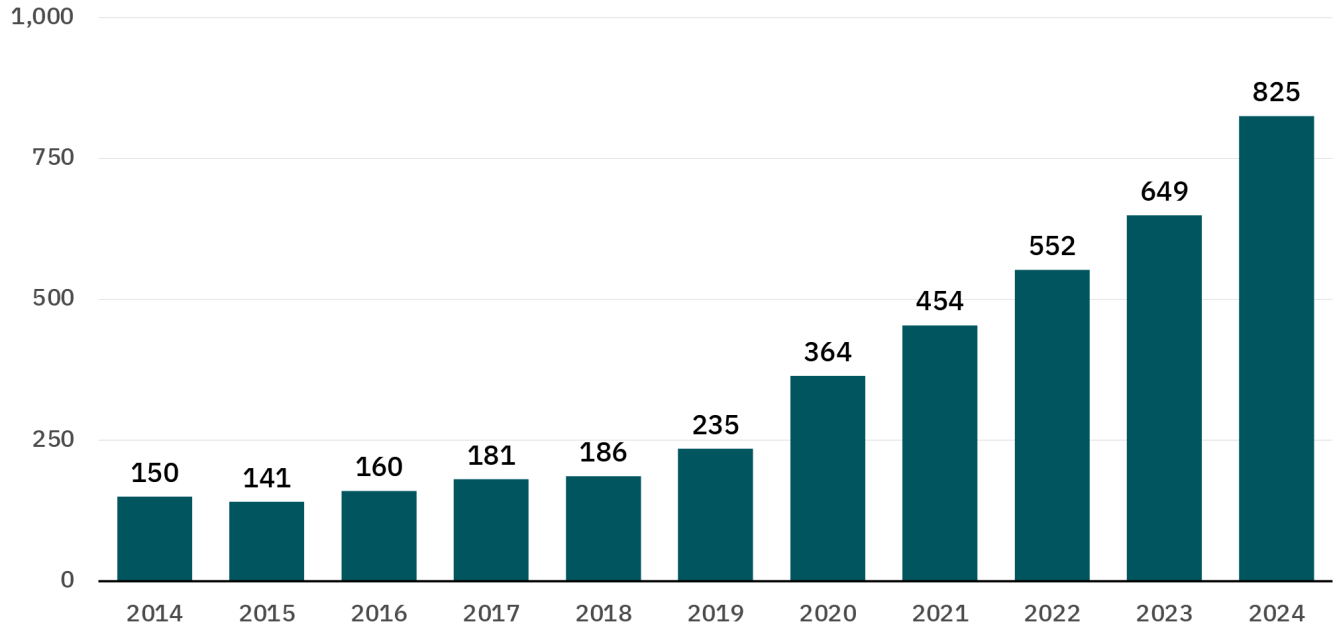
- **Leveraging collaborative ecosystems to strengthen value chains.** Optimizing across the value chain from crops to ingredients to end products will set up plant-based food production for success. Agricultural cooperatives being connected with ingredient producers, company collaborations being funded through innovation clusters, and dedicated centers being built for sustainable protein production are encouraging signals that the industry is maturing.

For a comprehensive view into the current state of the science in plant-based meat, visit GFI's Science of plant-based meat page.

Research publication and patent trends across the sector

Publication analyses reveal that plant-based research has contributed the bulk of alternative protein literature in the last 10 years. The steady rise in publications related to plant-based alternatives, including hybrid and blended products, between 2014 and 2020 has given way to dramatic increases from 2020 to 2024. More than 70 percent of the literature on plant-based meat was published after 2015, and more than 50 percent after 2020, demonstrating that research in the field is in a state of rapid expansion.

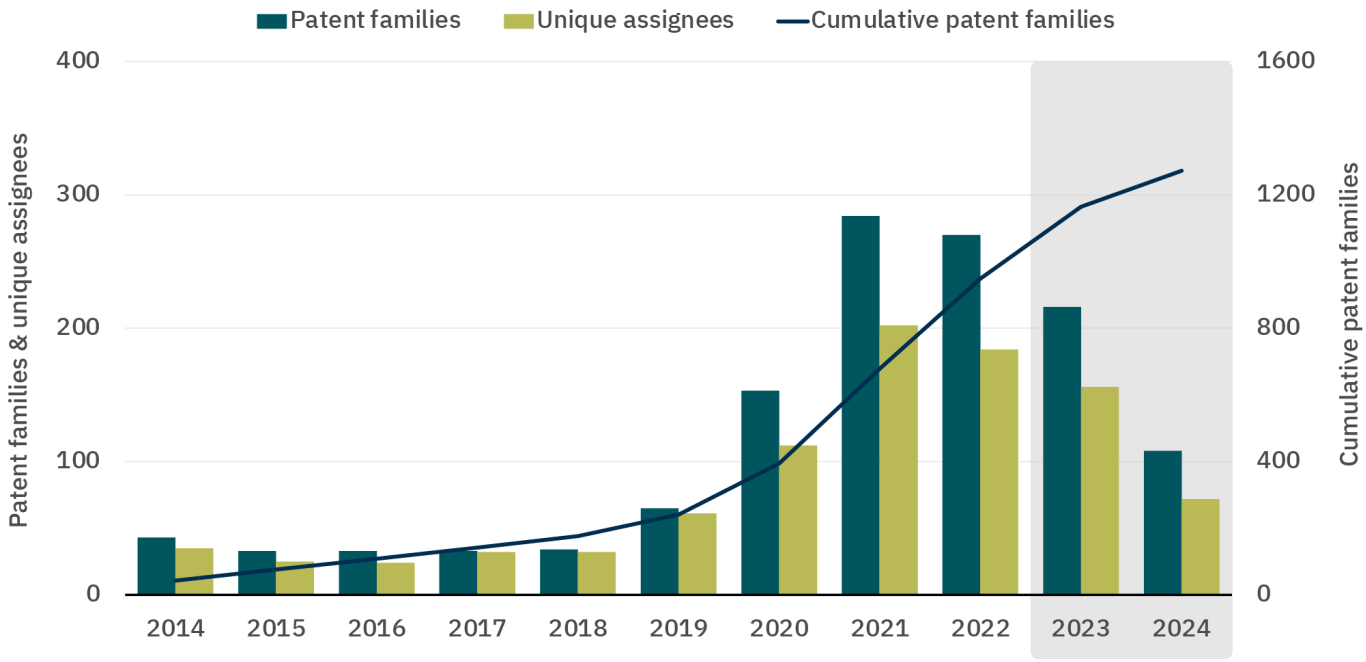
Figure 15. Papers on plant-based alternatives by year



Research articles that discuss plant-based, hybrid, and blended alternatives for food from 2014-2024. Source: GFI analysis of data from Dimensions.ai.

Figure 16. Patent applications (annual and cumulative)

by filed year and patent families



Annual and cumulative plant-based patent filings from 2010 to 2024 by application filed year and technology focus, as well as annual patent family publications. Applications represent total unique patent filings across jurisdictions. Gray area: Incomplete data for 2023 and 2024. Applications filed in 2023 and 2024 could have delayed publication and not accurately inform total patents filed in those years, since patent filing publications can be delayed up to 18 months after filing. Data sourced from Dimensions, an interlinked research information system powered by Digital Science.

Patent landscape analyses show a downturn in new patent applications related to plant-based meat in 2023 and 2024, though the number of new filings in the last three years is still among the highest to date. Global funding reductions for alternative proteins and an 18-month publication lag after filing may contribute to the observed slowdown. However, the trend in plant-based meat patents closely mirrors that of the food and agriculture industries as a whole, with both experiencing a period of growth followed by a recent downturn. This decline suggests a broader slowdown in food-related patent activity, possibly as a result of shifting investment priorities and economic pressures.

In addition, large, established companies dominated plant-based meat applications from 2019 to 2022, suggesting that the space is becoming more consolidated, which is not unexpected. Food and agriculture industries typically undergo consolidation over time, another trend mirrored by the plant-based industry. The largest filers, such as Nestlé and Cargill, continue to innovate on a broad range of technologies, including soy, wheat, and fermented pea proteins, while others, such as Roquette, focus more narrowly on pea protein innovation.

Refining plant protein production

Innovations for protein sources focused on removing off-flavors and off-colors without sacrificing protein yield, quality, or functionality:

- **Pea protein innovation continues: Roquette**'s four new pea protein ingredients have complementary benefits for plant-based foods, especially meat. Two textured proteins can replicate firm beef grounds or juicy, small meat chunks such as fish. An updated refined isolate ingredient for meats, spreads, and desserts has enhanced gel and emulsification strength and 30% lower sodium. Finally, their first hydrolyzed pea protein for beverages and other products with softer textures can be used as a growth factor and nitrogen source in fermentation. Many of Roquette's earlier pea protein ingredients are designed/used for beverages, dairy alternatives, and baking; these innovations offer new options for meat manufacturers.
- **Faba bean protein is an emerging ingredient of interest**: Faba beans have favorable neutral taste, light color, high protein content (20%-25%), accessible genomics for straightforward breeding, and, like peas, are nitrogen-fixing pulses that benefit soil health. **Roquette**, **Bunge**, and **Wide Open Agriculture** leveraged these benefits in their new faba bean protein isolates. **Roquette**'s are made using water-based fractionation, while Bunge applies dry fractionation, demonstrating that these versatile ingredients can be processed with different methods. **Integra** broke ground on a faba bean protein dry fractionation facility, with the goal of producing 15,000 metric tons annually—one of the first industry examples available pointing to already moderate scaling possibilities.

Other rising plant protein sources include:

- Those from high-volume sidestreams and their functionality benefits:
  - Canola protein isolate: Highly digestible (PDCAAS = 1), good emulsification capabilities.
  - Sunflower protein isolates: Neutral flavor, high fiber content.
  - RuBisCO from saltbush leaves: RuBisCO is the most abundant, complete plant protein in the world, and has gelation and emulsification capabilities.
- Rapid-growing aquatic plant duckweed is also a good source of RuBisCO protein, and **Plantible** is expanding their 100-acre facility to produce meat alternatives and baking egg replacements with duckweed RuBisCO.

Scaling plant protein ingredients

To create and scale these new ingredients, researchers are innovating raw material processing into functional food components using technologies such as:

- **Dry fractionation: Bunge** and **Integra** use air classification and other dry fractionation methods to avoid solvent use and spray drying and save energy. A **University of Saskatchewan** review outlines the benefits versus traditional wet fractionation, which typically produces higher protein ingredients.
- **Hydrothermal and other water-based methods:** Water-based fractionation eliminates other solvents, which have potential mineral absorption, production cost, and functionality benefits. **The Mineral Shift** project is applying a hydrothermal treatment to improve mineral bioavailability in grains.
- **Ultrasound:** As reviewed by **University of Vienna**, **University of Massachusetts**, and **Ahora Health** collaborators, ultrasonic processing is used to debitter ingredients, remove pigments, and improve protein ingredient digestibility.
- **Enzymatic degradation and modification:** Enzymes can improve plant protein extraction and functionality. **ETH Zurich** researchers demonstrated that adding hemicellulases and other fiber-degrading enzymes decreased the viscosity of pea protein concentrate—functioning more like a more purified isolate capable of supporting more complex textures.

Early in the year, the determination that China's pea protein was dumped onto the U.S. and Canadian markets and unfavorable weather conditions in Europe brought uncertainty around the pea protein supply chain, while soy and wheat protein ingredients and their associated secure supply chains remained popular options. Other plant proteins offer complementary choices but underdeveloped supply chains may lead to procurement bottlenecks, as demonstrated in the pea supply chain disruption aftermath. Researchers responded by scaling and improving pea, faba bean, and other novel protein production globally and with emerging technologies.

Read GFI's plant-based meat ingredient optimization deep dive to learn about how agricultural inputs are processed and functionalized for plant-based meat.

Components improved by looking at and beyond extrusion

Extrusion is a common technique in food processing that is being optimized for plant-based meat production. Researchers are optimizing plant protein texturization to deliver meaty mouthfeels by forming smaller plant protein fibers and enhancing the scale of these techniques:

- **First-of-a-kind merge of texturization technologies: Clextral** developed technology for larger, softer, more fibrous plant-based meats and fish by combining shear cell fibrillation and continuous extrusion. The resulting softer structures achieve a more satisfying bite while enabling the production of wider whole cuts, such as steaks and fillets.
- **Retrofitting existing extrusion facilities** can help affordably scale plant-based meat production. **Happy Plant Protein** empowered local food manufacturers to produce plant proteins with their existing extrusion machinery.
- **New manufacturing equipment enables more control: Coperion** created a cooling die for manufacturing plant-based meats with a modular design that allows access to different segments of the cooling die at any time during the process. Protein structuring mainly occurs along the lengths of the cooling die, so this segmented design will allow more insight and control to reduce trial-and-error in R&D production.
- **Modulating texture by leveraging proven gas-assisted extrusion:** Gas-assisted extrusion has been used to enhance the texture of puffed snacks and breakfast cereals. **University of Manitoba** researchers, including GFI grantee Dr. Filiz Koksel, used nitrogen gas injections to reduce extrudate density and impart desired chewiness and hardness in the high-moisture extrudates.
- **Emerging texturization technologies:** Other companies proved the scalability of emerging texturization technologies, such as shear cell, 3D printing, and automated, continuous processes. Spinning, directional freezing, submerged fermentation, injection molding, and imprinting are promising methods that produce smaller protein fibers, enhance meat grain formation, and provide potential cost benefits, but more evidence is still required to prove their scalability.

Table 6: Reported throughput per production line of various texturization technologies used to produce plant-based meat products

Company	Texturization technology	Throughput per production line (kg final product/hour)
Rebellyous Foods	Automated, continuous process	2200
Clextral	High-moisture extrusion (2023)	1200
Rival Foods	Shear cell	1000
Clextral	Extrusion and shear cell combination	400
Cocuus Foods	3D printing	250

Alternative fats can enhance mouthfeel and nutrition

Animal-free fats benefit plant proteins by improving their juiciness and flavor profiles, and alternative fat researchers continued to prioritize three parameters:

1. **Realistic fat and protein marbling: Planteneers** and **Handtmann** are making plant-based marbled meat with fibrous structures using a flexible coextrusion system.
2. **Improving cost parity and environmental performance: Savor** is creating solid animal-free fat from CO_2 and hydrogen, reducing input costs and environmental impacts by applying existing commercial-scale thermochemical processes and sourcing diverse carbon inputs.
3. **Offering nutrition benefits: MicroLub** is applying research developed at the **University of Leeds** to use plant proteins and water to mimic the mouthfeel of fats, reducing fat content in products.

Current plant-based fat options, such as coconut oil, are poor animal fat mimics and have the potential for supply chain bottlenecks. However, reaching price parity with inexpensive commodity oil ingredients is difficult with current techniques. Alternative fat formulations, such as oleogels, emulsions, fermentation-derived, or cultivated fats, must become more affordable or offer unique selling points to overcome any price differences, such as improved nutrition, taste, and formulation capabilities. Substituting animal fats and tropical oils with alternative fats often greatly reduces saturated fat content, provides better oil retention and juiciness, and can be tailored for different end products. Animal-free fats, especially those replacing coconut oil, should be developed to further reduce the environmental impacts of plant-based foods.

Texturization is a critical step for recapitulating familiar meat mouthfeel, typically accomplished with extrusion, though necessary and promising alternatives are being explored. Researchers are focused on improving microstructure properties, ensuring consistency (especially for ingredients besides soy and wheat), incorporating fats (see: “Alternative fats are needed to enhance mouthfeel and nutrition”), and optimizing scalability.

Read GFI’s plant-based meat end product formulation and manufacturing deep dive to learn about how plant proteins are texturized for meat production.

Importantly, co-developing novel protein cultivation, fractionation, and texturization, as Protein Industries Canada is doing for Canadian faba beans, sets the foundation for compounding process efficiencies.

Read GFI’s alternative fats explainer to learn about how these fats are made and the contributions of GFI’s research grantees.

Health and nutrition: Insights from randomized control trials and meta-analyses

Randomized controlled trials (RCTs), provide the most robust evidence on the causal relationship between dietary interventions and health outcomes. RCTs published in 2024 were positive or neutral on the effects of plant-based meat compared to animal-based meat. For example, one study demonstrated the benefit of substituting plant-based meat for animal-based meat in patients with liver cirrhosis. Two more RCTs exploring the impact of plant-based diets on muscle synthesis rates in older people found that diets containing plant-based meat stimulated comparable protein synthesis rates to conventional meat in older people, as part of calorie and protein-matched meals.

In contrast, a similar study using calorie- and protein-matched whole-food plant-based meals was found to underperform on this metric compared to conventional meat. One other RCT in Singapore showed no discernible health implications of substituting plant-based meat for animal-based meat, highlighting the need for more research to understand what nutritional features of these foods can offer the most benefit, and how these benefits change in different populations.

Most notably, however, two systematic reviews of RCTs, including the first meta-analysis (the gold standard in medical evidence synthesis), demonstrating cardiometabolic health benefits of plant-based meat, were published in 2024. These studies pooled the findings from all seven published RCTs to date, covering a total of 369 participants including the study in Singapore listed above. The meta-analysis found consistent improvements in cardiovascular disease risk factors such as total cholesterol, LDL (bad) cholesterol, and body weight when animal meat is replaced with plant-based meat. The findings for LDL cholesterol were particularly promising, as the observed changes were not only statistically significant, they were also sufficiently pronounced to constitute a clinical significance—namely, they offered a meaningful medical benefit. Additionally, sodium content and food processing, which are often negatively perceived aspects of plant-based meat, showed no evidence of negating potential cardiovascular benefits.

A third systematic review also evaluated the broader body of RCT evidence on the health impacts of replacing conventional meat and dairy with plant-based counterparts, including a breakdown of nutritional composition, observed health impacts, environmental impact by base ingredient, and a breakdown of results by publicly and privately funded studies. The results were similarly positive for plant-based meat, finding potential advantages for gut health and the microbiome in addition to the cardioprotective effects seen in the previously mentioned studies. Findings for plant-based milk were more varied and highlighted the importance of more consistent fortification.

Systematic reviews synthesize the findings from multiple independently conducted studies to draw more accurate and reliable conclusions than any one individual study. Meta-analyses take this one step further, pooling and reanalyzing the data as one combined sample. They require a sufficient number of studies that share a common focus to ensure meaningful synthesis, and we are only now reaching that minimum. Though the meta-analysis released in 2024 is encouraging, more research is needed to better understand and continue to improve the health benefits of plant-based alternatives. Such research can spur product reformulation efforts to use even more nutritious crops, ingredients, and processes.

Get to know some of the researchers conducting these pivotal studies in the GFI Europe Meet the researcher series.

Reconsidering ultraprocessing

Despite encouraging findings, the industry faced pressure to develop healthier products while grappling with the complexities of the ultraprocessed foods (UPF) debate and public perception, made worse by misleading media coverage. We should consider important nuance and historical context in this discourse: for example, the NOVA system, which gave rise to the term UPF, is rooted in epidemiology rather than nutrition. Moreover, while the UPF definition is not nutritionally based, it commonly refers to industrially produced foods high in calories, fat, sugar, and salt, and low in fiber. Plant-based meats tend to be lower in saturated fat and calories than equivalent animal meats, while also being a source of fiber. Sodium levels are often higher than in unseasoned, unprocessed animal meats, but not processed meats. Nutrient-based classifications like Nutri-Score or Nordic Keyhole could be more practical tools to guide food-level evaluations.

Environmental and social impact: Taking a holistic view

The benefits of alternative proteins from environmental, health, and sociocultural perspectives were assessed in combined systematic reviews, and a special feature from the Academy of Sciences addresses the challenges of building up supply chains and improving consumer acceptability. These reports show that plant-based alternatives can be both healthier and more sustainable. For example, plant-based alternatives could help fight iron deficiency while reducing dietary greenhouse gas emissions. While several such co-benefits were identified, they are not universal, as nutrient profiles vary considerably across products. However, adopting healthy and sustainable diets could have major socioeconomic benefits by reducing premature death due to multiple diseases.

Taking an even wider lens, the World Bank released a comprehensive global blueprint to reduce the agrifood system's contributions to climate change. Alternative proteins have the second-highest mitigation potential among solutions that cost-effectively limit agrifood emissions while maintaining global food security, outranked only by afforestation/reforestation and followed closely by reduced deforestation.

Because alternative proteins require significantly less land than conventional proteins, they can also enable afforestation and reduce deforestation.

Although plant-based alternatives are commonly assessed from environmental, nutritional, technical, and social perspectives, these analyses are rarely combined. The combined analyses published this year uncover impactful co-benefits, tradeoffs, and other considerations by geography, socioeconomic status, and culture. These insights provide compelling, specific calls to action to mobilize governments around the world and stakeholders across the value chain. The reports urgently call for government investment to reach the full potential of alternative proteins. Encouragingly, the payoffs are estimated to be much larger than the costs. The World Bank calls for annual investments in an array of mitigation actions, including plant-based meat and dairy, to increase by 18 times to $260 billion a year to halve current agrifood emissions by 2030, but the health, economic, and environmental benefits could be as much as $4.3 trillion, a more than 16 to 1 return on investment.

Scientific ecosystem growth: Connecting the dots

New global tools to connect and grow the plant-based industry were published this year:

- Alt-Meat published their inaugural supplier directory, which includes a full range of vendors from ingredient and equipment suppliers to sanitation and packaging contractors. It also covers top educational and research institutions with alternative protein-focused programs and innovation centers.
- GFI released an interactive alternative proteins ecosystem map that includes specialized companies, researchers, and active student groups in the Alt Protein Project. It allows users to easily visualize and interact with geographical "hot spots" of alternative protein activity across the globe.
- GFI APAC's new Alternative Protein Career Pathways tool details the skills required for jobs across plant-based, fermented, and cultivated meat production platforms, providing guidance to students, mid-career professionals, and others interested in entering the field.

New research centers and collaborations were announced across the globe with a notable investment of $90 million by the Bezos Earth Fund. The funds were pledged to three Bezos Centers for Sustainable Protein at North Carolina State University, Imperial College London, and the National University of Singapore, which will bring stakeholders together across disciplines to develop and commercialize alternative proteins.

Plant-based product development is historically a diffuse enterprise. Crop developers and cultivators are disconnected from ingredient manufacturers, which are detached from product developers and manufacturers. However, centralization and communication across all parts of the value chain are necessary to bring plant-based products closer to sensory and price parity. Though plant-based-specific academic research centers, such as PAN Sweden, which received funding to continue this year, remain uncommon, the tools and research centers launched this year drive toward interconnectedness and collaboration between discrete disciplines that are each essential to create the best plant-based proteins.

Plant-based life cycle assessment and land use studies explore environmental benefits

GFI published analyses this year that explore the environmental and land use benefits of alternative proteins:

- Our open-access comparative life cycle assessment of plant- and animal-based meats provides a comprehensive, granular view of the environmental impacts of plant-based meat, comparing dominant inputs and processing methods and using real-world, commercial-scale data. It shows that, on average, plant-based meat has 89% less environmental impact than animal-based meat and offers significant environmental benefits across all impact categories, regardless of how it is made.
- Two analyses spotlight the climate and biodiversity benefits of alternative protein land use efficiency in the U.S. and Europe. Incorporating alternative proteins into the global food supply would enable large-scale restoration of habitats, create more space and flexibility to shift land use to nature-based solutions, and improve national self-sufficiency.

Assessing the sensory landscape

Sensory parity—achieving taste, texture, and overall eating experience equivalent to conventional products—is the most critical and challenging factor determining the success of alternative proteins. Two essential enablers of progress in this space are sensory evaluation and open-access data. In 2024, the world's largest publicly available sensory analysis of plant-based meats was published by Food System Innovations' NECTAR initiative, establishing new benchmarks for innovation and transparency in the sector. The study shows that most plant-based products still have room to win over consumers, but top performers in every category show what's possible with more R&D—the average plant-based nugget has already achieved taste parity with its animal-based counterpart. The study identified specific R&D areas in flavor, texture, and appearance for each of the five categories surveyed, with meatiness needed in all five. It also identified opportunities in blended meat products. By systematically leveraging these and other sensory insights in a data-driven approach, meaningful innovation will accelerate progress toward sensory parity.

In summary

Considerable technical advancements were made across the value chain, from refining and scaling plant protein fractionation processes to developing alternative fats and improved texturization techniques. In particular, significant advancements in texturization were achieved in 2024, enhancing the development of novel textures in plant-based meat and expanding the reach of products made with 3D printing, shear cell, and spinning technology to more consumers' plates.

However, achieving sensory and cost parity for plant-based meat remains a long and challenging journey; while attainable, it is not guaranteed. Collective action and mobilization from all stakeholders are essential.

The industry is beginning to establish its own fit-for-purpose supply chains in pea and faba protein production, and even laying the foundation to vertically integrate through new consortia. The ecosystem is poised to grow more interconnected through collaborations and new dedicated centers for the advancement of alternative proteins.

Although 2024's developments signaled exciting years ahead for the plant-based industry, the importance of continued collaboration cannot be overstated. Further partnerships across the ecosystem are essential to foster innovation, build credibility and trust, and accelerate the industry's growth.

Government and regulation

Overview

Governments around the world support food production through a variety of mechanisms, including publicly funded research, investments into the scale up and commercialization of production facilities, and fair and easy-to-access regulatory frameworks.

Globally, the regulatory environment for plant-based products continues to impact the marketability and appeal of these products. In 2024, governments such as Brazil, China, and the U.S. federal government worked to clarify their respective regulatory environments for plant-based foods. While some governments proposed restrictive labeling regulations for plant-based products in 2024, so far, courts and regulators have generally decided against banning the use of meat, egg, and dairy terms on plant-based product labels.

In terms of public investment in the sector—public funding that yields dividends in job creation, food security, and economic growth—investment in plant-based proteins was primarily split between early-stage research and late-stage production-building capacity in 2024. While several governments indicated general support for plant-based proteins this past year—for example, Denmark published their Strategy for Green Jobs in Agriculture and Related Industries, China published a draft industry standard on General Principles for Plant-Based Foods, and India published its BioE3 policy—there is still a need to back this support up by investing in research and other resources that would make plant-based products more palatable and affordable for consumers.

Global public investment

Americas

Canada continued to demonstrate world leadership in supporting their plant-based protein sector, with Protein Industries Canada announcing tens of new projects to develop new products, enhance food nutrition and desirability, build new facilities, forge new alliances within and between sectors, and increase market demand for plant protein. The United States and Brazil likewise funded several projects to improve the taste and texture of plant-based products. Despite the United States' limited capacity for domestic fractionation of crops into functional protein ingredients and looming trade disruptions affecting imports of these ingredients from Canada and China, little government action has been taken to support the construction of new facilities.

- Protein Industries Canada and Innovate UK collaborated on a joint research call to support plant protein innovation, totaling £6.5 million ($8 million).
- Protein Industries Canada announced about 20 new or renewed projects to advance the plant protein sector, drawing from last year's CAD 150 million ($110 million) boost to the program.
- The U.S. Department of Energy announced a grant to Tender Foods to develop their "novel low-energy, lower-carbon fiber spinning technology" for plant-based protein texturization.
- The National Science Foundation collaborated with agencies from Finland on "FoodID," a project to develop new plant- and microbe-based foods, with funding of $2 million.

Europe

Denmark led the region in support for plant-based foods, allocating more funding for its Plant-Based Food Grant, including plant-based foods in its Strategy for Green Jobs in Agriculture and Related Industries, and committing to accelerate technological advancements in agriculture. Plant-based protein research and development continued at a steady clip in Europe, with the United Kingdom, Germany, Sweden, and the European Union funding the bulk of 2024's research in the area. Research programs focused on making use of new resources, such as seaweed and specialty legumes, in light of efforts to produce more food domestically across the region. Governments also supported startups to develop plant-based products and collaborations.

- In February 2024, the Danish Government published its Strategy for Green Jobs in Agriculture and Related Industries. Plant-based foods and biosolutions represented two of the five "areas of special potential for Denmark."
- The Danish Government and Parliament have added another DKK 60 million ($8.5 million) of funding to the Plant-Based Food Grant, bringing the total allocated up to approximately DKK 1.29 billion ($181 million).
- The Portuguese government has committed to drafting a National Strategy to Promote Plant-based Proteins as part of its revised National Climate and Energy Plan 2030.
- Research center PAN Sweden and agricultural cooperative Lantmännen have received SEK 40 million ($3.9 million) in funding from the Swedish government research council Formas, allowing them to continue their work on plant-based proteins.
- In August 2024, BBSRC and Innovate UK launched the National Alternative Protein Innovation Centre (NAPIC), backed by £16 million ($20 million) of public investment. The University of Leeds, the University of Sheffield, Imperial College London, and the James Hutton Institute will lead the center's work, which focuses on three alternative protein pillars, from discovery science through to commercialization.

Asia Pacific

Plant-based proteins experienced a plateau in public investment across the Asia Pacific region, with some notable exceptions. Australia and several state governments continued to support the sector, building domestic capacity to process them into high-quality, functional ingredients. The state government of Maharashtra in India also supported plant-based proteins for economic development, while South Korea and Singapore funded research to improve the taste, price, and nutrition of these products to enhance consumer appeal.

- **India:** The State Government of Maharashtra, supported by the World Bank, instituted a Commodity Stewardship Council on Pulses to build the lentils and legumes value chain in the state. They recognized plant protein extraction as one of the most promising areas for development.
- **Singapore**: The Singapore Food Agency opened a second Future Foods call for proposals, this time focusing on plant-based and fermentation-derived alternative proteins and research to "increase the consumer acceptance of future foods by improving their flavour, texture, and nutritional properties."
- **Korea:** The Ministry of Agriculture, Food and Rural Affairs also awarded funding to several projects, including six alternative protein research topics (three in plant-based, two in cultivated meat, and one in fermentation) in their multiyear high-added-value food technology development program.

- **Japan**: The Ministry of Agriculture, Forestry and Fisheries selected 13 projects under its Small and Medium Enterprise Innovation Promotion Program, with two projects focusing on plant-based food technologies. One notable recipient, Deats Food Planning, is developing plant-based foods using konjac (a gelatinous root vegetable) and okara (a fiber- and protein-rich soybean byproduct) to enhance texture and nutrition.

When it comes to addressing global challenges, plant-based proteins are a powerful market-based solution. Singapore's new funding call, which focuses directly on improving the consumer appeal of these products, precisely identifies that the key to ensuring domestic food security and environmental security is through consumers' appetites.

Regulation by country and region

Labeling regulations for plant-based foods continue to impact how these products can be marketed and sold. In many cases, plant-based meat and dairy companies face censorship from local and national regulators. However, some of these policies have been successfully challenged in court, and governments are working on legislation to allow clear labeling of these products that does not place them at a competitive disadvantage.

Brazil

The Brazilian Ministry for Agriculture and Livestock (MAPA) held a public hearing in September 2024 to discuss the proposed regulation of plant-based products. The public hearing led to the first draft of what may become the national legal approach to alternative proteins and the official enrollment of ANVISA (Brazil's Health Regulatory Agency) on the matter. The draft regulations would establish minimum identity and quality requirements, labeling rules, and registration obligations. The upcoming legislation is expected to result from the joint work of ANVISA and MAPA.

Chile

In January 2024, the Chilean Court of Appeals of Valdivia dismissed a lawsuit filed by the Association of Milk Producers of the Los Ríos Region, which sought to prevent Chilean plant-based dairy company NotCo from using the term "milk" on their plant-based beverages, which are labeled as "NotMilk." The court of appeals found that NotCo's plant-based milk label clearly states the product is not milk and is unlikely to confuse consumers who want to purchase cow's milk, setting a valuable precedent for other plant-based products in Chile.

China

In November 2024, the Chinese Institute of Food Science and Technology issued a draft industry standard on General Principles for Plant-Based Foods. Once finalized, this will be the first industry standard in China designed specifically for plant-based foods.

European Union (EU)

While EU consumers largely embrace plant-based products, the European Union prohibits companies from labeling purely plant-based dairy products with terms such as "milk," "cheese," and "butter." Plant-based dairy manufacturers are allowed to label their products as "alternative to [milk, butter, yogurt, etc.]." Some EU countries sought to further restrict plant-based labeling in 2024:

- **Austria**: In February 2024, the Austrian administrative court dismissed a case brought against alternative seafood company Revo Foods, an Austrian food-tech startup that makes plant-based seafood using 3D printing technology. The lawsuit claimed that the name of the product "Revo™ Salmon – 100% Plant-Based with Pea Protein" could mislead consumers into thinking the product was conventional salmon. The court sided with Revo Foods, agreeing that the labeling of their salmon was not misleading to consumers.

- **France:** The French government issued a decree in February 2024 seeking to ban certain words in plant-based product marketing, including "steak," "cutlet," and "butcher," among many others. However, in October 2024, the European Court of Justice ruled against the ban, setting the precedent that, according to EU regulations, these terms cannot be banned unless they have national-level legal definitions that prevent the use of the terms on plant-based products. Following this ruling, the French government annulled the decree in January 2025.

Additionally, in November 2024, the European Food Safety Authority Panel on Genetically Modified Organisms found Impossible Foods' soy leghemoglobin to be safe for human consumption. The ingredient is made from modified yeast using precision fermentation and is what lends the signature "bleeding" quality to their alternative protein products. The soy leghemoglobin is now pending final approval by the European Commission and the EU member states.

India

In August 2024, the Indian Union Cabinet approved the BioE3 policy (Biotechnology for Economy, Environment, and Employment Policy for Fostering High-Performance Biomanufacturing) with alternative proteins (including plant-based proteins) as one of the key thematic sectors. The policy provides a framework for Indian institutions, universities, startups, and industries to engage in innovation across six sectors, including "functional foods and smart proteins." This policy has the power to act as a catalyst for plant-based protein industry growth in India.

United Kingdom

In December 2024, a four-year legal dispute between Oatly and Dairy UK Ltd. concluded with the UK Court of Appeal decision to prohibit Oatly from using the word "milk" as part of their slogan "Post Milk Generation" on product packaging. The ruling stated that Oatly's slogan violated British trademark regulations and the EU's Regulation No 1308/2013, which states that the term "milk" can only be used to describe products exclusively from "*the normal mammary secretion obtained from one or more milkings.*" Unless the ruling is appealed to the UK Supreme Court, it is binding and may impact how other plant-based dairy products use dairy descriptors in their labels or marketing.

United States

Federal regulations

In January 2025, the U.S. Food and Drug Administration (FDA) released draft guidance on the Labeling of Plant-Based Alternatives to Animal-Derived Foods. The guidance would apply to plant-based meat, seafood, eggs, and dairy (other than milk, which was addressed separately by FDA in 2023). The draft guidance states that plant-based food labels can include the names of animal-derived foods, so long as the labels are not misleading. The draft guidance also urges companies to change their naming conventions to include the primary plant source(s) in product names, e.g., "chia and flaxseed eggless scramble," instead of only using broad qualifiers such as "meatless" or "plant-based."

Although the draft guidance does not have the force of law, it reflects FDA's thinking on the laws and regulations it implements. FDA is accepting public comments on the draft guidance through May 2025, and has yet to issue any final rule on plant-based product labeling.

State regulations

In recent years, several U.S. state governments have introduced or passed laws to censor or prohibit the use of conventional meat and dairy terms on plant-based product labels. GFI monitors these bills and fights unfair label censorship laws. In 2024, there were litigation updates in three states:

- **Missouri**: GFI worked with the ACLU and Animal Legal Defense Fund (ALDF) on behalf of Tofurky to sue Missouri in federal court in 2018, alleging that their restrictions on plant-based labels violated the company's right to free speech. In March 2024, the case concluded when the federal district court held that the law only prohibited inherently misleading speech, and that consumers are not confused by plant-based labels when such labels contain appropriate qualifiers such as "plant-based" or "veggie."
- **Oklahoma**: ALDF and the Plant Based Foods Association (PBFA) challenged a label censorship law in Oklahoma in 2023, alleging that the law was vague, overly burdensome, unconstitutional, and preempted by federal law. In June 2024, the district court dismissed the case without prejudice due to lack of standing, since PBFA had not suffered a concrete injury caused by the state's actions. This ruling followed the Supreme Court case opinion in *FDA v. Alliance for Hippocratic Medicine*, which held that expending organizational resources does not necessarily constitute an injury sufficient to give that organization standing.
- **Texas**: GFI and ALDF challenged a Texas label censorship law in 2023. In September 2024, the U.S. District Court of the Western District of Texas rejected the state's attempt to dismiss this lawsuit, and litigation remains ongoing.

Global cooperation and coordination

Codex Alimentarius Commission: In 2024, the Codex Committee on Nutrition and Foods for Special Dietary Uses (CCNFSDU) considered a new work proposal to develop general guidelines and principles for the nutritional composition of plant-based foods. The proposal was ultimately tabled, but is expected to be brought again to the next CCNFSDU meeting in 2026.

Outlook

Overview

The plant-based sector has achieved significant progress over the past decade, but the industry remains in its early stages. Plant-based meat and egg products represent only a tiny fraction of the global market, and sales, investment, and consumer adoption headwinds have slowed the industry's growth in recent years. Following rapid growth in the 2000s and 2010s, plant-based milk's share of the global milk market has also plateaued.

Plant-based meat, eggs, and dairy use far less land and water, reduce emissions, and mitigate certain supply chain risks versus their conventional counterparts—all while presenting new opportunities for farmers. But to fully realize these benefits, better-tasting and lower-cost products, more public and private funding, and wider availability are needed. Progress and challenges occurred across these areas in 2024.

On product taste, plant-based sensory study results demonstrated that matching and even surpassing the taste of conventional meat is achievable for at least some plant-based products, even though average plant-based meat products still score below animal-based benchmarks. On price, the average price gap between conventional and plant-based meat in U.S. retail narrowed slightly in 2024, but average prices per pound remained approximately 80 percent higher than conventional meat prices. More work is needed to close these taste and price gaps to encourage consumer adoption.

As companies continue to innovate on product taste, nutrition, and price, private investments in plant-based companies fell in 2024, and public investment for plant-based proteins—while elevated versus historical levels—did not fully compensate for the decline. Those factors, paired with the technical and cost hurdles inherent to any nascent sector, present runway challenges for many companies, underscoring the need for multipronged financing strategies from public, private, and philanthropic sources.

Despite declining funding levels, companies from startups to large CPGs launched plant-based products ranging from ribeye to caviar, opened facilities across the value chain, and established product development and distribution partnerships in 2024. Some European retailers boosted plant-based protein sales by implementing sustained price cuts as part of a dedicated effort to diversify protein supplies and increase plant-based sales. Multiple alternative protein innovation hubs and centers of excellence opened in 2024, enhancing opportunities for future innovation and collaboration. These developments pushed the sector forward in 2024 and laid the groundwork for future progress.

So, what does the future hold for the plant-based protein industry? The remainder of this section will explore the category's outlook in 2025 and beyond.

The year ahead

An evolving sales landscape, strategic openings in the conventional protein markets, and a changing financing environment characterized 2024, and those trends are likely to continue in 2025.

Global retail sales for plant-based meat, seafood, milk, yogurt, ice cream, and cheese continued to grow in 2024, but select regions, including the U.S., have experienced consecutive years of plant-based meat sales declines. To reach more consumers, plant-based foods need to compete with other food products across several metrics. The products that consumers perceive as good value due to a combination of taste, price, nutrition, and other benefits will have the best chance to succeed in the marketplace. Products that fall short of consumer expectations may continue to struggle.

At the same time, ongoing supply and disease pressures in the global egg and U.S. beef and dairy markets could present an opportunity for plant-based protein brands to reintroduce their products to consumers or partner with companies looking to diversify their supply chains. If successful, these efforts could boost sales for individual manufacturers.

The financing environment for plant-based protein will also continue to evolve in 2025 as companies adjust to lower average private funding levels. In response, companies will need to identify creative strategies to drive innovations. Optimizing product formulations, establishing partnerships with well-financed organizations, and streamlining supply chains could all extend existing resources. As companies learn to navigate this new financing landscape, those unable to access funding may look to downsize, consolidate with other companies, or close entirely. It will take time to identify the most viable financing paths, so some industry consolidation may occur in 2025.

Despite potential consolidation, plant-based meat brands will continue to refine existing products in response to consumer needs while also expanding into new formats and occasions in 2025. This will allow retailers to further optimize their assortments while offering consumers access to new and innovative products.

Long-term outlook

The plant-based industry still has a long road to parity with conventional meat when it comes to price, taste, and convenience. Companies need to increase scale, lower costs, and communicate the value of their products and production methods to consumers.

Progress occurred on all these fronts in 2024. As plant-based companies continue to navigate this landscape, an immense opportunity remains. Household penetration for plant-based protein products generally remains low, and aside from a 14 percent market share for plant-based milk in U.S. retail, plant-based products hold a tiny share of the global market. Market shares are in the low single digits across a handful of categories in the U.S, and in the mid-to-high single digits in several western European countries. Consumers remain open to plant-based products if they can meet expectations around key metrics like taste, price, accessibility, and health, presenting a sizable opportunity for growth.

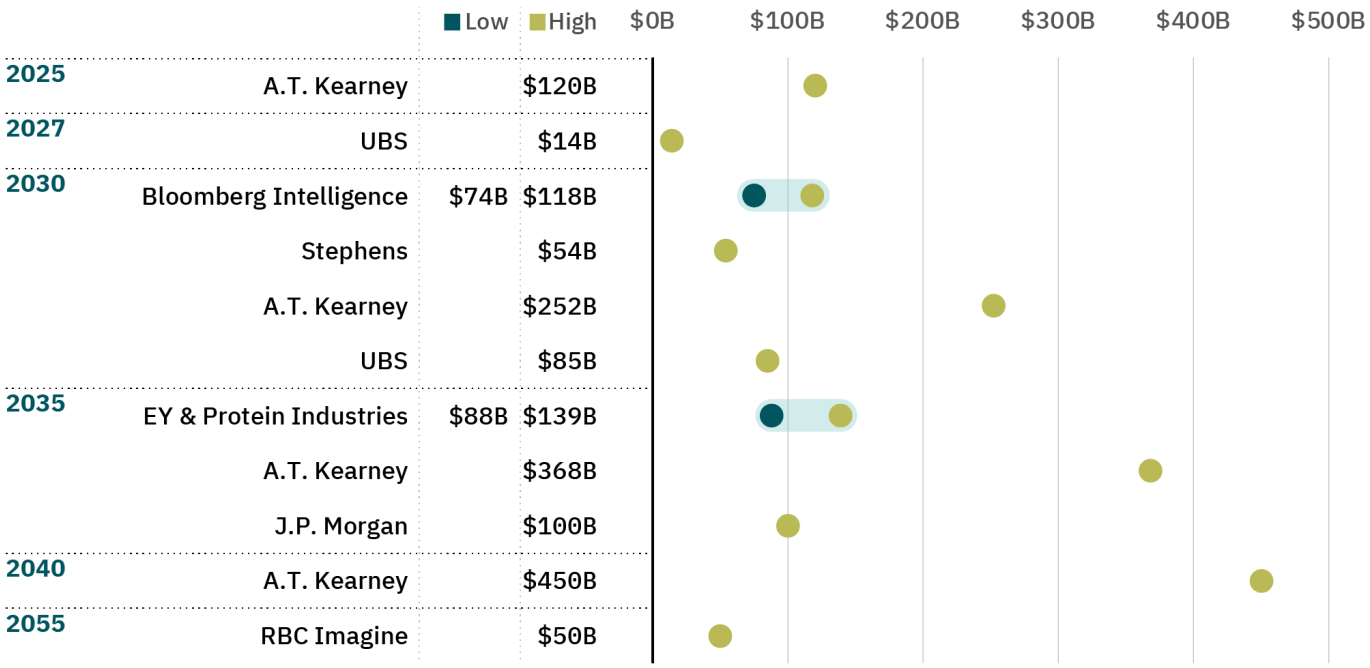
In the meantime, consumers' appetites for meat continue to grow. The Food and Agriculture Organization of the United Nations expects meat consumption worldwide to rise by at least 50 percent by 2050 (from 2012 levels). Multiple strategies will be needed to meet the growing global demand for meat while staying within planetary bounds. Given sufficient funding and regulatory support, plant-based meat, seafood, eggs, and dairy have the potential to provide consumers with the products they love while increasing food security, promoting biodiversity, and protecting public and planetary health.

External projections

External forecasts for plant-based meat, seafood, eggs, and dairy markets project a wide range of market sizes, though some of these forecasts were published several years ago and no longer reflect probable outcomes on the timescales provided. Delivering on plant-based products' potential to meet growing global meat, dairy, and egg demand would necessitate public and private investments many times higher than today's norms. Such increases are justified by plant-based proteins' return potential, contribution to supply chain resilience, and land and resource use benefits.

If governments and investors worldwide are committed to achieving better outcomes for citizens and consumers, they should boost investment and strengthen support to position the plant-based sector for long-term success.

Figure 17. Forecasts for the global plant-based meat industry market size



Source: A.T. Kearney; UBS; Bloomberg Intelligence; Stephens, Inc., Research Brief (3/18/2021); EY & Protein Industries; RBC Imagine.

Conclusion

The plant-based protein industry is best understood as a story still unfolding. It is a story of scientific progress amid challenges and headwinds. Of governments investing in protein innovation as part of their food security, bioeconomy, and public health goals. Of a big, bold idea turning its next page, moving ever closer to diversifying how meat is made.

A few reflections on shared values and motivations, as we lean into the critical years ahead together:

Diversifying protein provides more and better choices for consumers, not fewer.

Consumers deserve better food choices and the freedom to make them. Plant-based proteins can offer meat eaters a delicious, affordable way to diversify their diets that comes with a side of serious benefits: health and nutrition gains and a lighter environmental footprint, to name just a few. Bringing these proteins to market gives consumers greater choice, enabling them to enjoy their favorite foods made in increasingly sustainable ways.

Diversifying protein can protect our lands, waters, and wildlife.

Growing demand for meat and seafood is placing even greater pressure on farmers and fishers to produce more, at the same time as calls for halting deforestation and overfishing grow louder around the world. Plant-based proteins are land- and water-efficient, producing more food with fewer resources.

Diversifying protein can build healthy communities by reducing risks to public health and contributing to a more secure, resilient food supply.

Global threats like avian flu and other potential pandemics leave many people concerned about their health, safety, and ability to feed their families. Given the growing global demand for meat, a large-scale shift toward alternative proteins, including plant-based meats, will be central to mitigating the risk of antimicrobial resistance and future pandemics while feeding a growing population.

To be sure, multiple interventions will be needed to transform food systems at the pace and scale needed to feed a growing world. By their nature, not all will be equal in terms of impact. It's the interventions that address root causes and realities that can create genuinely transformative new futures. As the primary food and agriculture innovation that can scale similarly to renewable energy, alternative proteins are a root-cause solution that, with the right levels of support, can help meet growing global demand for meat.

To all those in this work already, thank you for channeling your time and talents to this extraordinary, still-unfolding story. You are helping to write the next chapter of a far more sustainable, secure, and just food system that present and future generations deserve.

About GFI

The Good Food Institute is a nonprofit think tank working to make the global food system better for the planet, people, and animals. Alongside scientists, businesses, and policymakers, GFI's teams focus on making plant-based, fermentation-enabled, and cultivated meat delicious, affordable, and accessible. Powered by philanthropy, GFI is an international network of organizations advancing alternative proteins as an essential solution needed to meet the world's climate, global health, food security, and biodiversity goals.

All of GFI's work is made possible by gifts and grants from our global community of donors. If you are interested in learning more about giving to GFI, contact philanthropy@gfi.org. To learn more, please visit www.gfi.org.

We focus on three programmatic priorities:

Cultivating a strong scientific ecosystem

We map out the most neglected areas that will allow alternative proteins to compete on taste, price, and nutrition. We meet these challenges by developing open-access research and resources, educating and connecting the next generation of scientists and entrepreneurs, and funding open-access research across the sector.

Influencing policy and securing public investment

We ensure that alternative proteins are a part of the policy discussion around global health, future-resilient jobs and bioeconomies, and food security. In every region where we have a presence, we advocate for public investment for open-access research on alternative proteins, and increasingly, we work to advocate for government resources to support scale up and commercialization. We also advocate for level regulatory frameworks for assessing safety and labeling products.

Engaging with industry to advance alternative proteins

We conduct research and share insights to educate the public on alternative proteins and champion their adoption by the food industry, including manufacturers, retailers, restaurants, investors, and more.